MIR-QS4
Technical Reference Manual

P/N 3100741 • REV 03 • REB 14FEB13

DEVELOPED BY	UTC Fire & Security 8985 Town Center Parkway Bradenton, FL 34202 (941) 739-4300
COPYRIGHT NOTICE	
TRADEMARKS	HyperTerminal is a registered trademark of Hilgraeve, Inc. Windows is a trademark of Microsoft Corporation.

DOCUMENT HISTORY

Date	Revision	Reason for change
14NOV03	1.0	Original release.
12AUG05	2.0	Updated manual per software release version 1.8, standardized format, and expanded information to include comments and corrections received from the field.
14FEB13	03	Rebranded for UTC Fire & Security. No other changes were made.

Content

List of figures

List of tables

Chapter 1

Introduction

Summary

This chapter provides information about this manual and other related documentation.

Content

About this manual

This manual provides information on how to install, program, and operate a QuickStart multiloop intelligent addressable/ conventional life safety control panel. It is organized into the following chapters:

Chapter 1, Introduction: This chapter provides information about this manual and other related documentation.

Chapter 2, Product description: This chapter provides technical descriptions of the control panel and its operation. It also provides descriptions of the command menus.

Chapter 3, Panel components: This chapter provides technical descriptions of the components that can be installed in the control panel.

Chapter 4, Accessories: This chapter provides technical descriptions of the accessories that can be connected to control panel.

Chapter 5, Operating instructions: This chapter provides instructions for operating the fire alarm system from the control panel CPU/Display Unit. It is intended for those who might be expected to operate the control panel in a fire alarm emergency.

Chapter 6, Installation: This chapter provides instructions for installing the fire alarm system. It is intended for trained installers who are familiar with all applicable codes and regulations.

Chapter 7, Front panel programming: This chapter provides instructions for programming the fire alarm system from the control panel CPU/Display Unit. It is intended for those trained and authorized to program the fire alarm system.

Chapter 8, Service and troubleshooting: This chapter provides instructions for servicing and troubleshooting the fire alarm system. It is intended for those trained and authorized to maintain the fire alarm system.

Appendix A, System calculations: This appendix provides worksheets for sizing standby batteries, and for calculating the maximum wire lengths for notification appliance circuits and intelligent addressable loops.

Appendix B, Barcode library: This appendix provides a set of barcodes that you can use to add location descriptions to event messages from the control panel CPU/Display Unit.

Appendix C, Menu flow diagrams: This appendix provides menu flow diagrams to use for general reference when programming the fire alarm system from the control panel CPU/Display Unit.

Appendix D, Addresses: This appendix provides a comprehensive list of addresses to use for general reference.

Appendix E, Contact ID event codes: Provides a complete list of Contact ID event codes that you can use when programming dialer strings.

Fire alarm system limitations

The purpose of an automatic fire alarm system is to provide early detection and warning of a developing fire. There are a number of uncontrollable factors that can prevent or severely limit the ability of an automatic fire alarm system to provide adequate protection. As such, an automatic fire alarm system cannot guarantee against loss of life or loss of property.

Two main causes of system failures are improper installation and poor maintenance. The best way to minimize these types of system failures is to have only a trained fire alarm system professional design, install, test, and maintain your fire alarm system in accordance with national and local fire codes.

Fire alarm systems will not operate without electrical power. As fires frequently cause power interruption, we suggest that you discuss ways to safeguard the electrical system with your local fire protection specialist.

Limitation of liability

This product has been designed to meet the requirements of NFPA Standard 72; Underwriters Laboratories, Inc., Standard 864; and Underwriters Laboratories of Canada, Inc., Standard ULC-S527. Installation in accordance with this manual, applicable codes, and the instructions of the Authority Having Jurisdiction is mandatory.

UTCFS 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 UTCFS products beyond the cost of repair or replacement of any defective products. UTCFS reserves the right to make product improvements and change product specifications at any time.

FCC compliance statement

Subpart B of Part 15

This equipment can generate and radiate radio frequency energy. If this 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 within 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 their expense, will be required to take whatever measures necessary to correct the interference.

Part 68

The DLD card complies with Part 68 of the FCC rules. The DLD card's FCC registration number and the ringer equivalence number (REN) are on the back of the DLD card. This information must be provided to the telephone company, if requested.

The DLD card connects to the public switched telephone network using an RJ31X or RJ38X jack, which must also comply with FCC Part 68 rules.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed five (5). To be certain the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If the DLD card causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not 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 in its facilities, equipment, operations, or procedures that could affect the operation of the DLD card. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with the DLD card, for repair or warranty information, contact:

UTC Fire & Security
8985 Town Center Parkway
Bradenton, Florida, USA 34202
Telephone: 1-800-655-4497

If the DLD is causing harm to the telephone network, the telephone company may request that you disconnect the DLD until the problem is resolved.

The DLD card contains no user-serviceable parts. It must be returned to the factory for repairs.

The DLD card can’t be used on a public coin telephone or 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 coordinated by a representative designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

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

Note: The ringer equivalence number (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the ringer equivalence numbers of all the devices does not exceed five.

Related documentation

National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101
Quincy, MA 02269-9101

NFPA 11 *Low-Expansion Foam Systems*

NFPA 11A *Medium- and High-Expansion Foam Systems*

NFPA 12 *Carbon Dioxide Extinguishing Systems*

NFPA 13 *Sprinkler Systems*

NFPA 15 *Water Spray Fixed Systems for Fire Protection*

NFPA 16 *Deluge Foam-Water Sprinkler and Foam-Water Spray Systems*

NFPA 17 *Dry Chemical Extinguishing Systems*

NFPA 70 *National Electric Code*

NFPA 72 *National Fire Alarm Code*

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

UL 38 *Manually Actuated Signaling Boxes*

UL 217 *Smoke Detectors, Single & Multiple Station*

UL 228 *Door Closers/Holders for Fire Protective Signaling Systems*

UL 268 *Smoke Detectors for Fire Protective Signaling Systems*

UL 268A *Smoke Detectors for Duct Applications*

UL 346 *Waterflow Indicators for Fire Protective Signaling Systems*

UL 464 *Audible Signaling Appliances*

UL 521 *Heat Detectors for Fire Protective Signaling Systems*

UL 864 *Standard for Control Units for Fire Protective Signaling Systems*

UL 1481 *Power Supplies for Fire Protective Signaling Systems*

UL 1638 *Visual Signaling Appliances*

UL 1971 *Visual Signaling Appliances*

Underwriters Laboratories of Canada
7 Crouse Road
Scarborough, ON
Canada M1R 3A9

CSA C22.1-02 *Canadian Electrical Code, Part 1*

ULC-S524 *Standard for the Installation of Fire Alarm Systems*

ULC-S527 *Standard for Control Units for Fire Alarm Systems*

ULC-S536 *Standard for the Inspection and Testing of Fire Alarm Systems*

ULC-S537 *Standard for the Verification of Fire Alarm Systems*

ULC/ORD-C693-1994 Central Station Fire Protective Signaling System and Services

UTC Fire & Security
8985 Town Center Parkway
Bradenton, FL 34202

2-CTM City Tie Module Installation Sheet (P/N 270496)

CDR-3 Bell Coder Installation Sheet (P/N 3100023)

DLD Dual Inline Dialer Installation Sheet (P/N 3100187)

IOP3A Isolator RS-232 Card Installation Sheet (P/N 270758)

PS6 Power Supply Card Installation Sheet (P/N 3100201)

QSA-1(X), QSA-2(X) Remote Annunciator Cabinet Installation Sheet (P/N 3100295)

MIR-QS-CPU(X) CPU/Display Unit Installation Sheet (P/N 3100745)

SL30, SL30-1, SL30L, SL20L5S LED/Switch Card Installation Sheet (P/N 3100193)

SLIC Signature Intelligent Controller Card Installation Sheet (P/N 3100192)

RS485 (NT-A) Card and QS-232 UART Module Installation Sheet (P/N 3100191)

ZA8-2 Class A Zone Card Installation Sheet (P/N 3100189)

ZB16-4 Class B Zone Card Installation Sheet (P/N 3100188)

ZR8 Relay Card Installation Sheet (P/N 3100190)

SIGA-APS Auxiliary Power Supply Installation Sheet (P/N 387342)

Signature Series Intelligent Smoke and Heat Detectors Applications Bulletin (P/N 270659)

Signature Series Component Installation Manual (P/N 270497)

Mirtone QuickStart Online Help Utility (P/N 7350208)

Mirtone QuickStart ULI and ULC Compatibility Lists (P/N 3100742)

Chapter 2

Product description

Summary

This chapter provides technical descriptions of the control panel and its operation. It also provides descriptions of the command menus.

Content

General description

This topic provides a general description of the system hardware capabilities, control panel, electronic subassemblies, and remote annunciator panels.

System hardware capabilities

System hardware capabilities vary with cabinet size and hardware configuration but generally include:

- Up to 4 Class A or Class B intelligent addressable loops with up to 250 devices on each
- Up to 40 Class A or up to 48 Class B IDC input circuits. Combination systems can't exceed a total of 40 IDC input circuits.
- Up to 16 Class A or 20 Class B NAC output circuits
- Up to two LED/switch cards
- An alphanumeric display that provides supplemental information related to the current functional condition of the fire alarm system
- Up to 96 dry contact relay outputs
- Up to 4.5 amps of 24 Vfwr (full wave rectified) power for operating notification appliances
- A battery charger circuit capable of charging standby batteries rated up to 40 Ah. Maximum battery size for ULC applications is 30 Ah.
- Up to eight fully supervised mirrored or customized remote annunciator panels

Programmable features

The fire alarm system includes a number of programmable features as listed below.

- Zones
- Service groups
- AND groups
- Matrix groups
- Custom event messages
- User labels
- Automatic alarm signal silence timer
- Alarm signal silence/reset inhibit timer
- AC power fault delay timer
- Panel silence resound timer
- Waterflow silence
- Zone resound inhibit

- Two-stage timer
- Fault reminder
- Message routing
- Message filtering
- Time controls

Control panel

The control panel consists of a cabinet backbox and door, a transformer, a PS6 power supply card, and a CPU/Display Unit. The cabinet, PS6 card, and CPU/Display Unit are assembled in the field. Optionally, the control panel can include 5 or 12 single-space option cards depending on the size of the cabinet and 1 or 2 LED/switch cards.

The control panel is available in two cabinet sizes as shown in Figure 2-1 and described in Table 2.1.

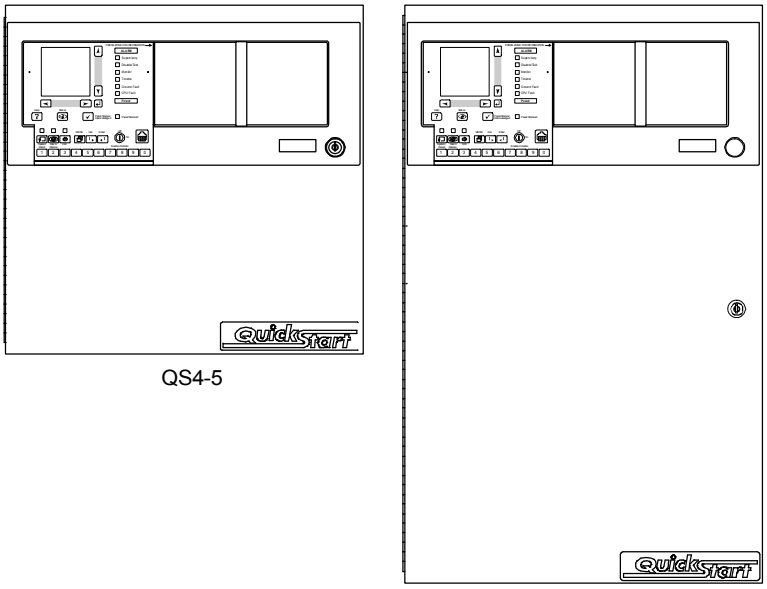


Figure 2-1: Fire alarm control panel front views

Table 2.1: Control panel models

Model	Description
MIR-QS4-5-(G/R)-(1/2)	Multiloop intelligent addressable/conventional control panel, 5 option card spaces, gray (G) or red (R), finish, 115 V (1) or 230 V (2) transformer
MIR-QS4-12-(G/R)-(1/2)	Multiloop intelligent addressable/conventional control panel, 12 option card spaces, gray (G) or red (R), finish, 115 V (1) or 230 V (2) transformer

Control panels can be mounted directly on the finished wall surface (surface mount) or partially recessed in a wall cavity (semiflush mount). Semiflush mounted cabinets may require a trim ring kit, ordered separately.

Option cards

The option cards that you can install in the control panel are described in Table 2.2. Option cards are ordered separately and installed in the field.

Table 2.2: Control panel option cards

Model	Description
NT-A	RS-485 card and QS-232 UART module. The NT-A provides an additional communication channel for Class A remote annunciators. Requires 1 card space.
ZB16-4	Class B Conventional Zone Card. The ZB16-4 card provides 16 IDC input circuits, 4 of which can be used as NAC output circuits. Requires 2 card spaces.
ZA8-2	Class A Conventional Zone Card. The ZA8-2 card provides 8 IDC input circuits, 2 of which can be used as NAC output circuits. Requires 2 card spaces.
ZR8	Relay Card. The ZR8 card provides 8 unsupervised dry contact relay outputs. Requires 1 card space.
SLIC	Signature Loop Interface Controller. The SLIC card provides 2 NAC output circuits and 1 signaling line circuit interface (loop). Requires 1 card space.
DLD	Dual Line Dialer. The DLD card provides two telephone line connections for transmitting status changes to a central monitoring station. Requires 1 card space.
SL30	LED/switch card. The SL30 provides 30 groups of LEDs and switches for zone or point annunciation. The switches are numbered 1 to 30.
SL30-1	LED/switch card. The SL30-1 provides 30 groups of LEDs and switches for zone or point annunciation. The switches are numbered 31 to 60.
SL30L	LED/switch card. The SL30L provides 30 groups of LEDs for zone or point annunciation. Card inserts are provided for custom labeling.
SL20L5S	LED/switch card. The SL20L5S provides 20 groups of LEDs, and 5 groups of LEDs and switches. Card inserts are provided for custom labeling.

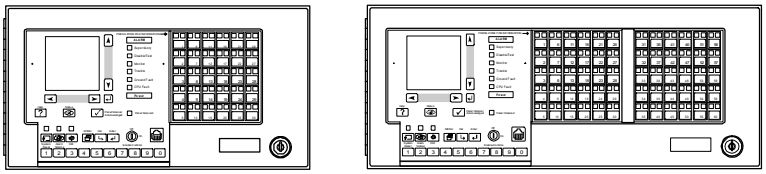
For more information, see Chapter 3, “Panel components.”

QSA series remote annunciators

QSA series remote annunciators provide system controls and annunciation of event messages and system status at remote locations throughout the protected premises.

QSA series remote annunciators consist of a cabinet backbox and door, a CPU/Display Unit, and a remote annunciator interface (RAI) card. Optionally, a QSA series remote annunciator can include one or two LED/switch cards depending on the cabinet size. The cabinet and CPU/Display Unit are ordered separately and assembled in the field.

The QSA series remote annunciators that you can connect to a control panel are shown in Figure 2-2 and described in Table 2.3.



30-zone remote annunciator 60-zone remote annunciator

Figure 2-2: QSA series remote annunciator front views

Table 2.3: QSA series remote annunciators

Model	Description
QSA-1-S	Surface mount cabinet for MIR-QS4-CPU-1
QSA-1-F	Semiflush mount cabinet for MIR-QS4-CPU-1
QSA-2-S	Surface mount cabinet for MIR-QS4-CPU-2
QSA-2-F	Semiflush mount cabinet for MIR-QS4-CPU-2
MIR-QS4-CPU-1	Multiloop intelligent addressable/conventional CPU/Display Unit with 1 LED/switch card mounting space. Includes RAI card.
MIR-QS4-CPU-2	Multiloop intelligent addressable/conventional CPU/Display Unit with 2 LED/switch card mounting spaces. Includes RAI card.

QSA series remote annunciators communicate with the control panel and up to seven other remote annunciators via the control panel’s RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory output on a PS6 card
- A BPS series booster power supply
- A SIGA-APS auxiliary power supply

Note: The PS6 card's smoke/accessory output can supply power to only one QSA series remote annunciator. If more than one QSA series remote annunciator is installed, you must use an auxiliary power supply. Use the same supply to power each remote annunciator.

MIR-SRA4 remote annunciators

The MIR-SRA4 (see Figure 2-3) provides system controls and annunciation of event messages and system status at remote locations throughout the protected premises.

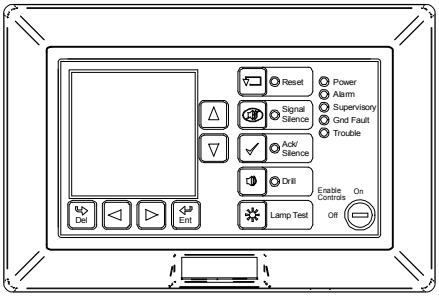


Figure 2-3: MIR-SRA4 front view

The MIR-SRA4 communicates with the control panel and up to seven other remote annunciators via the control panel's RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory output on a PS6 card
- A BPS series booster power supply
- A SIGA-APS auxiliary power supply

The PS6 card's smoke/accessory output can supply power to one or two MIR-SRA4 remote annunciators. If more than two MIR-SRA4 remote annunciators are installed, you must use an auxiliary power supply. Use the same supply to power each remote annunciator.

Note: The MIR-SRA4 does not provide ground fault isolation.

Envoy graphic annunciators

Envoy graphic annunciators display system alarm, supervisory, monitor, and trouble events using an MIR-SRA4 remote annunciator and the protected premises' building, floor, or site map. LEDs behind the map indicate the location of interest while the MIR-SRA4 displays specific information about the active device.

Envoy graphic annunciators are built per customer specifications and can include up to 144 LED indicators and 72 switches.

An Envoy graphic annunciator communicates with the control panel and up to seven other remote annunciators via the control panel's RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory output on a PS6 card
- A BPS series booster power supply
- A SIGA-APS auxiliary power supply

Accessories

Table 2.4 lists the accessories you can connect to the control panel.

Table 2.4: Control panel accessories

Model	Description
QS-Cable12	Expansion cable for 12-option cabinets
Trim-5	Trim ring kit for a MIR-QS4-5-G-1
Trim-5R	Trim ring kit for a MIR-QS4-5-R-1
Trim-12	Trim ring kit for a MIR-QS4-12-G-1
Trim-12R	Trim ring kit for a MIR-QS4-12-R-1
MIR-QS-CU	QuickStart configuration utility
QS-Scan	QuickStart barcode scanner and programming guide
PT-1S	Desktop serial dot matrix printer
BC-1(R)	Battery cabinet that holds one 40 Ah battery or two 24 Ah batteries
MFC-A	Multifunction cabinet for mounting accessory modules
IOP3A	RS-232 Isolator Module
RPM	Reverse Polarity Module
CDR-3	Bell Coder Module
2-CTM	City Tie Module
BPS6(A)	6.5-amp Booster Power Supply, 110 V
BPS10(A)	10-amp Booster Power Supply, 110 V

Minimum system requirements

Table 2.5 lists the minimum hardware requirements for each type of system that the control panel is listed.

Table 2.5: Minimum system requirements

System	Equipment needed
Protected Premises (Local) Fire Alarm System	A control panel consisting of a cabinet enclosure, a CPU/Display Unit, and a PS6 card
	Appropriately sized standby batteries
	A SLIC card, ZB16-4 card, or ZA8-2 card with at least one alarm input and one audible output
Auxiliary Fire Alarm System, Local Energy Type	A control panel consisting of a cabinet enclosure, a CPU/Display Unit, and a PS6 card
	Appropriately sized standby batteries
	A SLIC card with at least one alarm input and a GSA-CC1 configured as a common alarm output device type
	A 2-CTM module
Remote Supervising Station Fire Alarm System	A control panel consisting of a cabinet enclosure, a CPU/Display Unit, and a PS6 card
	Appropriately sized standby batteries
	A SLIC card, ZB16-4 card, or ZA8-2 card with at least one alarm input
	A DLD card or an RPM module
Central Station Fire Alarm System	A control panel consisting of a cabinet enclosure, a CPU/Display Unit, and a PS6 card
	Appropriately sized standby batteries
	A SLIC card, ZB16-4 card, or ZA8-2 card with at least one alarm input
	A DLD card or an RPM module
Releasing Service	A control panel consisting of a cabinet enclosure, a CPU/Display Unit, and a PS6 card
	Appropriately sized standby batteries
	A SLIC card with at least one alarm input and one audible output
	A GSA-REL module

System status indicators

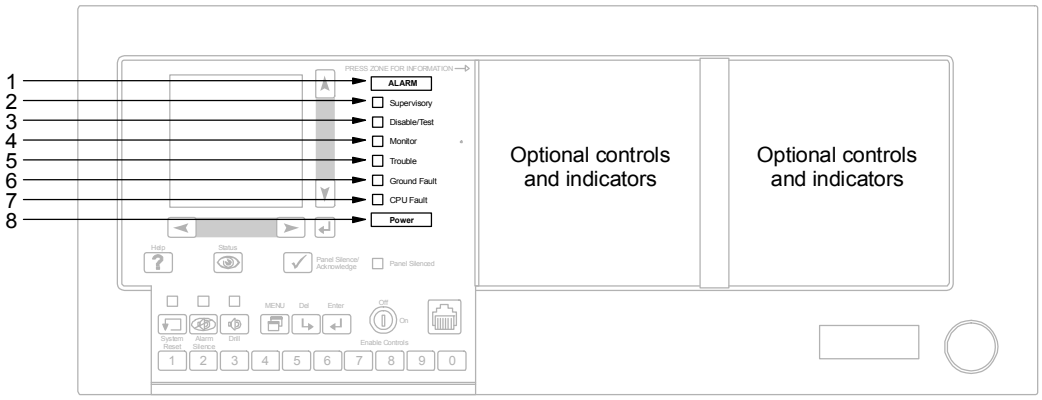


Table 2-6: System status indicator descriptions

No.	Indicator	Description
1	Alarm LED	Red LED that indicates an active fire alarm input (flashing = new fire alarm event, steady = all current fire alarm events have been acknowledged)
2	Supervisory LED	Yellow LED that indicates an active supervisory input (flashing = new supervisory event, steady = all current supervisory events have been acknowledged)
3	Disable/Test LED	Yellow LED that indicates the control panel is in the disabled state or in the test state. **Note:** The disabled state has priority over the test state.
4	Monitor LED	Yellow LED that indicates an active monitor input (flashing = new monitor event, steady = all current monitor events have been acknowledged)
5	Trouble LED	Yellow LED that indicates the control panel is in the trouble state (flashing = new trouble event, steady = all current trouble events have been acknowledged)
6	Ground Fault LED	Yellow LED that indicates there is a ground fault somewhere in the system
7	CPU Fault LED	Yellow LED that indicates an unexpected interruption or failure with the microprocessor
8	Power LED	Green LED that indicates the control panel is energized

Operator controls and indicators

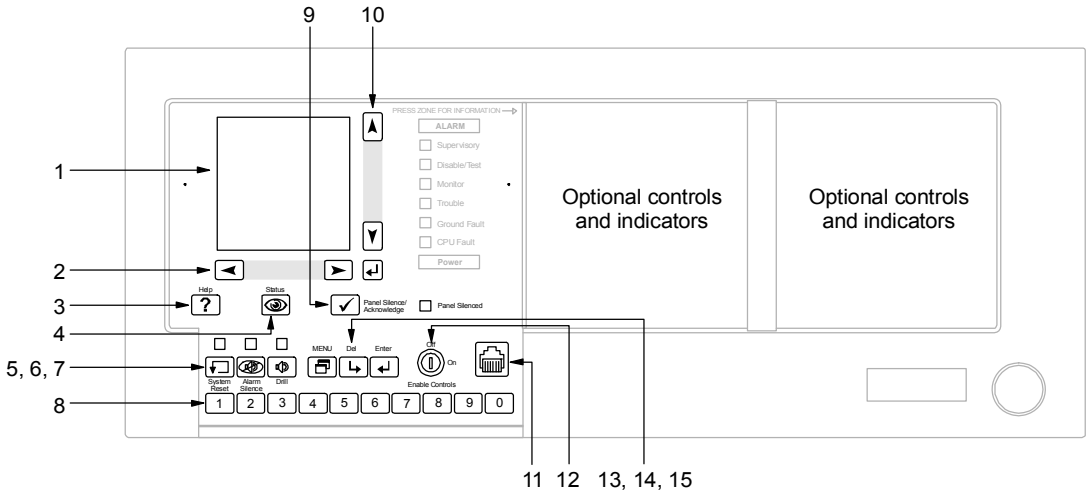


Table 2-7: Operator control and indicator descriptions

No.	Control/Indicator	Description
1	Alphanumeric display	Provides supplemental information relevant to the current functional condition of the control panel
2	Left and right cursor switches	On command menus, moves the cursor left or right one character at a time in a data entry field On event message screens, selects the previous or next event message queue
3	Help switch	Displays additional information about the selected event message
4	Status switch	Displays the Status menu from which you can identify system components that are active, disabled, or in the test state
5	System Reset switch	Restores the system to the normal state provided that no inputs are latched in the active state. The LED next to the switch indicates the function is active. Requires the level 2 password or enable controls key to operate.
6	Alarm Silence switch	Turns off (silences) all active audible and common alarm output device types, and if configured, all visible device types. Pressing the switch again turns them on. The LED next to the switch indicates the function is active. Requires the level 2 password or the enable controls key to operate.
7	Drill switch	Turns on all audible, visible, and common alarm output device types. Pressing the switch again turns them off. The LED next to the switch indicates the function is active. Requires the level 2 password to operate.
8	Numeric keypad	Enters the number or selects the menu item shown on the button face

No.	Control/Indicator	Description
9	Panel Silence/ Acknowledge switch	Silences the panel buzzer and acknowledges all current events. The LED next to the switch indicates the function is active.
10	Up and down cursor switches	On command menus, moves the cursor up or down one line at a time On event message screens, scrolls through the messages in the selected event message queue
11	Barcode jack	Used to connect a compatible barcode wand for entering location description text or to connect a download cable (model no. PROGCABLE-1, ordered separately) for downloading or retrieving the project database
12	Enable Controls switch	Gives the operator immediate access to level 2 command menus and control switches without entering a password
13	Menu switch	Displays the system command menus from which you can operate, maintain, and program the fire alarm system
14	Delete switch	Backspaces the cursor or returns the operator to the previous menu
15	Enter switch	Processes commands or accepts data from the operator

Optional controls and indicators

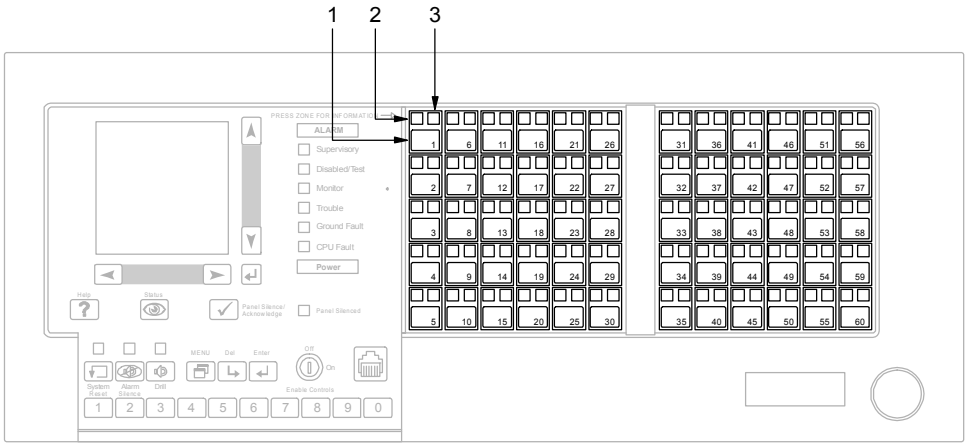


Table 2-8: Optional control and indicator descriptions

No.	Indicator	Description
1	Zone display/select switch	Displays the location description, if programmed, for the corresponding zone. When enabling or disabling a zone, pressing the switch selects the corresponding zone in the zone list. **Note:** This switch is not available on all LED/switch card models.
2	Active LED	Red or yellow LED that indicates the corresponding zone is active (red = fire alarm zone, yellow = supervisory or monitor zone)
3	Trouble LED	Yellow LED that indicates the corresponding zone is in a trouble state

Optional control and indicators are provided using LED/switch cards. Typically, LED/switch cards are used for zone annunciation but can be used for point annunciation or manual override controls as well. For more information, see the topic “LED/switch cards” in Chapter 3.

Zones are automatically mapped to LED/switch cards as shown in the table below. By default, the LED/switch card positioned closest to the alphanumeric display is assigned to Annunciator Group 1 and the next LED/switch card is assigned to Annunciator Group 2.

Annunciator group	Zones
1	1 to 30
2	31 to 60
3	61 to 90

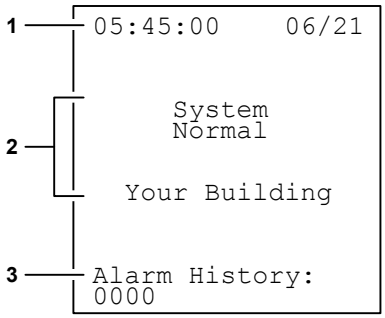
Annunciator group	Zones
4	91 to 120
5	121 to 150
6	151 to 180
7	181 to 210
8	211 to 240
9	241 to 270
10	271 to 300
11	301 to 330
12	331 to 360
13	361 to 390
14	391 to 420
15	421 to 450
16	451 to 480

Alphanumeric display

In addition to the system status indicators, the CPU/Display Unit uses an alphanumeric display to provide supplemental information related to the current functional condition of the control panel.

System Normal display screen

The alphanumeric display shows the System Normal display screen when the control panel is in the normal (quiescent) state.



1. Time and date field: Displays the system time in 24-hour format and system date in MM/DD format, where:

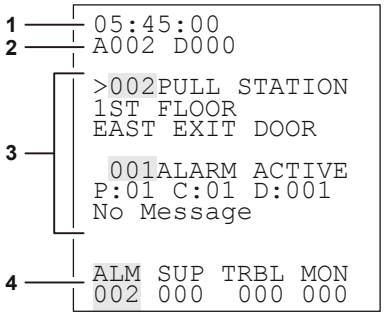
- MM is the month's number (e.g., 06 is June)
- DD is the date

2. Banner window: Displays "System Normal" and, if programmed, the facility name

3. Alarm history field: Displays how many times the control panel has entered the alarm state

Event Message display screen

The alphanumeric display shows the Event Message display screen when the control panel enters the fire alarm, supervisory, monitor, trouble, disablement, or test state.



1. Time field: Displays the system time in 24-hour format

2. Active and disabled points field: Displays the number of active points (Annn) and the number of disabled points (Dnnn) currently in the system

3. Event message window: Displays two event messages from the selected event message queue. Event messages are numbered in the order in which they were received and include the device address (or location description, if programmed) of the device that signaled the event. Use the up and down arrow switches to scroll through the event messages.

4. Event message queues: Displays the number of event messages stored in each of the event message queues. Use the left and right arrow switches to select an event message queue.

Details display screen

Pressing the Help switch while an event message is selected displays the Details display screen.

The Details display screen provides the device address and, if programmed, the location description of the device that generated the selected event message. If the selected event message were for a zone, the Details display screen would show which devices in the zone were activated.

Command menu organization

Operator commands are organized into menus. There are four separate levels of command menus as described below.

Level 1 command menus

The level 1 command menus (see

Table 2-9) include the commands that anyone can use without entering a password.

Table 2-9: Level 1 command menu organization

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) Alarm History	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) Alarm History
3) Test	1) Lamp Test	1) Lamp Test
4) Login		

Level 2 command menus

The level 2 command menus (see Table 2-10) include the commands that an operator can use after entering the level 2 password or after switching the Enable Controls key switch to the ON position.

Table 2-10: Level 2 command menu organization

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Alarm History	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Alarm History
3) Test	1) Lamp Test	1) Lamp Test
4) Enable	1) Zone 2) Device	1) Zone 2) Device
5) Disable	1) Zone 2) Device	1) Zone 2) Device
6) Activate	1) Alt Sens 2) Alt Msg Route	1) Alt Sens 2) Alt Msg Route
7) Restore	1) Prm Sens 2) Prm Msg Route	1) Prm Sens 2) Prm Msg Route
8) Program	1) Edit Password 1) Level 1	1) Time/Date 1) Enter Time 2) Edit Password 1) Level 1
9) Login		

Level 3 command menus

The level 3 command menus (see Table 2-11) include the commands that an operator can use after entering the level 3 password.

Table 2-11: Level 3 command menu organization

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Revisions 4) Alarm History	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Revisions 4) Alarm History
3) Test	1) Start Test 2) Cancel Test 3) Lamp Test	1) Start Test 2) Cancel Test 3) Lamp Test
4) Enable	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch 5) Loop Mapping	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch 5) Loop Mapping
5) Disable	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch 5) Loop Mapping	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch 5) Loop Mapping
6) Activate	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED
7) Restore	1) Output 2) Prm Sens 3) Prm Msg Route 4) LED	1) Output 2) Prm Sens 3) Prm Msg Route 4) LED

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
8) Program	1) Time/Date 1) Enter Time 2) Enter Date 2) Edit Password 1) Level 1 2) Level 2	1) Time/Date 1) Enter Time 2) Enter Date 2) Edit Password 1) Level 1 2) Level 2
9) Login		

Level 4 command menus

The level 4 command menus (see Table 2-12) include the commands that an operator can use by entering the level 4 password.

Table 2-12: Level 4 command menu organization

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Revisions 4) Alarm History	1) Maintenance 1) Dirty>80% 2) Dirty>20% 3) Single Device 4) Card Devices 2) History 3) Revisions 4) Alarm History
3) Test	1) Start Test 2) Cancel Test 3) Lamp Test	1) Start Test 2) Cancel Test 3) Lamp Test

Menu	Commands (NFPA72 systems)	Commands (ULC-527 systems)
4) Enable	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch 6) Loop Mapping	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch 6) Loop Mapping
5) Disable	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch 6) Loop Mapping	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch 6) Loop Mapping
6) Activate	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED
7) Restore	1) Output 2) Prm Sens 3) Prm Msg Route 4) LED	1) Output 2) Prm Sens 3) Prm Msg Route 4) LED
8) Program	1) Time/Date 1) Enter Time 2) Enter Date 2) Edit Password 1) Level 1 2) Level 2 3) Level 3 4) Level 4 3) Restart 4) Clear History 5) Configure 1) AutoLearn 2) System 3) Cards 4) Zones 5) Outputs 6) Exit	1) Time/Date 1) Enter Time 2) Enter Date 2) Edit Password 1) Level 1 2) Level 2 3) Level 3 4) Level 4 3) Restart 4) Clear History 5) Configure 1) AutoLearn 2) System 3) Cards 4) Zones 5) Outputs 6) Exit
9) Login		

Command descriptions

This topic describes the commands that you can use to operate the control panel from the CPU/Display Unit. System commands are organized into menus. The password you use to log on to the fire alarm system determines which command menus are presented on the CPU/Display Unit. For more information, see the topic “Command menu organization” in this chapter.

```
MAIN MENU
►1)Status
 2)Reports
 3)Test
 4)Enable
 5)Disable
 6)Activate
 7)Restore
 8)Program
 9)Login
```

Main menu

Pressing the Menu switch displays the main menu. Each command on the main menu displays a subordinate command menu described below.

Status menu

```
STATUS MENU
►1)All Active
 2)Alarm
 3)Supervisory
 4)Trouble
 5)Monitor
 6)Test
 7)Disabled Pts
 8)Outputs
 9)Internal
```

Use the commands on the Status menu to check the status of the fire alarm system. The report that each command creates includes both physical points and pseudo points.

All Active: Display or print a list of all addressable points that are in an active (abnormal) state.

Alarm: Display or print a list of all alarm input device types that are active (in alarm).

Supervisory: Display or print a list of all active supervisory input device types.

Trouble: Display or print a list of all points in trouble.

Monitor: Display or print a list of all active monitor input device types.

Test: Display or print a list of points in an active service group that are in the active or trouble state.

Disabled Pts: Display or print a list of all addressable points that are disabled.

Outputs: Display or print a list of all active output device types and LED/switch card LEDs.

Internal: Display or print the status of the power supply voltages.

Reports menu

```
REPORTS MENU
►1)Maintenance
 2)History
 3)Revisions
 4)Alarm History
```

Use the commands on the Reports menu to retrieve maintenance and service related information from the control panel. There are five kinds of report: maintenance, history, revisions, and alarm history.

Maintenance

The Maintenance command lets you select one of the reports described below.

Dirty > 80%: Creates a report that lists all intelligent addressable smoke detectors that are more than 80% dirty. A smoke detector that is more than 80% dirty should be cleaned or replaced as soon as possible.

Dirty > 20%: Creates a report that lists all intelligent addressable smoke detectors that are more than 20% dirty. A smoke detector that is more than 20% dirty should be noted for possible cleaning or replacing in the future.

Single Device: Creates a report that lists the attributes of a specific intelligent addressable smoke detector. The attributes listed include type, location description (if programmed), percent dirty, and primary and alternate alarm sensitivity values. Requires the panel-card-device address (PPCCDDD) of the detector.

Card Devices: Creates a report that lists the attributes of every intelligent addressable smoke detector connected to a specific loop controller. The attributes listed include type, location description (if programmed), percent dirty, and primary and alternate alarm sensitivity values. Requires the panel-card address (PPCC) of the loop controller.

History

The History command creates a report that lists the last 1,000 events or operator instructions processed by the control panel. The items in the list are presented in the order in which they occurred and contain the following information:

- The event or system command name
- The time and date of occurrence
- The source that initiated the event or command

Revisions

The Revisions command creates a report that lists the revision level of all the hardware and software components installed in the cabinet.

For the project database, the report includes:

- The market place
- The configuration utility version number and project number if the database loaded into the panel was created using the configuration utility
- The CPU firmware revision number
- The database serial number and the date it was compiled

For the CPU/Display Unit, the report includes:

- The CPU type and firmware version number
- The quantity and type of LED/switch cards installed

For each option card, the report includes:

- The card number
- The card type
- The firmware revision number and date

Alarm History

The Alarm History command creates a report that lists the number of times the control panel has entered the alarm state.

Test menu

```
TEST MENU
►1)Start Test
 2)Cancel Test
 3)Lamp Test
```

Use the commands on the Test menu to perform periodic inspection tests on the fire alarm system. There are three test commands.

Start Test: Lets you verify the operation of devices in the selected service group without causing the control panel to enter the fire alarm or trouble state.

Cancel Test: Returns the devices in the selected service group to normal operation. Upon canceling a test, any devices left in an active state causes the control panel to report a trouble.

Lamp Test: Temporarily turns on the panel buzzer, all LED indicators, and every pixel on the alphanumeric display. When operated from the control panel CPU/Display Unit, the lamp test command tests only the control panel. When operated from a remote annunciator CPU/Display Unit, the lamp test command tests the indicators on all remote annunciators at the same time.

Enable menu

```
ENABLE MENU
►1)Zone
 2)Device
 3)Card
 4)Group
 5)Switch
```

Use the commands on the Enable menu to place parts of the fire alarm system that have been disabled back into service.

Zone: Enables the zone selected from a zone list.

Device: Enables a device or circuit. Requires a panel-card-device address (PPCCDDD).

Card: Enables an option card. Requires a panel-card address (PPCC).

Group: Displays the Enable Group menu from which you can enable an AND group, matrix group, or time control.

Switch: Enables a switch on an LED/switch card. Requires a group-switch address (GGSS).

Disable menu

```
DISABLE MENU
►1)Zone
 2)Device
 3)Card
 4)Group
 5)Switch
```

Use the commands on the Disable menu to take individual zones, input and output points, option cards, and other parts of the fire alarm system out of service.

Zone: Disables the zone selected from a zone list.

Device: Disables a device or circuit. Requires a panel-card-device address (PPCCDDD).

Card: Disables an option card. Requires a panel-card address (PPCC).

Group: Displays the Disable Group menu from which you can disable an AND group, matrix group, or time control.

Switch: Disables a switch on an LED/switch card. Requires a group-switch address (GGSS).

Activate menu

```
ACTIVATE MENU
►1)Output
 2)Alt Sens
 3)Alt Msg Route
 4)LED
```

Use the commands on the Activate menu to switch outputs and LED indicators on, and switch sensor sensitivity and event message routing to their alternate settings.

Output: Changes the state of an output point from off to an active state or from one active state to another active state.

Alt Sens: Switches fire detector sensitivity settings from primary alarm sensitivity to alternate alarm sensitivity.

Alt Msg Route: Switches event message routing from primary message routing to alternate message routing.

LED: Changes the state of an LED from off to an active state or from one active state to another active state.

Restore menu

```
RESTORE MENU
►1)Output
 2)Prm Sens
 3)Prm Msg Route
 4)LED
```

Use the commands on the Restore menu to switch outputs and LED indicators off, and switch sensor sensitivity and event message routing to their primary settings.

Output: Changes the state of an output point to off.

Prm Sens: Switches sensor sensitivity settings from alternate alarm sensitivity to primary alarm sensitivity.

Prm Msg Route: Switches event message routing from alternate message routing to primary message routing.

LED: Changes the state of an LED to off.

Event messages

Event messages are used to help locate the source of an abnormal state. The control panel dynamically maintains the 500 most recent, highest priority event messages. There are four kinds of event message: fire alarm, supervisory, trouble, and monitor.

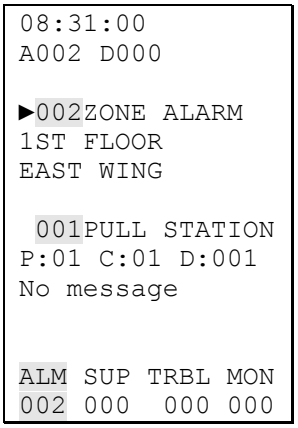
An event message consists of three lines of text. The first line displays the event name and number. The next two lines display a location description. If a location description was not programmed, the display shows the address of the point that signaled the event and the text “No message.”

Event message queues

Event messages are stored in four event message queues located at the bottom of the event message display screen. They are arranged from left to right in order of importance as follows:

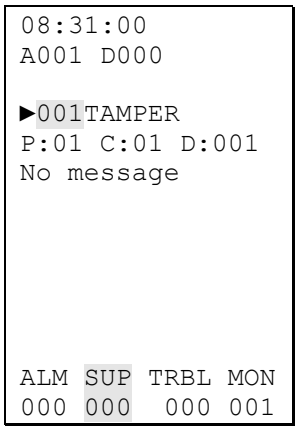
- ALM = fire alarm event messages (highest priority)
- SUP = supervisory event messages
- TRBL = trouble event messages
- MON = monitor event messages (lowest priority)

Fire alarm event messages



Fire alarm event messages identify fire alarm inputs that have been activated and are stored in the ALM event message queue. Activated fire alarm inputs signal a fire alarm or life-threatening emergency that requires immediate attention. The table below describes the different fire alarm event messages that can appear in the ALM event message queue.

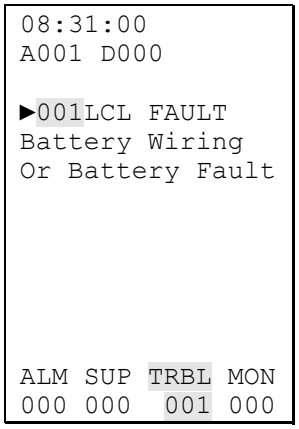
Event name	Description
ALARM ACTIVE	Smoke detector is active
AND GROUP	AND group is active
HEAT ALARM	Heat detector is active
PULL STATION	Manual pull station is active
MATRIX GROUP	Matrix group is active
WATERFLOW	Waterflow switch is active
ZONE ALARM	Fire alarm zone is active



Supervisory event messages

Supervisory event messages are stored in the SUP event message queue and identify active supervisory inputs. Active supervisory inputs indicate a component of the fire suppression system is an abnormal state. The table below lists the different supervisory event messages that can appear in the SUP event message queue.

Event name	Description
LATCH SUPV	A device used to monitor a component of the fire suppression system is active
LATCH TAMPER	Sprinkler tamper switch circuit is active
SUPERVISORY	A device used to monitor a component of the fire suppression system is active
TAMPER	Sprinkler tamper switch circuit is active
ZONE SUPER	Supervisory zone in the active state



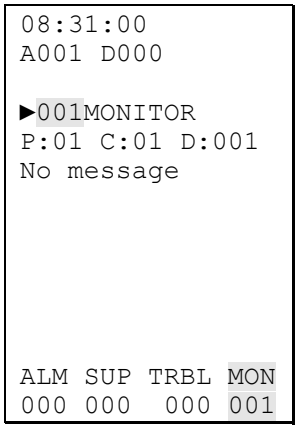
Trouble event messages

Trouble event messages identify system inputs and system outputs that are in a fault state and are stored in the TRBL event message queue. The table below describes the different trouble event messages that can appear in the TRBL event message queue.

Event name	Description
DISABLED	System component is disabled
GROUND FAULT	Earth ground fault
INTERNAL TBL	Internal system trouble
LCL TROUBLE	Trouble reported by an option card
SERVICE GROUP	Service group is active
TEST	Service group test is active
TROUBLE	Generic trouble event message for the following Signature troubles: • BAD PERSONATY: Personality mismatch • BAD TYPE: Device type mismatch • COMM FAULT: Communication failure • DEV COMPATIB: Incompatible device • DIRTY HEAD: Detector is 100% dirty and needs to be cleaned or replaced

Event name	Description
TROUBLE OPEN	Open detected on a supervised output's field wiring
TROUBLE SHORT	Short detected on a supervised output's field wiring
UNEXPECT DEV	Device installed but not defined in the project database

Monitor event messages



Monitor event messages are stored in the MON event message queue and identify active monitor inputs. Active monitor inputs indicate the operation of ancillary system functions. The table below describes the different monitor event messages that can appear in the MON event message queue.

Event name	Description
ALARM VERIFY	Alarm verification in progress
LCL MONITOR	Common monitor
MAINT ALERT	Smoke detector is at least 80% dirty
MONITOR	Active nonlatching input circuit
OBJECT RUN	Service group is active
PREALARM	Possible fire condition exists
SWITCH	Switch pressed on LED/switch card
TIME CONTROL	Time control is active
ZONE MONITOR	Monitor zone in the active state

Control panel operation

The control panel can operate simultaneously in the following states:

- Normal
- Alarm
- Supervisory
- Trouble
- Monitor
- Disable
- Test

Each state is described in detail below.

Note: For the control panel to indicate an abnormal operating state, the event message for the activated point must be routed to the control panel. Event message routing does not affect the outputs of the abnormal state.

Normal state

The control panel operates in the normal state in the absence of any active inputs. In the normal state, only the power LED is on and the alphanumeric display shows the System Normal display screen.

Alarm state

The control panel enters the alarm state when an alarm input is activated (goes into alarm).

Output of the alarm state

Upon entering the alarm state, the control panel:

- Changes the contact positions on the common alarm relay (Relay 1 on the PS6 card)
- Activates all common alarm outputs
- Executes the active response programmed for the First Alarm pseudo point
- Executes the active response programmed for the alarm input

Indication of the alarm state

The control panel indicates it is in the alarm state as follows:

- The panel buzzer sounds a repeating pattern of four beeps
- The Alarm LED flashes at a rate of 300 times per minute

- The alphanumeric display shows the content of the ALM message queue starting with the most recent alarm event message
- If the input was an alarm zone, the zone's active LED on the LED/switch card flashes at a rate of 300 times per minute

Supervisory state

The control panel enters the supervisory state when a supervisory input is activated.

Output of the supervisory state

Upon entering the supervisory state, the control panel:

- Closes the normally open contacts on the common supervisory relay (Relay 2 on the PS6 card)
- Executes the active response programmed for the First Supervisory pseudo point
- Executes the active response programmed for the supervisory input

Indication of the supervisory state

The control panel indicates it is in the supervisory state as follows:

- The panel buzzer sounds a repeating pattern of two beeps
- The Supervisory LED flashes at a rate of 30 times per minute
- If the input was a supervisory zone, the zone's active LED on the LED/switch card flashes at a rate of 300 times per minute
- The alphanumeric display shows the content of the SUP message queue starting with the most recent event message

Note: Most supervisory indications are restored automatically when the supervisory input is restored. Latching supervisory inputs and latching tamper inputs require a system reset in order for the indications to restore.

Trouble state

The control panel enters the trouble state when there is a system, device, or wiring fault.

Output of the trouble state

Upon entering the trouble state, the control panel:

- Opens the normally closed contacts on the common trouble relay (Relay 3 on the PS6 card)
- Executes the trouble response programmed for the First Trouble pseudo point
- Executes the trouble response programmed for the point that signaled the trouble condition

Indication of the trouble state

The control panel indicates it is in the trouble state as follows:

- The panel buzzer beeps at a rate of 30 times per minute
- The Trouble LED flashes 30 times per minute
- The alphanumeric display shows the content of the TRBL message queue starting with the most recent trouble event message
- If the trouble is a zone trouble, the trouble LED on the LED/switch card for the zone flashes at a rate of 300 times per minute
- If the trouble is a CPU fault, the CPU Fault LED turns on
- If the trouble is a ground fault, the Ground Fault LED turns on

Note: Trouble indications are restored automatically when the trouble condition is cleared. If the panel buzzer has been silenced, a new trouble re-sounds the buzzer.

Monitor state

The control panel enters the monitor state when a monitor input is activated.

Output of the monitor state

Upon entering the monitor state, the control panel:

- Executes the active response programmed for the First Monitor pseudo point
- Executes the active response programmed for the monitor input

Indication of the monitor state

The control panel indicates it is in the monitor state as follows:

- The panel buzzer sounds a repeating pattern of four beeps
- The Monitor LED flashes 30 times per minute
- If the input was a monitor zone, the zone's active LED on the LED/switch card flashes 300 times per minute

- The alphanumeric display shows the content of the monitor event message queue (MON) starting with the most recent event message

Note: Monitor indications are restored automatically when the monitor input is restored.

Disable state

The control panel enters the disable state when a zone, device, card, logic group or switch is disabled. Logic groups that can be disabled include AND groups, matrix groups, and time controls.

Note: For anything other than a zone, use the Disabled Pts. command on the Status menu to identify a disabled point. For more information, see the topic “Checking system status” in Chapter 5.

Output of the disable state

Upon entering the disable state, the control panel:

- Opens the normally closed contacts on the common trouble relay (Relay 3 on the PS6 card)
- Executes the trouble response programmed for the First Trouble pseudo point
- Executes the trouble response programmed for the First Disable pseudo point
- Executes the disablement response programmed for the point that was disabled

Indication of the disable state

The control panel indicates it is in the disable state as follows:

- The panel buzzer beeps at a rate of 30 times per minute
- The Disable/Test LED turns on
- The Trouble LED flashes at a rate of 30 times per minute
- The TRBL message queue displays a LCL TROUBLE event message for the First Disable pseudo point
- The TRBL message queue displays a DISABLED event message for the disabled point

When a point is disabled, the control panel does not process any of the point’s status changes and the point remains in its current state. For example, if an Audible device type in the normal state were disabled and subsequently activated, the Audible device type would not turn on until it was enabled. Conversely, if an active Audible device type were disabled and subsequently restored, the Audible device type would not turn off until it was enabled.

If a point in trouble is disabled and the cause of the trouble changes while the point is disabled, the point's original trouble event message may not update when the point is enabled. For example, a shorted NAC output circuit whose wiring is opened after it has been disabled still displays the TROUBLE SHRT event message after it is enabled.

Test state

The control panel enters the test state when a service group is activated.

Output of the test state

Upon entering the test state, the control panel:

- Executes the active response programmed for the First Monitor pseudo point
- Executes the trouble response programmed for the First Trouble pseudo point
- Executes the trouble response programmed for the First Test pseudo point
- Executes the running response programmed for the service group

While in the test state:

- When a member of an active service group is activated, the control panel executes the service group's active test response
- When a member of an active service group is placed in a trouble condition, the control panel executes the service group's trouble test response

Note: If a trouble test response has not been programmed, the control panel executes the active test response instead.

Indication of the test state

The control panel indicates it is in the test state as follows:

- The panel buzzer beeps at a rate of 30 times per minute
- The Disable/Test LED turns on
- The Monitor LED flashes at a rate of 30 times per minute
- The Trouble LED flashes at a rate of 30 times per minute
- The TRBL message queue displays a LCL TROUBLE event message for the First Test pseudo point
- The MON message queue displays an OBJECT RUN event message for the service group

Chapter 3

Panel components

Summary

This chapter provides technical descriptions of the components that can be installed in the control panel.

Content

PS6 Power Supply Card

Description

The PS6 card (see Figure 3-1) accepts stepped-down AC via the transformer and converts it into the DC voltages required to power the system. The PS6 card provides three 24 Vfwr auxiliary outputs for powering notification appliances and controls for ancillary equipment, and one 24 Vdc regulated output for powering four-wire smoke detectors or ancillary equipment.

The PS6 card also accepts DC voltage from standby batteries to operate the control panel when mains power is interrupted. The battery charging circuit ensures the standby batteries are fully charged at all times.

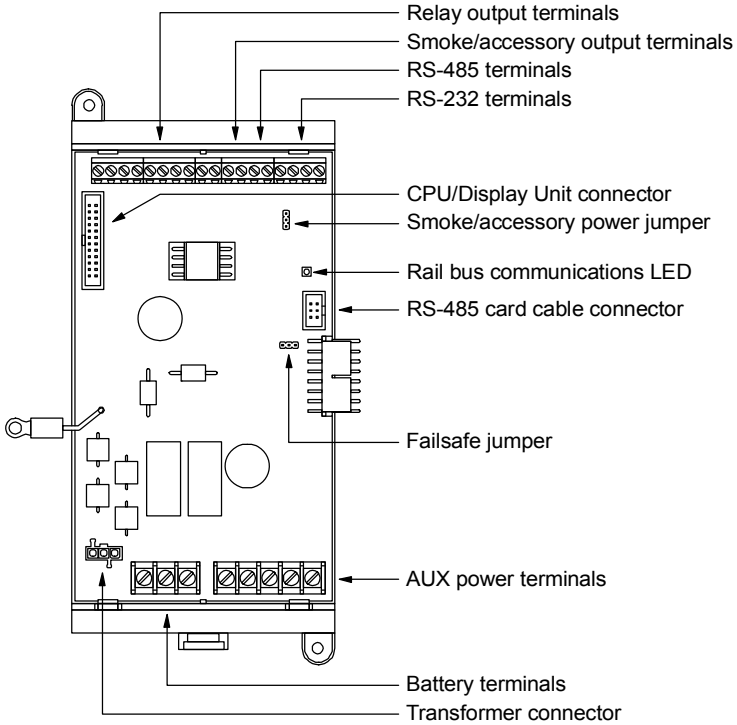


Figure 3-1: PS6 card front view

Specifications

Footprint: double space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
Input voltage
AC input: 115/230 V, 50/60 Hz via transformer
DC input: 24 Vdc via batteries

Battery charging circuit
- Charge voltage: 24 Vdc
- Deep discharge voltage: 19 Vdc
- Charge current: 2 A
- Charge capacity: 40 Ah (UL), 30 Ah (ULC)

Maximum rail load: 1.32 A at 24 Vdc

Smoke/accessory power output circuit
- Voltage: 24 Vdc, regulated
- Current: 250 mA
- Continuous or resettable via jumper selection

Auxiliary power output circuits
- Quantity: 3
- Voltage: 17.5 to 26.4 Vfwr (full-wave rectified)
- Current: 1.5 A each circuit, 4.5 A total

RS-485 port
- Wire type: Twisted pair, 6 twists/ft (18 twists/m), minimum
- Circuit capacitance: 0.4 µF
- Circuit resistance: 100 Ω
- Circuit length: 3,000 ft (914.4 m), maximum
- Signal voltage: 0 to 5 Vdc

RS-232 port
- Circuit length: 20 ft (6.1 m), maximum
- Signal voltage: -10 to 10 Vdc

Relay 1 (common alarm relay)
- Type: Form C
- Contact rating: 1 A at 20.0 to 26.4 Vdc (0.6 PF)

Relay 2 (common supervisory relay)
- Type: Normally open
- Contact rating: 1 A at 20.0 to 26.4 Vdc (0.6 PF)

Relay 3 (common trouble relay)
- Type: Normally open, held closed
- Contact rating: 1 A at 20.0 to 26.4 Vdc (0.6 PF)

Relay 4 (user programmable relay)
- Type: Normally open
- Contact rating: 1 A at 20.0 to 26.4 Vdc (0.6 PF)

Relay outputs

The PS6 card includes four dry contact relays that can be used to operate controls for ancillary equipment. The four relays are described below.

Relay 1: Form C relay that switches contact positions when any fire alarm input is activated (common alarm).

Relay 2: Normally open relay that closes when any supervisory input is activated (common supervisory).

Relay 3: Normally open, held closed relay that opens when there is any trouble condition or when the panel is de-energized (common trouble).

Relay 4: Normally open relay that closes and opens according to system programming.

Figure 3-2 shows the terminal block connections for the relay outputs on a PS6 card.

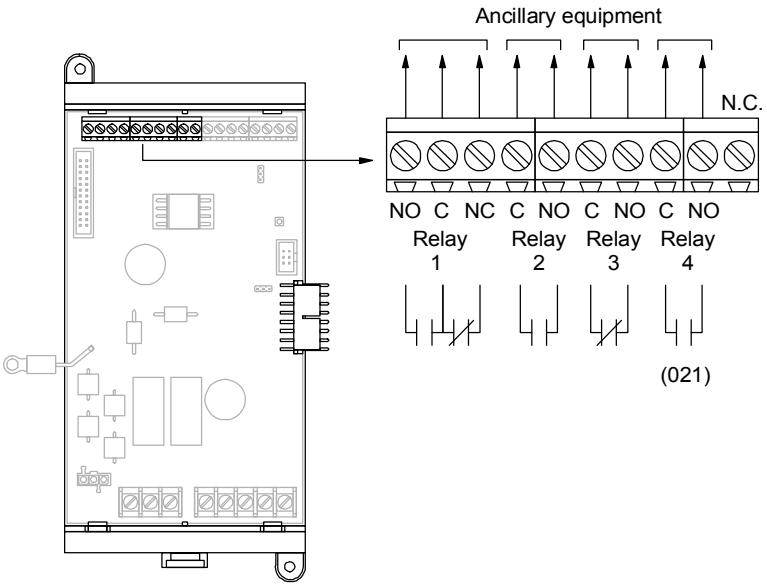


Figure 3-2: Relay output wiring

Smoke/accessory power output

The PS6 card provides one 24 Vdc regulated output (see Figure 3-3) for powering four-wire smoke detectors or accessory equipment.

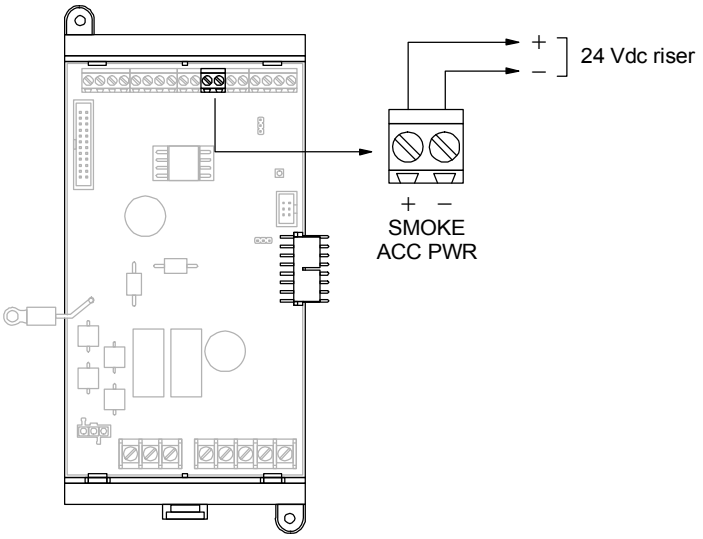


Figure 3-3: Smoke/accessory power output wiring

The smoke/accessory power output can be configured for continuous 24 Vdc or resettable 24 Vdc using jumper JP2. For more information, see "Jumper settings" later in this topic.

RS-485 communication port

The PS6 card provides one Class B RS-485 communication port (see Figure 3-4) for connecting remote annunciators to the control panel.

Note: Do not extend the RS-485 data cables more than 3,000 ft from the control panel.

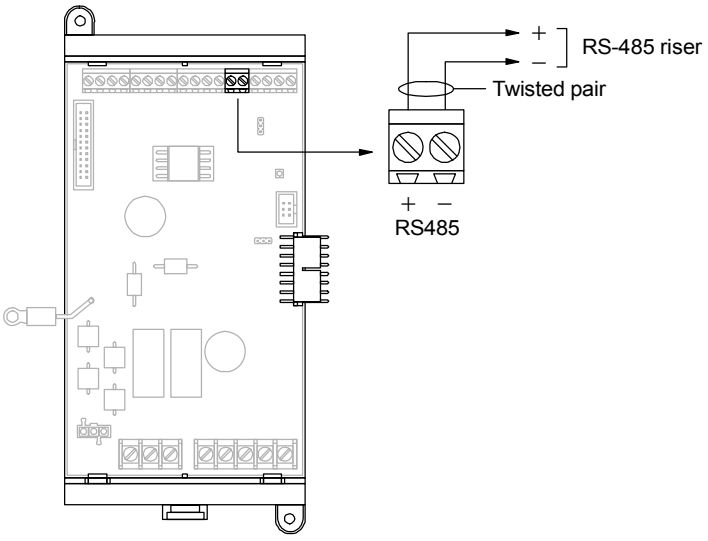


Figure 3-4: RS-485 port wiring

RS-232 communication port

The PS6 card provides one RS-232 communication port (see Figure 3-5) for connecting a laptop computer or accessory devices to the control panel.

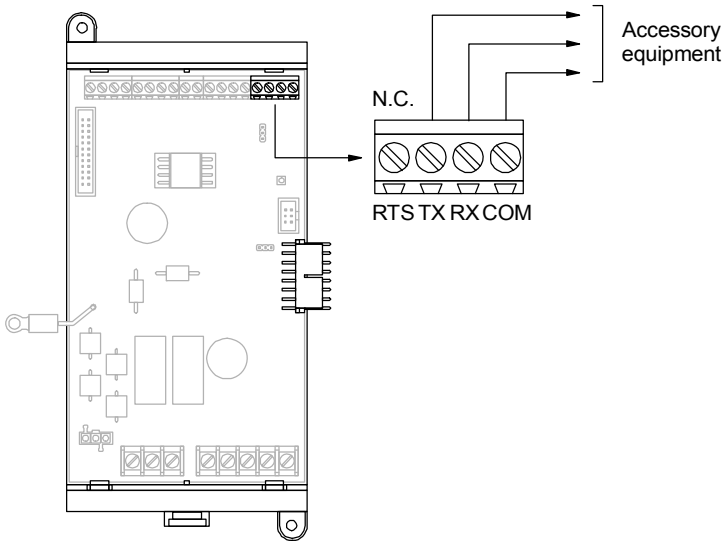


Figure 3-5: RS-232 port wiring

Auxiliary power outputs

The PS6 card provides three 24 Vfwr (full-wave rectified) power outputs (see Figure 3-6) for powering audible and visible notification appliances, and controls for ancillary equipment.

Note: Do not use the auxiliary power outputs to power remote annunciators.

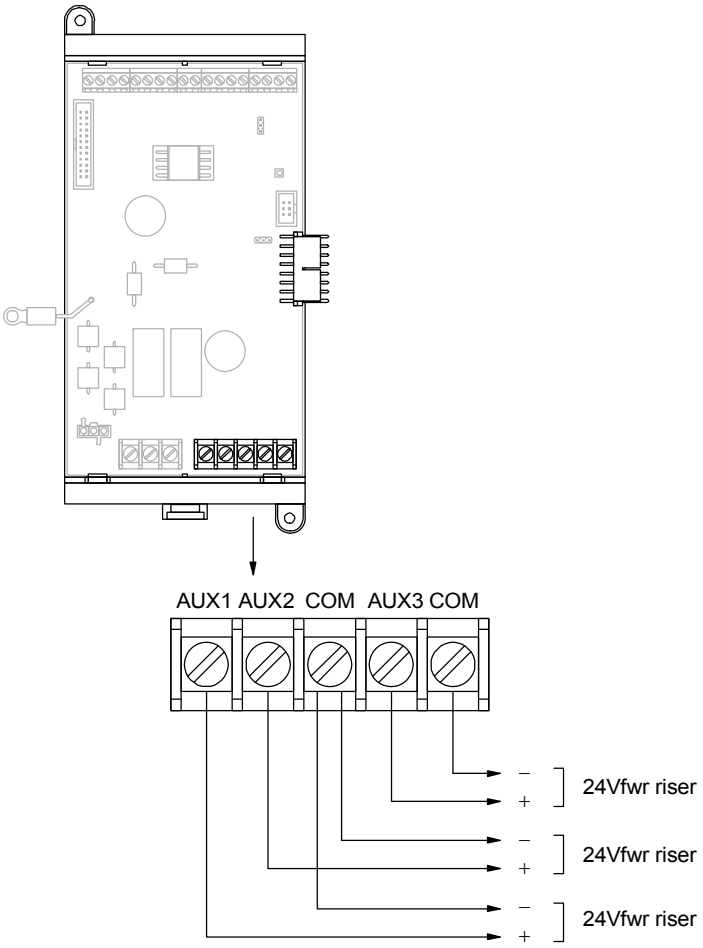


Figure 3-6: Auxiliary power output wiring

Standby battery input

Figure 3-7 shows the terminal block connections used to wire standby batteries to the PS6 card. For more information, see the topic “Connecting standby batteries” in Chapter 6.

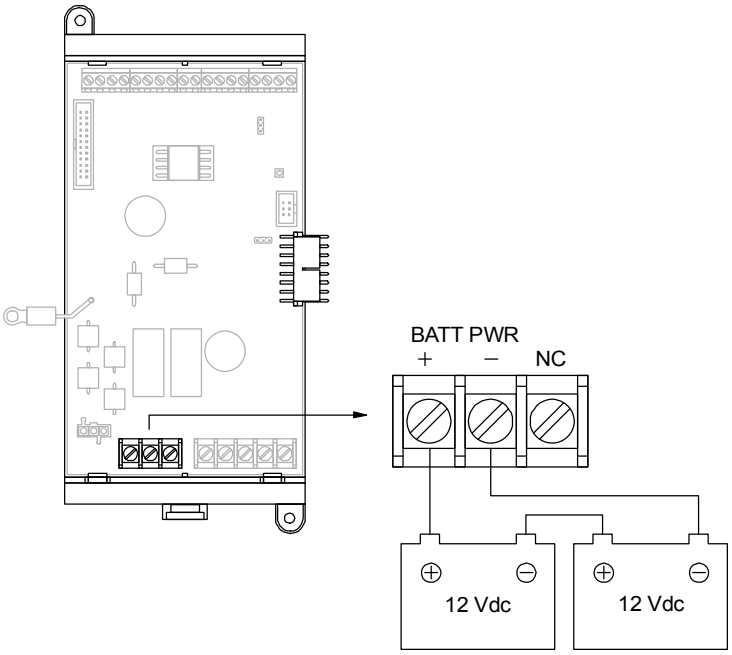


Figure 3-7: Standby battery wire connections

Caution: Observe battery polarity when connecting standby batteries to the PS6 card. Connecting batteries with their polarity reversed damages the PS6 card.

Address switch settings

The PS6 card does not have an address switch for assigning card addresses. The PS6 card's card address is factory set at 15.

For a list of PS6 card point addresses, see the topic "PS6 card addresses" in Appendix D.

Jumper settings

JP1 and JP2 (see Figure 3-8) are used to configure the PS6 card. JP1 enables or disables failsafe operation. JP2 configures the smoke/accessory power output for continuous or resettable 24 Vdc.

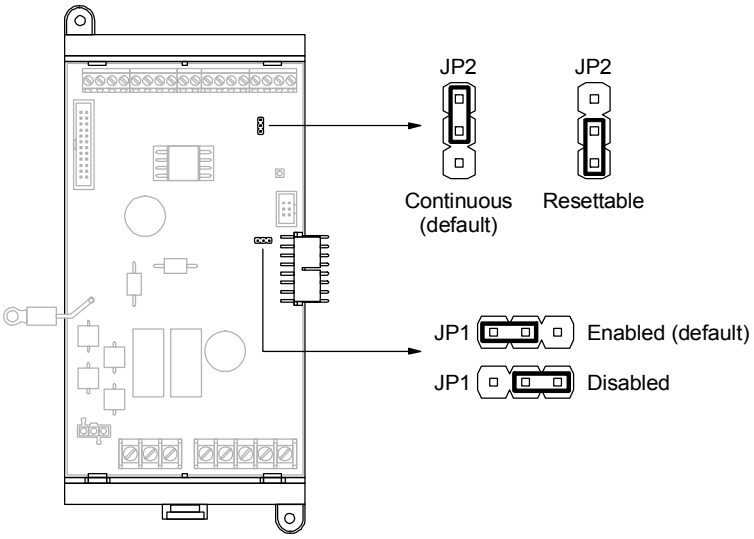


Figure 3-8: PS6 card jumpers

When JP1 is placed in the *enabled* position, the PS6 card automatically switches to failsafe operation if it loses communication with the CPU/Display Unit. Upon switching to failsafe operation, the common trouble relay contacts open and the PS6 card takes over responsibility for monitoring the fire alarm system. If a fire alarm input is activated while failsafe operation is in effect:

- The common alarm relay contacts switch positions (Relay 1 on the PS6 card)
- All conventional common alarm outputs are activated
- All intelligent addressable common alarm and audible outputs are activated

When JP2 is placed in the *resettable* position, a system reset temporarily removes 24 Vdc from the smoke/accessory output terminals. In the *continuous* position, system reset does not interrupt the output voltage.

SLIC Signature Loop Interface Controller

Description

The SLIC card (see Figure 3-9) provides one signaling line circuit interface (also called a loop) for connecting intelligent addressable components to the control panel. It also provides two conventional NAC output circuits for operating audible notification appliances (horns), visible notification appliances (strobes), and controls for ancillary equipment.

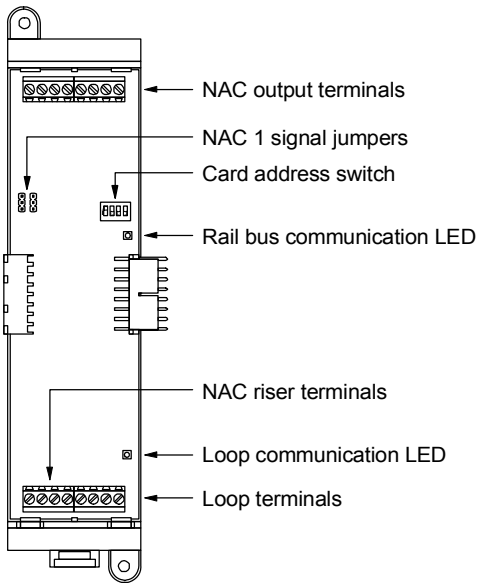


Figure 3-9: SLIC card front view

Specifications

Footprint: single space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
NAC output circuits
- Quantity: 2 (NAC 1 and NAC 2)
- Type: Reverse polarity
- Configuration: Class B or Class A
- NAC 1 output voltage: 24 V, nom. or 17.5 to 26.4 Vfwr (jumper configurable)
- NAC 1 output current: 2.0 A, max.
- NAC 2 output voltage: 24 V, nom.
- NAC 2 output current: 1.0 A, max.
- End-of-line resistor: 10 kΩ, 1/2 W

Signaling line circuit
- Quantity: 1
- Configuration: Class B or Class A

Capacity: 250 devices
T-taps: 124
Circuit resistance: 65 Ω, max.
Circuit capacitance: 0.3 µF, max.
Ground fault impedance: 5.5 kΩ

Riser input voltage: 24 V, nom.

Operating environment

Temperature: 32 to 120 °F (0 to 49 °C)
Humidity: 93% RH, noncondensing

Current requirements

Standby current: 33 mA
Alarm current: 57 mA (does not include NAC 1 current when JP1 and JP2 are set for *internal*)

NAC output circuits

NAC 1 and NAC 2 are dedicated NAC output circuits.

Both outputs can be independently wired to Class A or Class B notification appliance circuits (see Figure 3-10). In order to operate notification appliances connected to NAC 2, and optionally to NAC 1 via jumper selection, a 24-volt signal must be applied to the SLIC card's RISER IN terminals. The power supply must be UL/ULC listed for fire protective signaling systems.

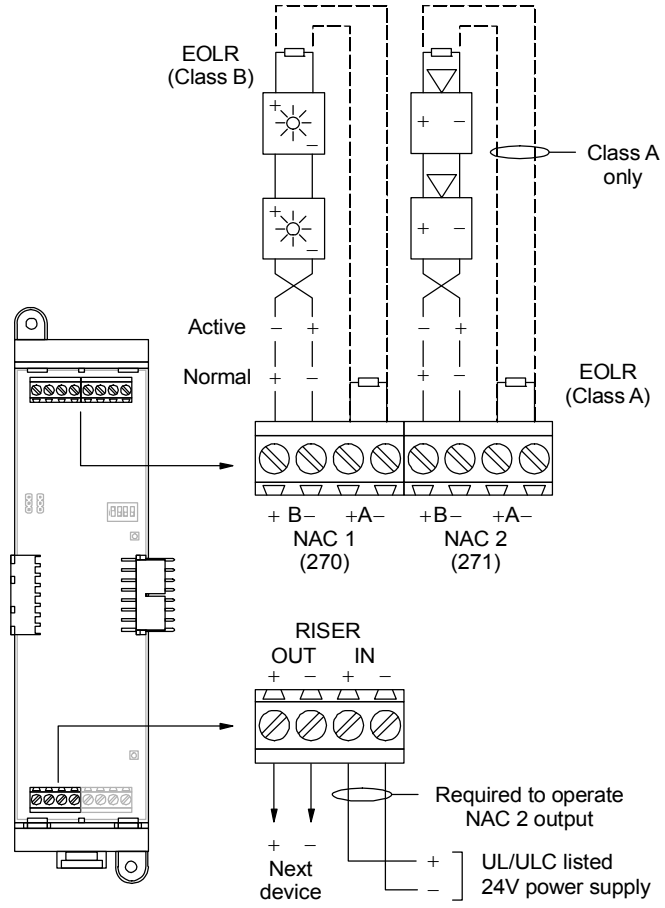


Figure 3-10: SLIC card NAC output wiring

In the normal state (i.e., the NAC output is turned off):

- A short or low impedance across the circuit wiring causes the NAC output to enter the trouble state and generate a TROUBLE SHRT event message
- An open circuit causes the NAC output to enter the trouble state and generate a TROUBLE OPEN event message

In the active state (i.e., the NAC output is turned on), circuit supervision is disabled. If a short is applied to the circuit wiring during this time, the short is passed through to the signal power source connected to the riser input terminals.

Note: NAC output circuits will not turn on (activate) if there is a short on the circuit wiring, but will turn on if there is an open circuit.

You can configure SLIC card NAC outputs as common alarm, audible, visible, or supervised outputs using the device types listed below.

Circuit type	Device type
Common alarm output	Com Alarm Out (default for NAC 2)
Audible output	Audible
Visible output	Visible (default for NAC 1)
Supervised output	Output

For more information about device types, see “Before you begin” in Chapter 7.

Intelligent addressable loop interface

Figure 3-11 shows the terminal connections for wiring an intelligent addressable loop to the SLIC card. The SLIC card supports the following intelligent addressable loop wiring configurations:

- Class B with or without t-taps
- Class A with or without t-taps

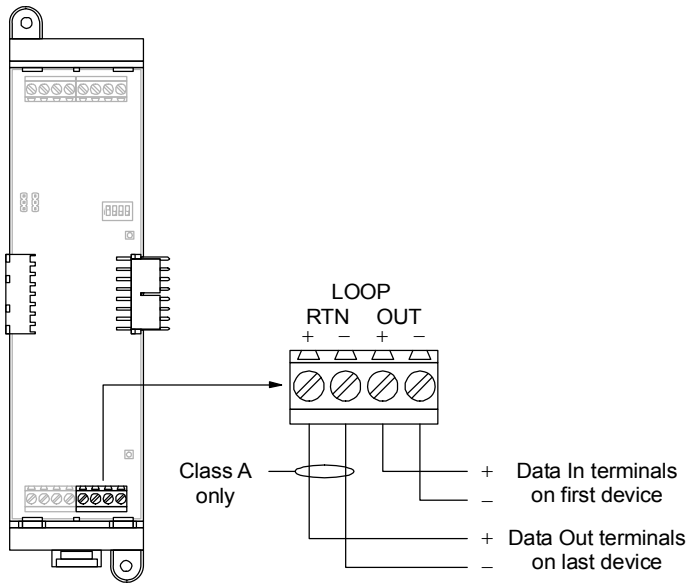
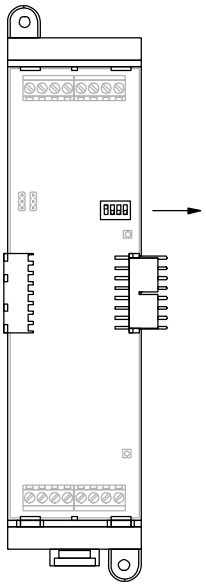


Figure 3-11: Intelligent addressable loop wiring

Address switch settings

You can configure the SLIC card for any address between 01 and 07 as shown in Figure 3-12.



Address	S1-1	S1-2	S1-3	S1-4
01	ON	OFF	OFF	OFF
02	OFF	ON	OFF	OFF
03	ON	ON	OFF	OFF
04	OFF	OFF	ON	OFF
05	ON	OFF	ON	OFF
06	OFF	ON	ON	OFF
07	ON	ON	ON	OFF

Figure 3-12: SLIC card address switch settings

For a list of SLIC card point addresses, see the topic “SLIC card addresses” in Appendix D.

Jumper settings

JP1 and JP2 (see Figure 3-13) select the signal used to operate notification appliances connected to NAC 1. Placing the jumper across pins 1 and 2 (default setting) selects the external 24 volts connected to the SLIC card’s RISER IN terminals. Placing the jumper across pins 2 and 3 selects the internal 24 volts from the rail bus.

If a signal is not connected to the RISER IN terminals and the jumpers are placed across pins 1 and 2, the devices connected to NAC 1 will not operate.

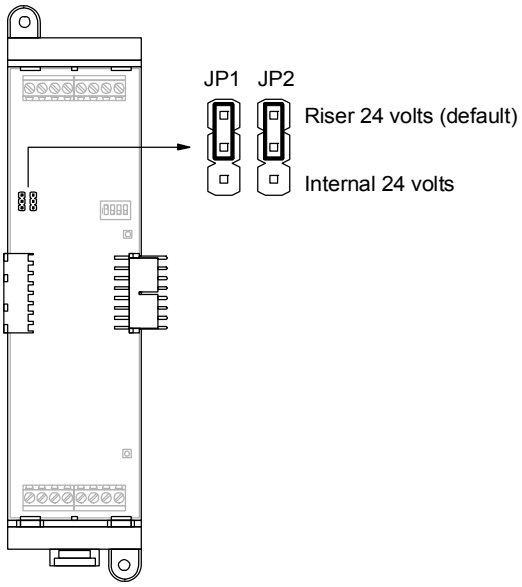


Figure 3-13: SLIC card jumpers

Note: The auxiliary power circuit on the PS6 card supplies the 24 volts derived from the rail. As such, when JP1 and JP2 are placed in the *internal* position, NAC 1 current loads must be accounted for to ensure that the auxiliary power circuit's current limit is not exceeded.

Two-wire smoke detector application

Typically, retrofitting a fire alarm system requires incorporating the protected premises' existing two-wire smoke detector circuits. To connect two-wire smoke detectors to an intelligent addressable loop you need a 2-SMK and a GSA-UM.

Note: Do not install more than 15 GSA-UMs configured for two-wire smoke detectors on a loop, no more than 7 if isolator devices are also installed.

To install this application:

1. Wire the 2-SMK and GSA-UM as shown in Figure 3-14.
2. Configure the GSA-UM's first address as an Alarm Active device type with one of the personality codes listed below.

Personality	Description
13	Supports Class B circuits consisting of two-wire smoke detectors and dry contact initiating devices (e.g., pull stations, heat detectors) and *does not* provide alarm verification

Personality	Description
14	Supports Class B circuits consisting of two-wire smoke detectors only and provides alarm verification
20	Supports Class A circuits consisting of two-wire smoke detectors and dry contact initiating devices (e.g., pull stations, heat detectors) and *does not* provide alarm verification
21	Supports Class A circuits consisting of two-wire smoke detectors only and provides alarm verification

3. Configure the GSA-UM's second address as a Monitor device type with None as its personality.
4. Set JP1 on the GSA-UM shown in Figure 3-14.
5. Set JP2 on the PS6 card for *continuous* 24 volts.

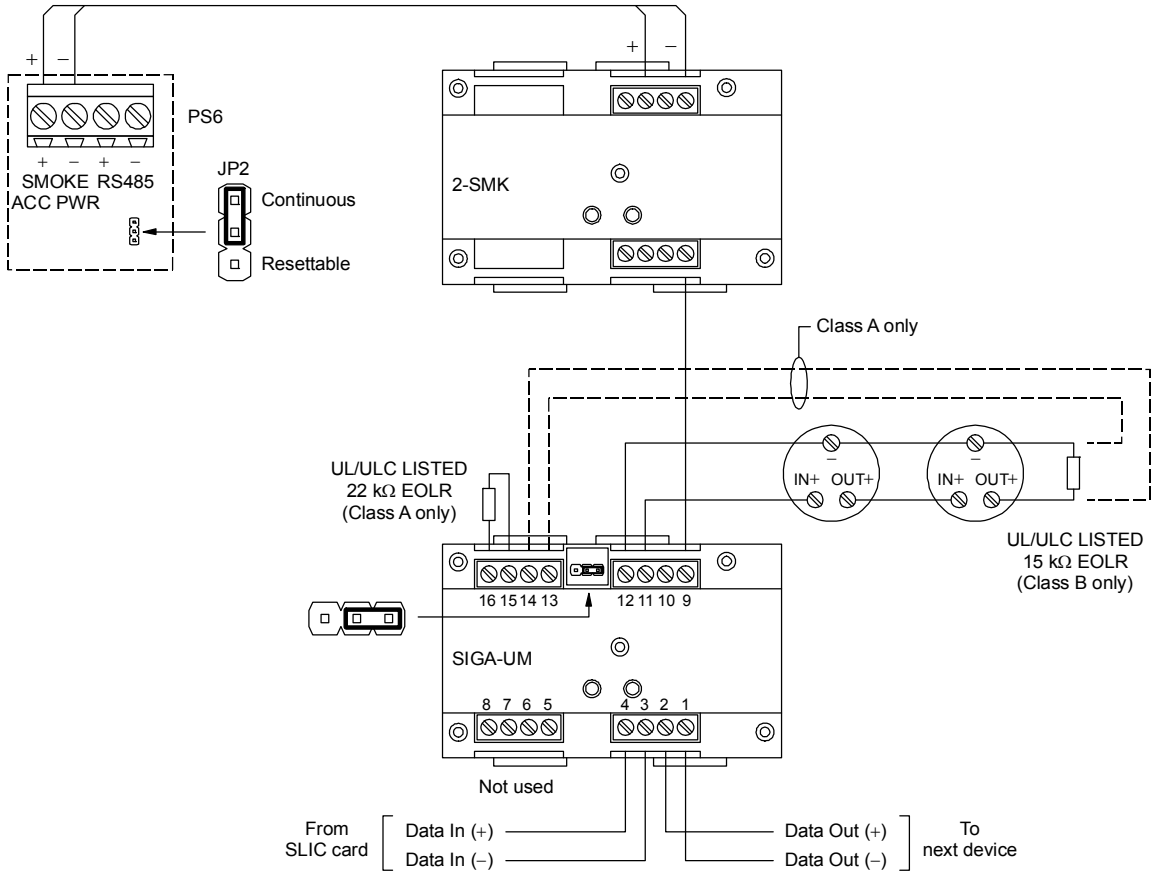


Figure 3-14: Two-wire smoke detector application wiring

Genesis horn/strobe application

Some jurisdictions require that Alarm Silence turns off audible notification appliances (horns) but not visible notification appliances (strobes.) If your system uses Genesis horn/strobes, to meet this requirement you need to include a GSA-CR.

Note: This application requires that you use the software configuration utility. The GSA-RM1 is used only if supervision of the NAC power riser is required.

1. Wire the GSA-CR and Genesis horn/strobe as shown in Figure 3-15.
2. Configure the GSA-CC1 as a Visible device type.
3. Configure the GSA-CR as a Dry Contact device type.
4: Program an Alarm Silence response that activates the GSA-CR.

   When the GSA-CR is activated its normally closed contacts open and removes power from the Genesis horn/strobe's horn input.

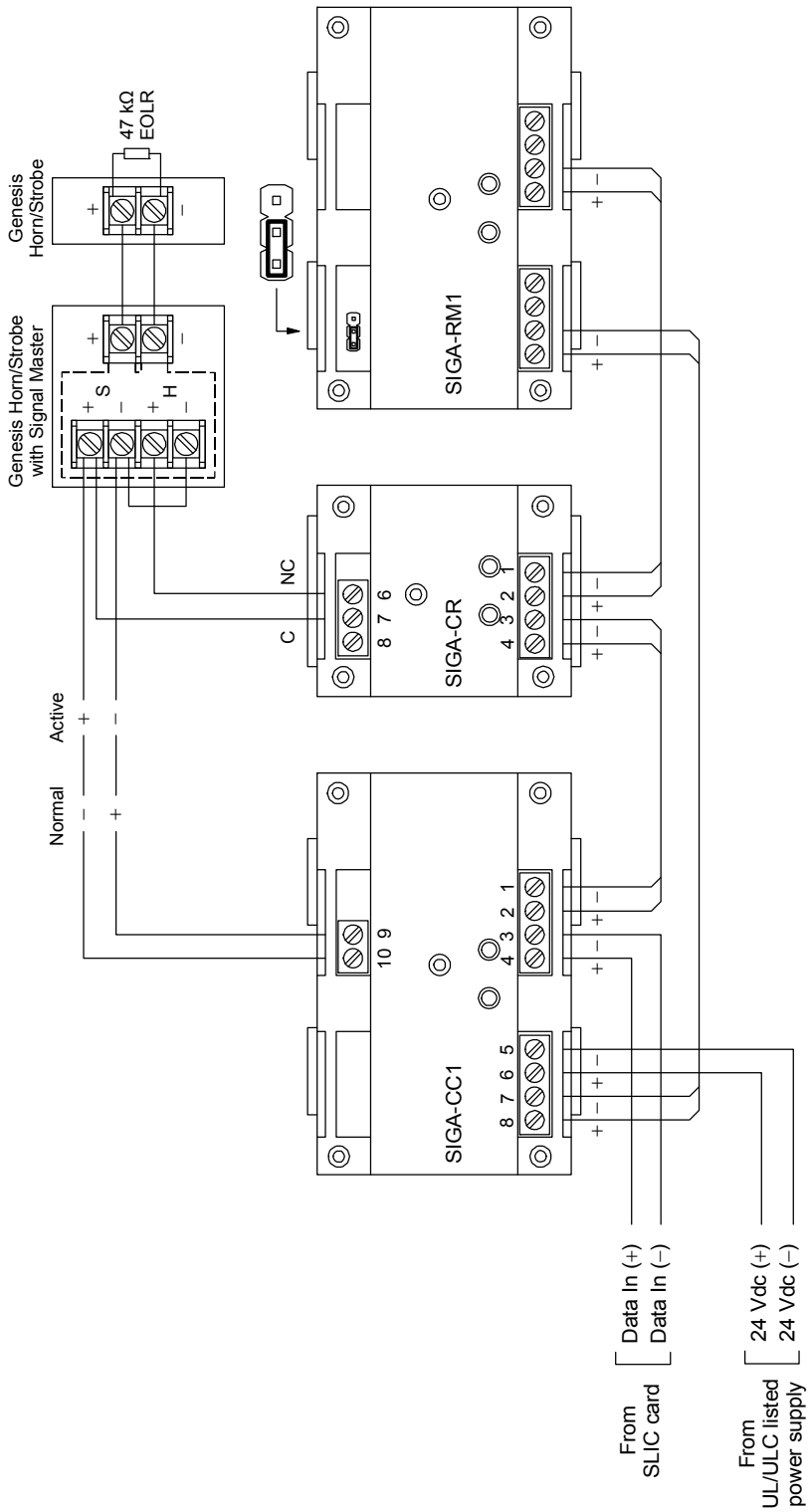


Figure 3-15: Genesis horn/strobe application wiring

ZB16-4 Class B Conventional Zone Card

Description

The ZB16-4 card provides 16 Class B IDC input circuits for monitoring hard-wired zones consisting of two-wire smoke detectors and dry contact initiating devices. Four of the IDC input circuits can be configured as Class B NAC output circuits for operating polarized audible notification appliances (horns), visible notification appliances (strobes), and controls for ancillary equipment.

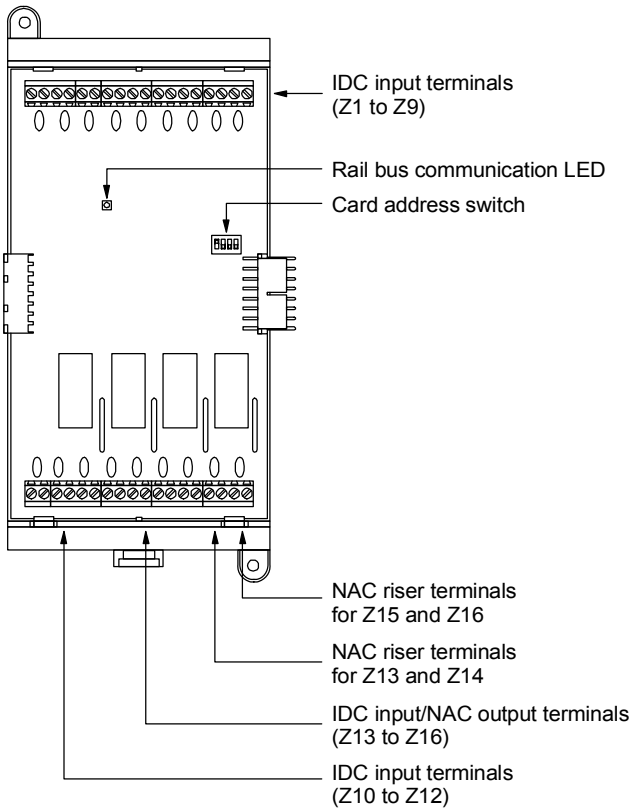


Figure 3-16: ZB16-4 card front view

Specifications

Footprint: double space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
IDC input circuits
- Quantity: 12 to 16
- Wiring configuration: Class B
- Detector voltage: 20.33 to 24.76 Vdc, max. ripple 2,000 mV
- Short circuit current: 75.9 mA, max.

Resistance: 50 Ω, max.
Capacitance: 100 µF, max.
End-of-line resistor: 4.7 kΩ, 1/2 W
Compatibility ID: 100

NAC output circuits
Quantity: 1 to 4
Wiring configuration: Class B
Output voltage: 24 V, nominal
Output current: 2.0 A, max.
End-of-line resistor: 10 kΩ, 1/2 W

Riser inputs
Quantity: 2
Voltage: 24 V, nominal

Operating environment
Temperature: 32 to 120 °F (0 to 49 °C)
Humidity: 93% RH, noncondensing

IDC input circuits

Z1 through Z12 (see Figure 3-18) are dedicated initiating device circuit (IDC) inputs. Z13 through Z16 can be configured as IDC inputs or as notification appliance circuit (NAC) outputs. For more information, see the topic “NAC output circuits” below.

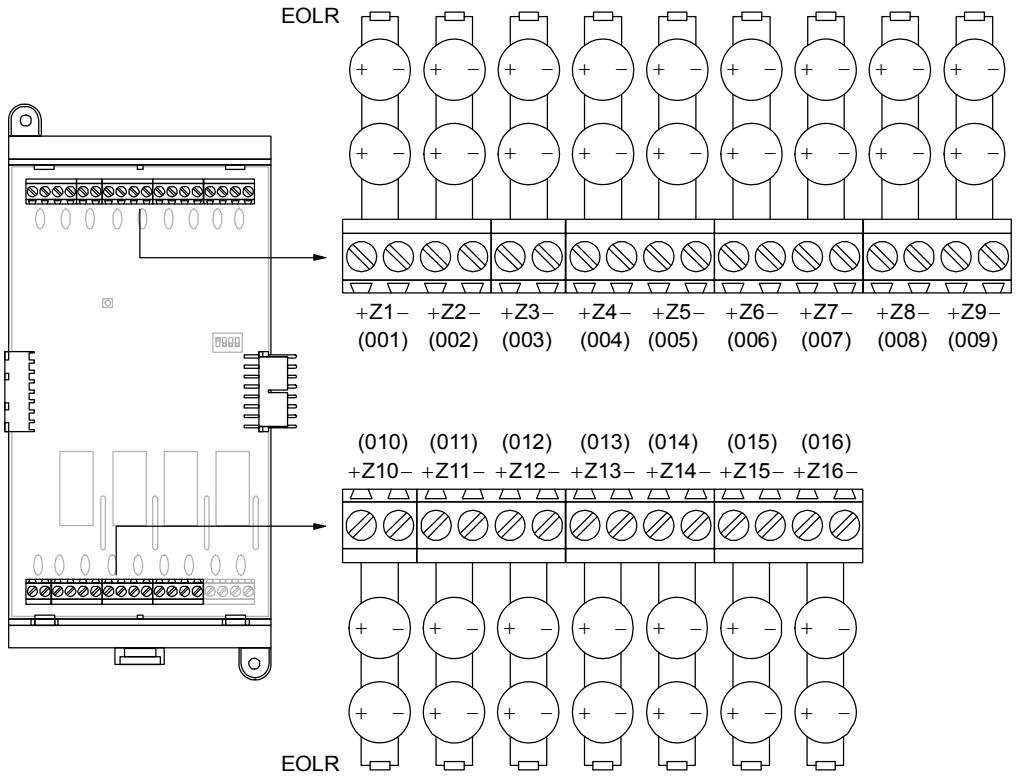


Figure 3-17: ZB16-4 card IDC input circuit wiring

ZB16-4 card IDC inputs operate as follows:

- A short or low impedance across the circuit wiring causes the circuit to enter the active state and generate an event message based on its device type
- An open circuit causes the IDC input to enter the trouble state and generate a TROUBLE OPEN event message

ZB16-4 card IDC inputs are configured as fire alarm, supervisory, or monitor inputs using the device types listed below.

Circuit type	Device type
Fire alarm input	Alarm Active (default), Pull Station, Heat Alarm, Alarm Verify, and Waterflow
Supervisory input	Supervisory, Tamper, Latching Supervisory, and Latching Tamper
Monitor input	Monitor

For more information about device types, see “Before you begin” in Chapter 7.

NAC output circuits

By default, Z13 through Z16 are configured as NAC output circuits. In order to operate notification appliances connected to Z13 and Z14, a 24-volt signal must be applied to the ZB16-4 card’s R1 terminals. In order to operate appliances connected to output circuits Z15 and Z16, a 24-volt signal must be applied to the ZB16-4 card’s R2 terminals. The power supply must be UL/ULC listed for fire protective signaling systems.

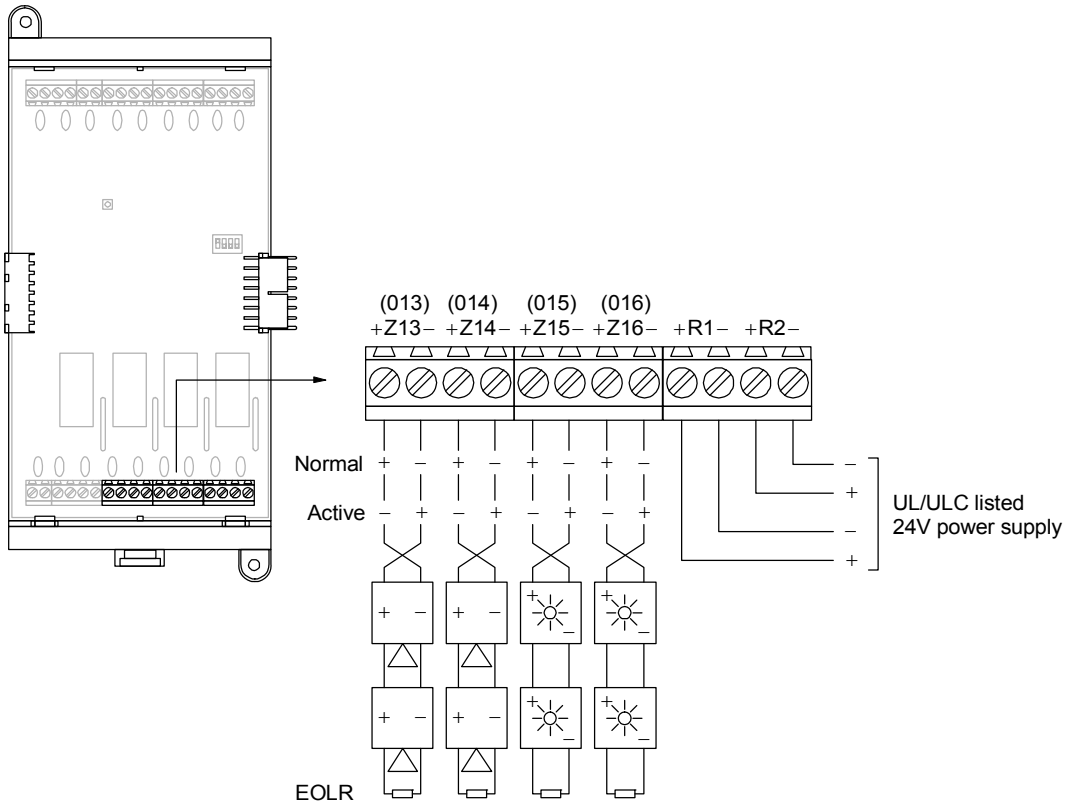


Figure 3-18: ZB16-4 card NAC output circuit wiring

In the normal state (i.e., the NAC output is turned off), ZB16-4 card NAC outputs operate as follows:

- A short or low impedance across the circuit wiring causes the NAC output to enter the trouble state and generate a TROUBLE SHRT event message
- An open circuit causes the NAC output to enter the trouble state and generate a TROUBLE OPEN event message

In the active state (i.e., the NAC output is turned on), circuit supervision is disabled. If a short is applied to the circuit wiring during this time, the short is passed through to the signal power source connected to the riser input terminals.

Note: NAC output circuits will not turn on (activate) if a short is present on the circuit wiring but will turn on if there is an open circuit.

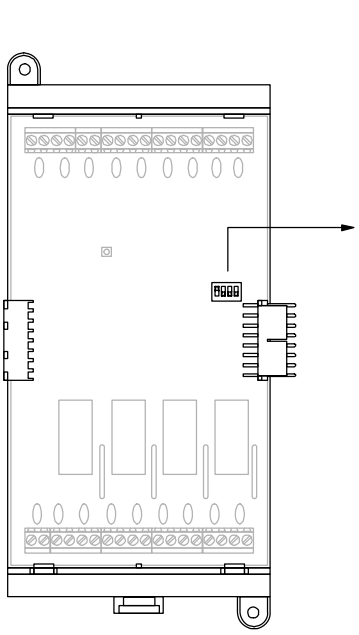
ZB16-4 card NAC outputs are configured as common alarm, audible, visible, or supervised outputs using the device types listed below.

Circuit type	Device type
Common alarm output	Comm Alm Out (default for Z13 and Z14)
Audible output	Audible
Visible output	Visual (default for Z15 and Z16)
Supervised output	Super Output

For more information about device types, see “Before you begin” in Chapter 7.

Address switch settings

You can configure the ZB16-4 card for any address between 01 and 13 as shown in Figure 3-19.



Address	S1-1	S1-2	S1-3	S1-4
01	ON	OFF	OFF	OFF
02	OFF	ON	OFF	OFF
03	ON	ON	OFF	OFF
04	OFF	OFF	ON	OFF
05	ON	OFF	ON	OFF
06	OFF	ON	ON	OFF
07	ON	ON	ON	OFF
08	OFF	OFF	OFF	ON
09	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON

Figure 3-19: ZB16-4 card address switch

For a list of ZB16-4 card point addresses, see the topic “ZB16-4 card addresses” in Appendix D.

ZA8-2 Class A Conventional Zone Card

Description

The ZA8-2 card (see Figure 3-20) provides eight Class A IDC input circuits for monitoring hard-wired zones consisting of two-wire smoke detectors and dry contact initiating devices. Two of the IDC input circuits can be configured as Class A NAC output circuits for operating polarized audible notification appliances (horns), visible notification appliances (strobes), and controls for ancillary equipment.

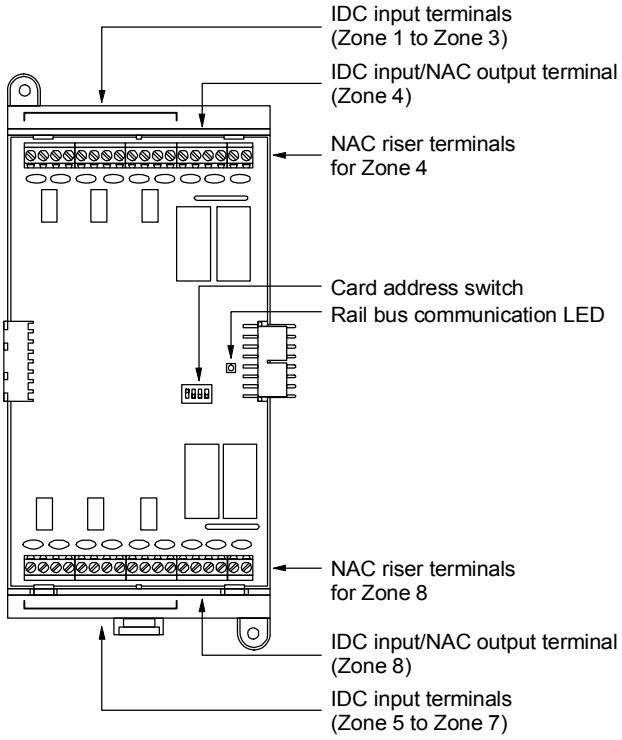


Figure 3-20: ZA8-2 card front view

Specifications

Footprint: double space
Wire size: 0.75 to 2.5 sq mm (18 to 12 AWG)
Input circuits
- Quantity: 6 to 8
- Wiring configuration: Class A
- Detector voltage: 20.33 to 24.76 Vdc, max. ripple 2,000 mV
- Output current: 100 mA, max.
- Maximum standby current: 120 µA
- Resistance: 50 Ω, max.

Capacitance: 100 µF, max
End-of-line resistor: 4.7 kΩ, 1/2 W

Output circuits
Quantity: 1 to 2
Wiring configuration: Class A
Output voltage: 24 V, nominal
Output current: 2.0 A, max.
End-of-line resistor: 10 kΩ, 1/2 W

Riser inputs
Quantity: 2
Voltage: 24 V, nominal

Operating environment
Temperature: 32 to 120 °F (0 to 49 °C)
Humidity: 93% RH, noncondensing

IDC input circuits

Zone 1 through Zone 3 and Zone 5 through Zone 7 (see Figure 3-21) are dedicated initiating device circuit (IDC) inputs. Zone 4 and Zone 8 can be configured as IDC inputs or as notification appliance circuit (NAC) outputs. For more information, see the topic “NAC output circuits” below.

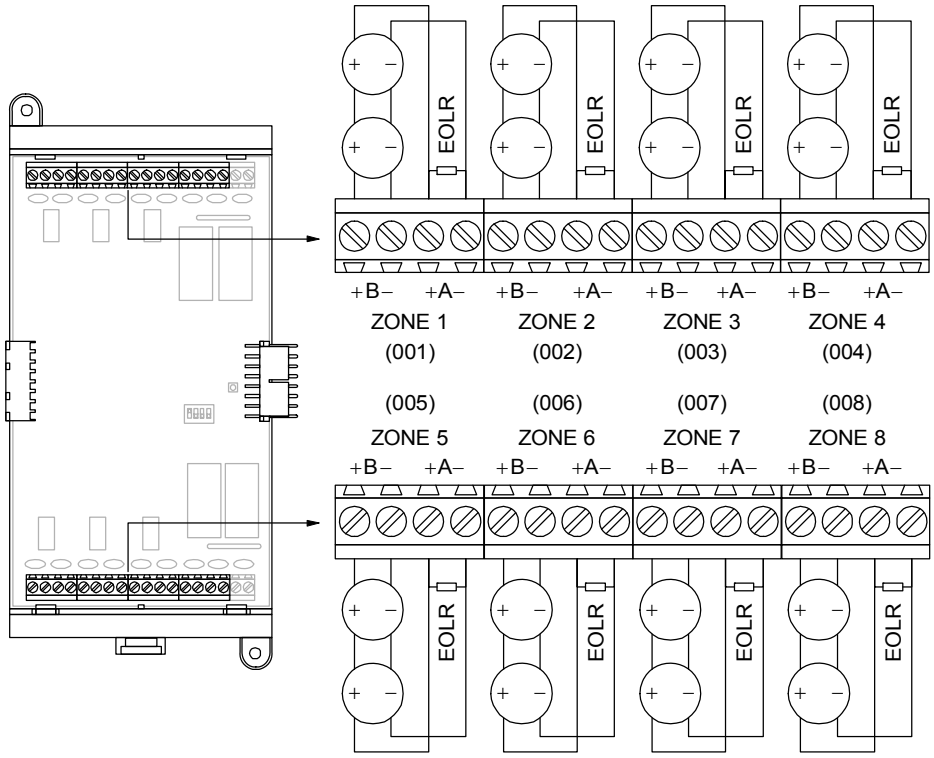


Figure 3-21: ZA8-2 card IDC input circuit wiring

ZA8-2 card IDC inputs operate as follows:

- A short or low impedance across the circuit wiring causes the circuit to enter the active state and generate an event message based on its device type
- An open circuit causes the IDC input to enter the trouble state and generate a TROUBLE OPEN event message

Note: Open circuit troubles are latched and won't clear until the wiring fault is corrected and the control panel is reset.

You can configure ZA8-2 card IDC inputs as fire alarm, supervisory, or monitor inputs using the device types listed below.

Circuit type	Device type
Fire alarm input	Alarm Active (default), Pull Station, Heat Alarm, Alarm Verify, and Waterflow
Supervisory input	Supervisory, Tamper, Latching Supervisory, and Latching Tamper
Monitor input	Monitor

For more information about device types, see “Before you begin” in Chapter 7.

NAC output circuits

By default, Zone 4 and Zone 8 (see Figure 3-22) are configured as NAC output circuits. In order to operate notification appliances connected to Zone 4, a 24-volt signal must be applied to the ZA8-2 card’s top NAC PWR IN terminals. In order to operate notification appliances connected to Zone 8, a 24-volt signal must be applied to the ZA8-2 card’s bottom NAC PWR IN terminals. The power supply must be UL/ULC listed for fire protective signaling systems

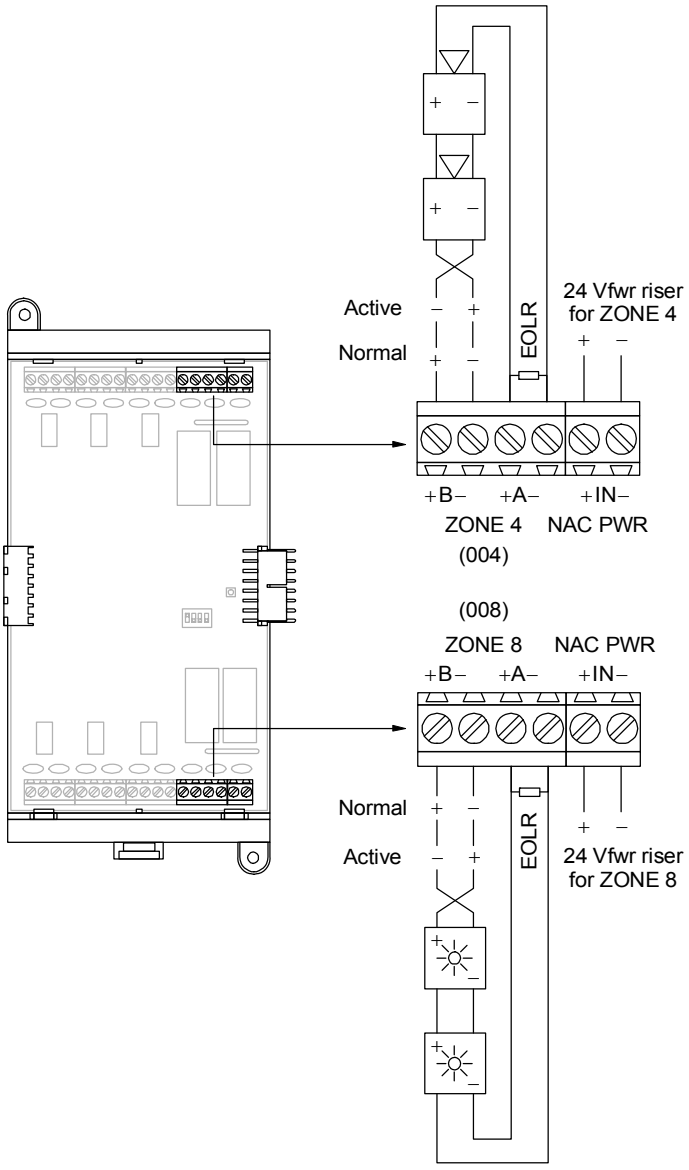


Figure 3-22: ZA8-2 card NAC output circuit wiring

In the normal state (i.e., the NAC output is turned off), ZA8-2 card NAC outputs operate as follows:

- A short or low impedance across the circuit wiring causes the NAC output to enter the trouble state and generate a TROUBLE SHRT event message
- An open circuit causes the NAC output to enter the trouble state and generate a TROUBLE OPEN event message

In the active state (i.e., the NAC output is turned on), circuit supervision is disabled. If a short is applied to the circuit wiring during this time, the short is passed through to the signal power source connected to the riser input terminals.

Note: NAC output circuits will not turn on (activate) if a short is present on the circuit wiring but will turn on if there is an open circuit.

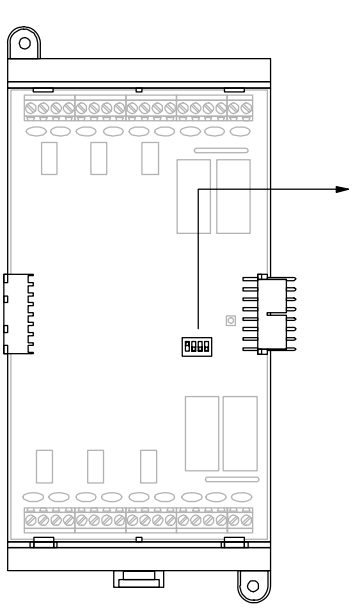
You can configure ZA8-2 card NAC outputs as common alarm, audible, visible, or supervised outputs using the device types listed below.

Circuit type	Device type
Common alarm output	Comm Alm Out (default for Zone 4)
Audible output	Audible
Visible output	Visual (default for Zone 8)
Supervised output	Super Output

For more information about device types, see "Before you begin" in Chapter 7.

Address switch settings

You can configure the ZA8-2 card for any address between 01 and 13 as shown in Figure 3-23.



Address	S1-1	S1-2	S1-3	S1-4
01	ON	OFF	OFF	OFF
02	OFF	ON	OFF	OFF
03	ON	ON	OFF	OFF
04	OFF	OFF	ON	OFF
05	ON	OFF	ON	OFF
06	OFF	ON	ON	OFF
07	ON	ON	ON	OFF
08	OFF	OFF	OFF	ON
09	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON

Figure 3-23: ZA8-2 card address switch settings

For a list of ZA8-2 card point addresses, see the topic "ZA8-2 card addresses" in Appendix D.

ZR8 Relay Card

Description

The ZR8 card provides eight separate relays for operating ancillary equipment. Each relay is jumper configurable for normally open or normally closed operation.

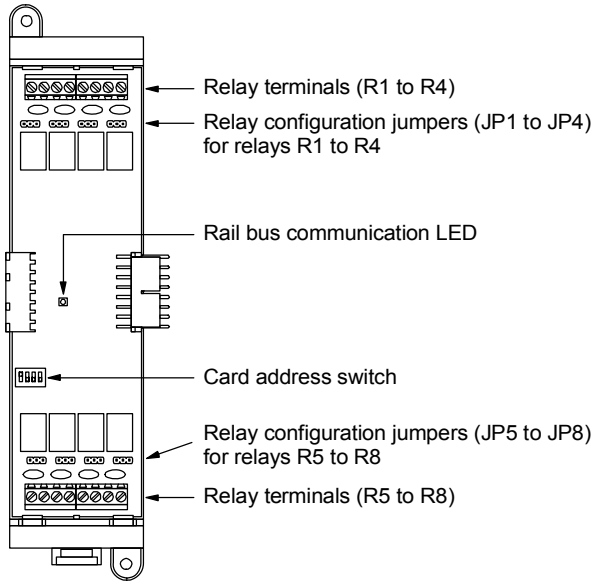


Figure 3-24: ZR8 card front view

Specifications

Footprint: single space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
Relay outputs
- Quantity: 8
- Style: Normally open or normally closed via jumper selection
- Contact rating: 1.0 A at 24 Vdc (0.6 PF)

Operating environment
- Temperature: 32 to 120 °F (0 to 49 °C)
- Humidity: 93% RH, noncondensing

Relay outputs

Figure 3-25 shows the terminal block connections for each relay output. Relay contacts are configured for normally open or normally closed operation via jumper selections.

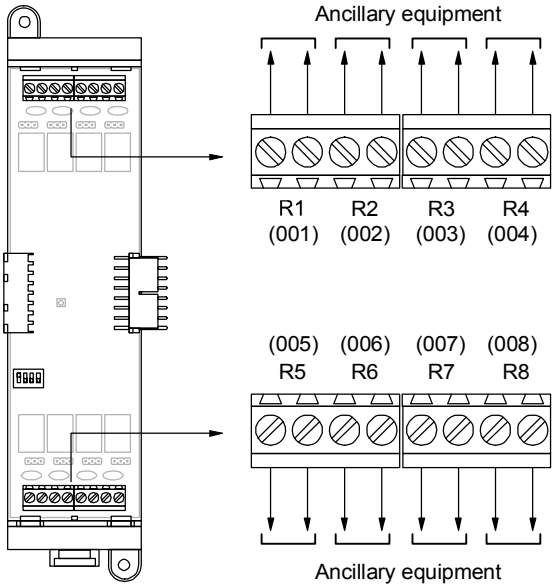
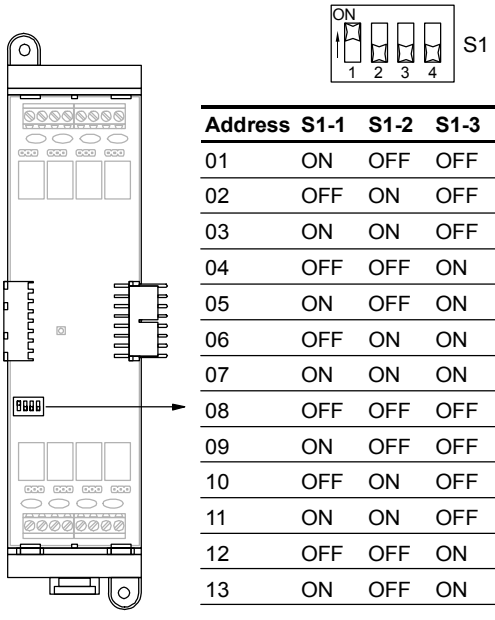


Figure 3-25: ZR8 card relay output wiring

Address switch settings

You can configure the ZR8 card for any address between 01 and 13 as shown in Figure 3-26



Address	S1-1	S1-2	S1-3	S1-4
01	ON	OFF	OFF	OFF
02	OFF	ON	OFF	OFF
03	ON	ON	OFF	OFF
04	OFF	OFF	ON	OFF
05	ON	OFF	ON	OFF
06	OFF	ON	ON	OFF
07	ON	ON	ON	OFF
08	OFF	OFF	OFF	ON
09	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON

Figure 3-26: ZR8 card address switch settings

For a list of ZR8 card point addresses, see the topic “ZR8 card addresses” in Appendix D.

Jumper settings

Jumpers JP1 through JP8 (see Figure 3-27) determine the position of the relay contacts when the relays are de-energized. JP1 through JP4 configure relays R1 through R4, respectively. JP5 through JP8 configure relays R5 through R8, respectively.

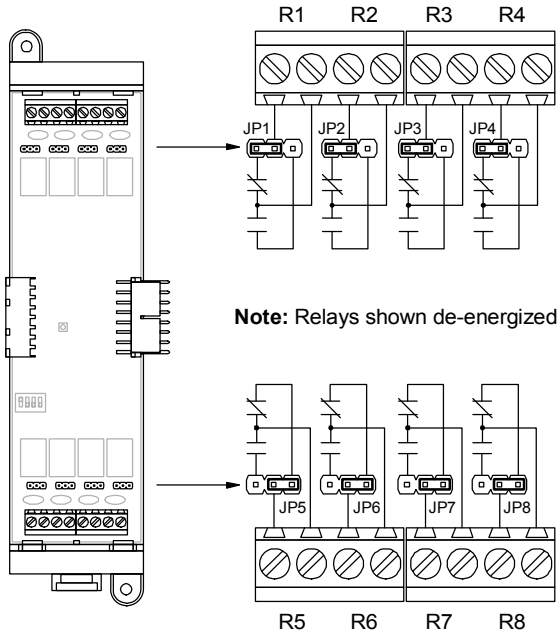


Figure 3-27: ZR8 card jumpers

Note: The intended operation of the relay must be taken into consideration when making jumper selections. For example, if you want the relay to close on any trouble condition, including loss of power, place the jumper in the normally closed position and program the relay so that it is energized at system start up.

DLD Dual Line Dialer Card

Description

The DLD card provides two telephone line connections for transmitting system status changes over the public switched telephone network to one or two compatible digital alarm communicator receivers (DACR). The DLD card can transmit status changes in Contact ID and 4/2 formats to eight subscriber accounts.

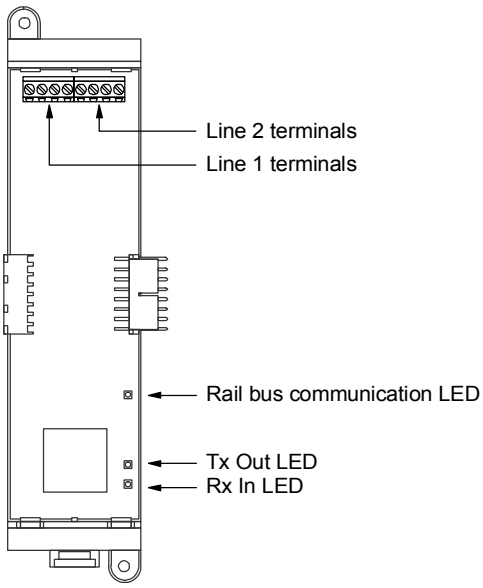


Figure 3-28: DLD card front view

Specifications

Footprint: single space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
Current requirements
- Standby: 13 mA
- Dialing: 20 mA

Operating environment
- Temperature: 32 to120 °F (0 to 49 °C)
- Humidity: 93 % RH, noncondensing

Address switch settings

The DLD card does not have an address switch for assigning card addresses. The DLD card's card address is factory set at 14.

AutoCID feature

The DLD card incorporates an AutoCID (automatic Contact ID) feature that provides a predefined set of dialer strings for transmitting status changes to Contact ID subscriber accounts. The DLD card transmits the predefined set of dialer strings when a point changes to an active or trouble state, provided:

- The point that changed to the active or trouble state is not programmed to initiate a separate dialer response
- The project database does not include a default alarm, supervisory, or trouble dialer message

The transmission order is to transmit custom dialer responses first. If there isn't a custom dialer response programmed, transmit the default message. If a default message is not programmed then transmit the predefined dialer string.

The predefined Contact ID dialer strings are listed below.

Fire alarm inputs

Device type	Event code	Group No.	Point ID
Alarm (see note)	110	Card no.	Device no.
Alarm zone	110	00	Zone no.
AND group	None		
Heat	114	Card no.	Device no.
Matrix group	None		
Pull	115	Card no.	Device no.
Verified smoke	110	Card no.	Device no.
Waterflow	113	Card no.	Device no.

Note: Event code 111 is transmitted for intelligent addressable smoke detectors that are assigned the Alarm device type.

Supervisory inputs

Device type	Event code	Group No.	Point ID
Latching supervisory	200	Card no.	Device no.
Latching tamper	203	Card no.	Device no.
Supervisory	200	Card no.	Device no.
Supervisory zone	200	00	Zone no.
Tamper	203	Card no.	Device no.

Trouble conditions

Description	Event code	Group No.	Point ID
Detector trouble	380	Card no.	Device no.
Device disable	570	Card no.	Device no.
Circuit trouble	373	Card no.	Device no.
Zone trouble	300	00	Zone no.
Zone disable	570	00	Zone no.
Service group test	607	00	Service no.
Peripheral communication fault	330	00	000
Battery charger fault	302	00	000
Battery fault	302	00	000
Auxiliary power output shorted	320	00	000
Primary AC power failure	301	00	000
Excessive battery current	302	00	000
Ground fault (GSA devices only)	310	Card no.	Device no.
All other ground faults	310	00	000
Loop wiring problem	331	Card no.	000
Loop ground fault	310	Card no.	000
TELCO Line 1 fault	351	00	000
TELCO Line 2 fault	352	00	000
CMS receiver fault	354	00	000
Periodic test (system normal)	602	00	000
Periodic test (system abnormal)	608	00	000
System test - Drill	604	00	000
All other troubles	300	00	000
All other disables	570	Card no.	Device no.

Wiring

The DLD card typically connects to an RJ-31X block using an 8-position, 4-conductor modular cord as shown in Figure 3-29.

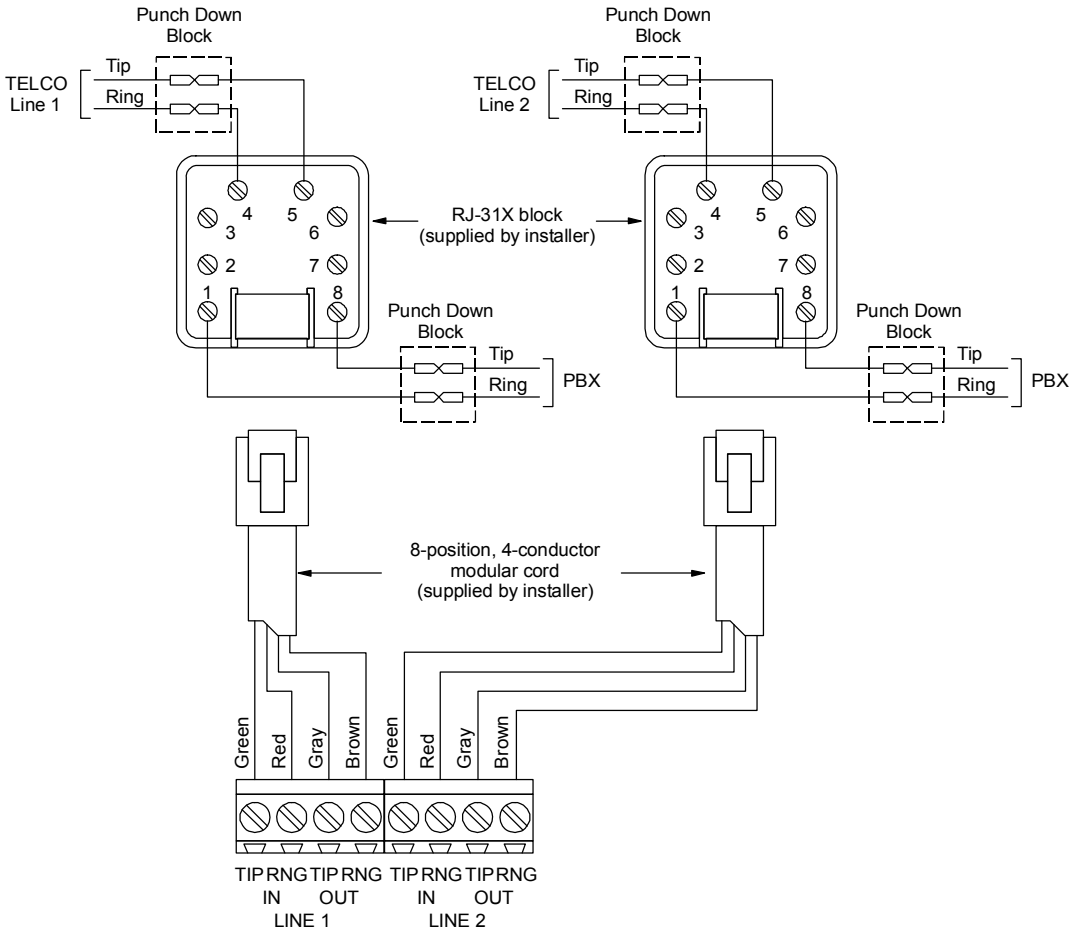


Figure 3-29: DLD installation wiring diagram

The modular cord's wire colors may not be the same as shown in Figure 3-29 so you should verify the wire continuity between the DLD card and the RJ-31X block's terminals as shown in Figure 3-30.

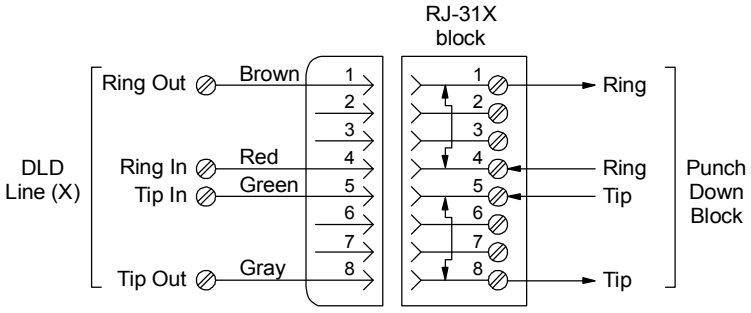


Figure 3-30: RJ-31X block schematic

NT-A (RS-485 card with QS-232 module)

Description

The NT-A consists of the RS-485 card and the QS-232 UART module. Together, they provide an additional communication channel for wiring Class A remote annunciator panels. The control panel requires installation of both cards while remote annunciators only require installation of the QS-232 UART module and only then if you want to connect a printer or laptop computer to the remote annunciator.

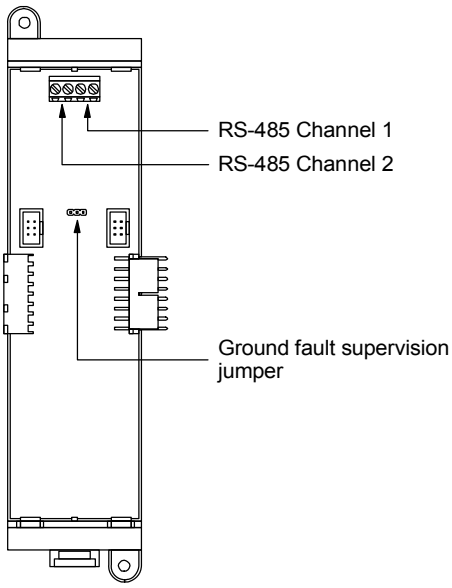


Figure 3-31: RS-485 card front view

Specifications

Footprint: single space (RS-485 card)
Wire size: 18 to 12 AWG (0.75 to 2.5 sq mm)
Wire type: Twisted pair, six twists per foot, minimum
Circuit capacitance: 0.4 μF
Circuit resistance: 100 Ω
Circuit length: 3,000 ft (914.4 m), maximum
Signal voltage: 0 to 5 Vdc

Address switch settings

The NT-A does not require a card address and therefore does not have an address switch.

Jumper settings

JP1 (see Figure 3-32) enables ground fault supervision of the RS-485 data cables by the PS6 card. Ground fault supervision must be enabled when the PS6 card is used to supply power to a remote annunciator. Ground fault supervision must be disabled when the PS6 card is *not* used to power remote annunciators.

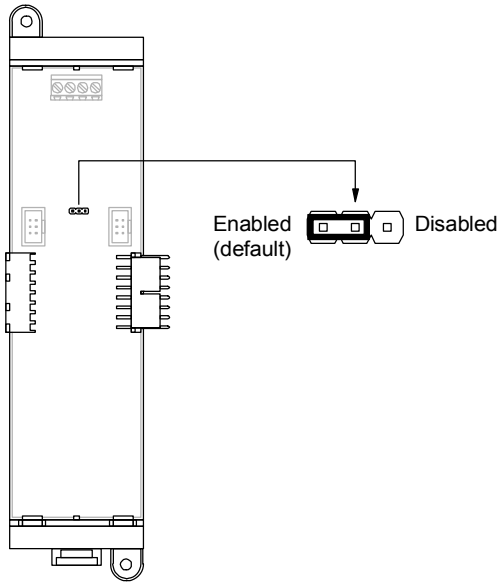


Figure 3-32: RS-485 card jumpers

RS-485 data cable connections

Figure 3-33 shows the terminal block connections for wiring data cables to the RS-485 card.

Note: Do not extend the RS-485 data cables more than 3,000 ft (914.4 m) from the control panel.

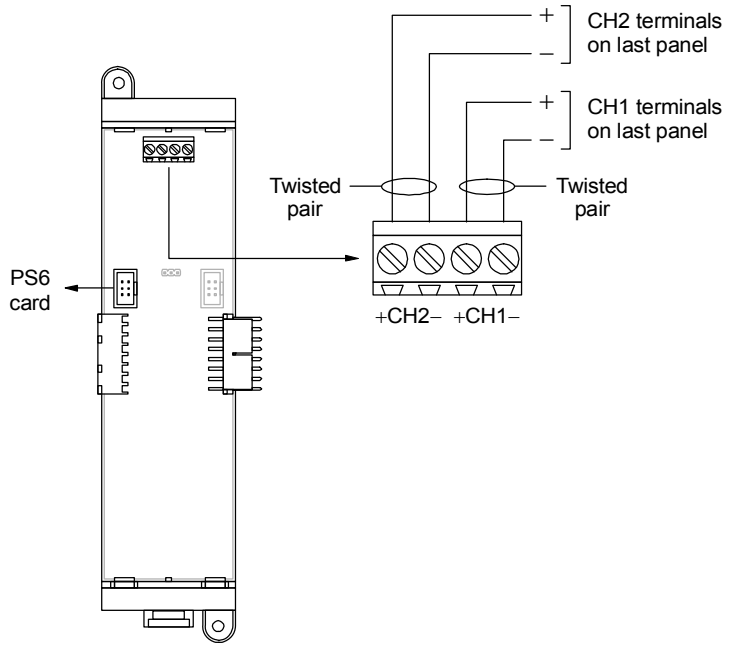


Figure 3-33: RS-485 card wiring

LED/switch cards

LED/switch cards can be used for zone annunciation, point annunciation, or manual override controls. When an LED/switch card is used for zone annunciation:

- The red Alarm LED is used to indicate an active fire alarm zone
- The yellow Active LED is used to indicate an active supervisory or monitor zone
- The yellow trouble LED is used to indicate a zone trouble, a zone disablement, and a zone in test
- The switch, if available, brings up the zone's location description on the CPU/Display Unit

Note: In a zoned fire alarm system, the LED/switch card closest to the CPU/Display Unit is typically assigned to switch group 1, and the next is assigned to switch group 2.

When an LED/switch card is used for point annunciation, you can program the LEDs to indicate point status as required. You can also program the switch, if available, to provide manual override functions.

For a list of LED/switch card addresses, see the topic "LED/switch card addresses" in Appendix D.

SL30 card

The SL30 card (see Figure 3-34) provides 30 groups of LEDs and switches and is typically used for zone annunciation. Each LED-switch group consists of a red and a yellow LED under the left lens, a yellow LED under the right lens, and a switch. The switches are numbered 1 to 30.

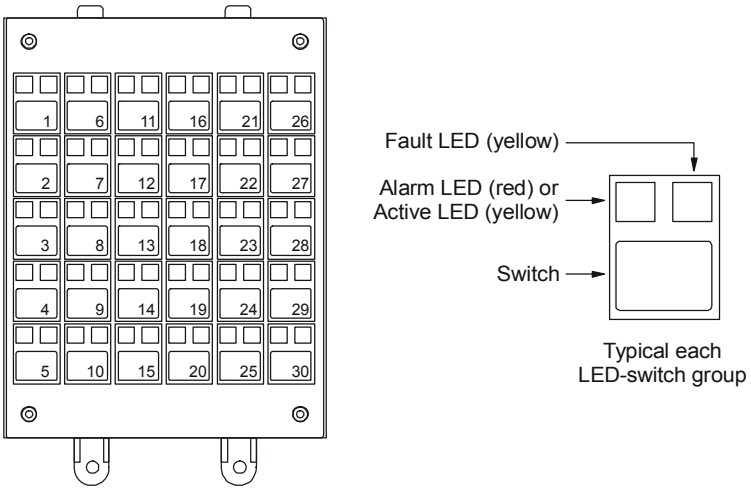


Figure 3-34: SL30 card front view

SL30-1 card

The SL30-1 card (see Figure 3-36) provides 30 groups of LEDs and switches and is typically used for zone annunciation. Each LED-switch group consists of a red and a yellow LED under the left lens, a yellow LED under the right lens, and a switch. The switches are numbered 31 to 60.

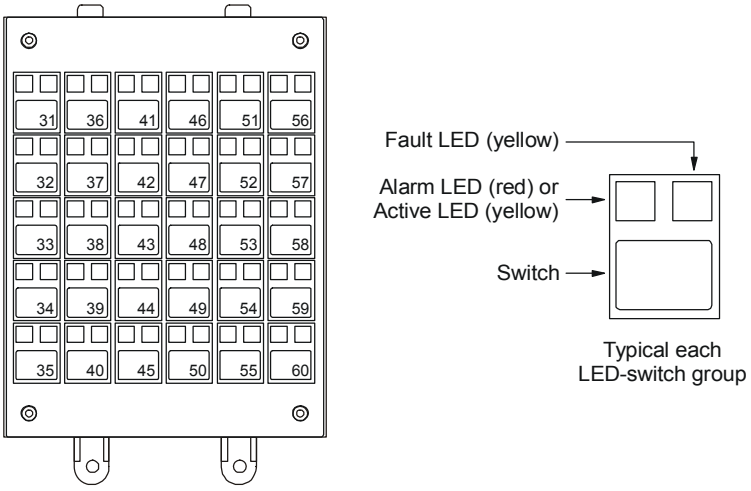


Figure 3-35: SL30-1 card front view

SL30L card

The SL30L card (see Figure 3-36) provides 30 groups of LEDs and is typically used for zone or point annunciation when custom labeling is desired. Each LED-switch group includes a red and a yellow LED under the left lens, a yellow LED under the right

lens, and a label window. Label inserts are provided with the SL30L card so you can label each LED-switch group.

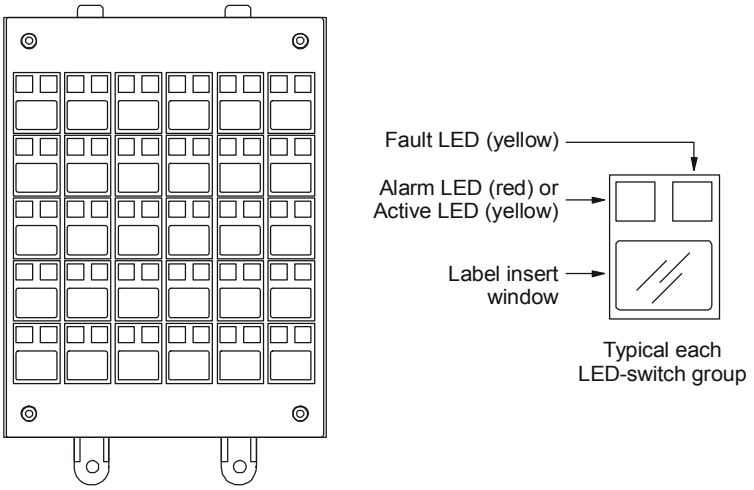


Figure 3-36: SL30L card front view

SL20L5S

The SL20L5S card (see Figure 3-37) provides 20 groups of LEDs without switches and 5 groups of LEDs with switches. It is typically used for point annunciation and manual override controls. Each LED-switch group includes a red and a yellow LED under the left lens and a yellow LED under the right lens. LED-switch groups 21 through 25 also include a switch. Card inserts are provided with the SL20L5S card so you can label each LED-switch group.

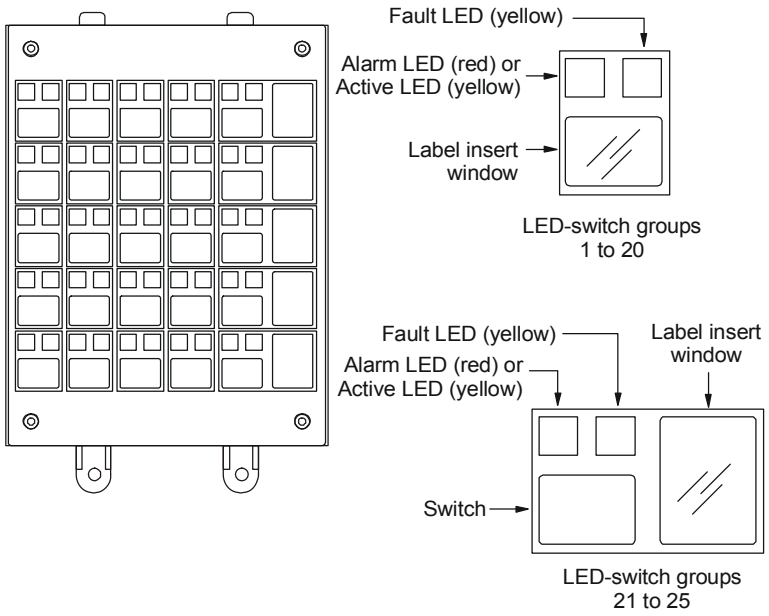


Figure 3-37: SL20L5S card front view

Chapter 4

Accessories

Summary

This chapter provides technical descriptions of the accessories that can be connected to the control panel.

Content

CDR-3 Bell Coder

Description

The CDR-3 provides coded signals and evacuation signals for use in zoned fire alarm system applications where a unique code is required to identify each fire alarm zone. The CDR-3 provides tone outputs for preamp amplifiers and dry contact outputs for audible notification appliance circuits (horns).

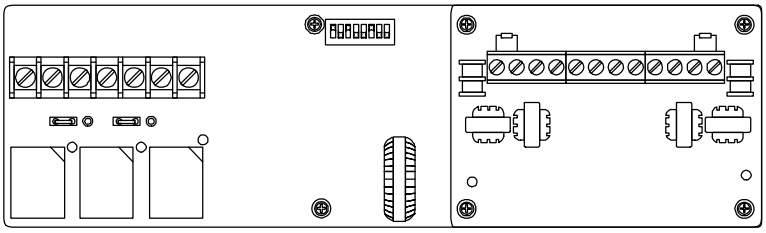


Figure 4-1: CDR-3 front view

Note: The CDR-3 must have a firmware version of 3.0 or greater. Tone outputs are not supported.

Specifications

Input voltage: 24 Vdc
Current requirements
- Standby: 60 mA
- Alarm: 100 mA

Supervised tone outputs (isolated)
- Output impedance: 1.2 kΩ
- Output voltage: 3.5 Vrms
- EOL: 10 kΩ

Tone outputs
- Types: Temporal (3-3-3), March time (20 or120 bpm), and Coded
- Signal: 1 kHz, 10 Vrms

Dry contact (coded output)
- Output rating: 30 Vdc at 4 A, max. (PF 0.35), 25 Vrms at 100 W, max., 70 Vrms at 100 W, max.
- March time: 20 or 120 bpm
- Normal coding range: 4 or 6 rounds, 1-4 digits, 0-9 and A-Z each (representing codes between 0 and 35)
- Extended coding range: 4 or 6 rounds, 1-3 digits; 1 digit: 0 to 70; 2 digits: 0-9 and A-Z each

PSNI queue: 50 most recent alarms
RS-232 input baud rates: 1200, 2400, 4800, 9600
Mounting: Standard, half-module footprint
Maximum wire size: 14 AWG (1.5 sq mm)

Operation

Normal state

The CDR-3 operates in the normal state when there are no alarm messages in its event buffer and in the absence of any trouble conditions. In the normal state, only the green Power LED is on.

Active state

The CDR-3 enters the active state after it receives an alarm message containing a bell code from the control panel. Upon entering the active state, the CDR-3:

- Switches the duration relay contact. The red LED next to the duration relay indicates when the relay is energized. The duration relay remains energized until the coded signal has been repeated four or six times according to S1-3.
- Outputs a coded signal via the coded tone output terminals according to the code format selected by S1-4 and S1-5.
- Toggles the bell code relay contacts according to the code format selected by S1-4 and S1-5. The red LED next to the bell code relay indicates when the relay is energized.
- Outputs an evacuation signal via the temporal tone output terminals according to the evacuation signal type selected by S1-1 and S1-2.
- Toggles the temporal relay contact according to the evacuation signal selected by S1-1 and S1-2. The red LED next to the temporal relay indicates when the relay is energized.

Trouble state

The CDR-3 enters the trouble state under the following conditions:

- An open circuit on the coded tone output
- An open circuit on the temporal tone output
- A CPU fault
- An RS-232 communication fault

Upon entering the trouble state, the CDR-3:

- Outputs the selected evacuation signal on the temporal tone output terminals
- Toggles the temporal relay contact
- Closes the trouble relay’s normally open contacts.
- Turns the yellow Trouble LED on

Coded signal formats

The four formats you can select using S1-4 and S1-5 are described below.

Format 1: Coded signal is identical to the bell code. Example: A bell code of 5-5-5-5 generates a coded signal consisting of 5 pulses and a pause, then 5 pulses and a pause, then 5 pulses and a pause, and then 5 pulses and a pause.

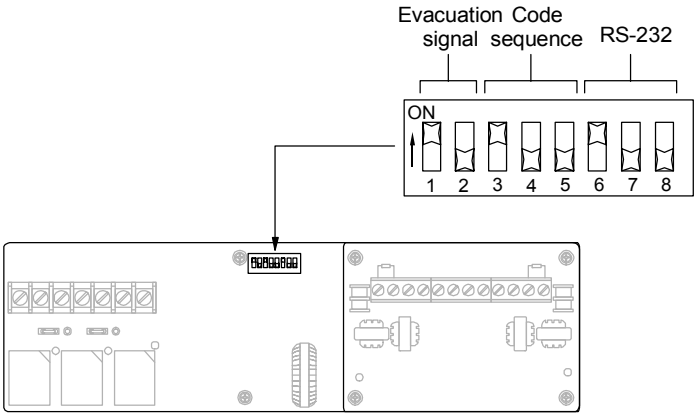
Format 2: Coded signal combines the first and second digits of the bell code. Example: A bell code of 5-5-5-5 generates a coded signal consisting of 10 pulses and a pause, then 5 pulses and a pause, and then 5 pulses and a pause.

Format 3: Coded signal combines the second and third digits of the bell code. Example: A bell code of 5-5-5-5 generates a coded signal consisting of 5 pulses and a pause, then 10 pulses and a pause, and then 5 pulses and a pause.

Format 4: Coded signal combines the third and fourth digits of the bell code. Example: A bell code of 5-5-5-5 generates a coded signal consisting of 5 pulses and a pause, then 5 pulses and a pause, and then 10 pulses and a pause.

Switch settings

Switch S1 is used to configure the evacuation signal, code sequence, and RS-232 communication as described below.



Evacuation signal

S1-1	S1-2	Description
OFF	OFF	Temporal tone (3-3-3)
OFF	ON	Fast march tone (120 bpm)
ON	ON	Slow march tone (20 bpm)

Code sequence

S1-3	S1-4	S1-5	Description
OFF			6 rounds
ON			4 rounds
	OFF	OFF	Format 1 (0-9, 0-9, 0-9, 0-9)
	ON	OFF	Format 2 (0-18, 0-9, 0-9)
	OFF	ON	Format 3 (0-9, 0-18, 0-9)
	ON	ON	Format 4 (0-9, 0-9, 0-18)

RS-232 communication

S1-6	S1-7	S1-8	Description
OFF			Even parity
ON			No parity
	OFF	OFF	1200 baud
	ON	OFF	2400 baud
	OFF	ON	4800 baud
	ON	ON	9600 baud

Jumper settings

JP1 and JP2 configure the bell code relay and temporal relay, respectively, for normally closed or normally open operation as shown in Figure 4-2.

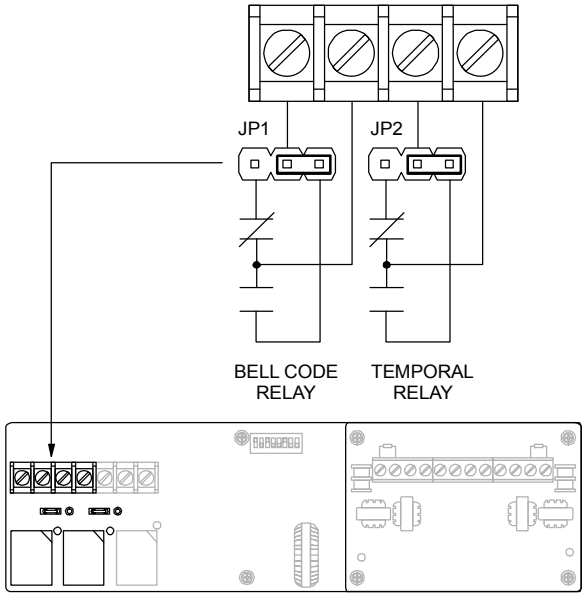


Figure 4-2: CDR-3 jumper settings

Coded alarm signaling application

In a coded alarm signaling system, when an alarm input is activated, the system's notification appliance circuits sound a coded signal representing the zone of origin followed by an evacuation signal.

1. Mount an MFC-A cabinet in the same room as the control panel. Connect the two using a section of conduit no greater than 20 ft in length. Run all wiring between the two cabinets through the conduit.
2. Mount the CDR-3 in the MFC-A cabinet.
3. Configure the CDR-3 as follows:

   Parity bit: No parity
   Baud rate: 9600 baud
   Code format: As required
   Evacuation signal: As required
   Rounds: As required
4. Install a 10 kΩ EOLR across TB2-1 and TB2-2, and TB2-11 and TB2-12 on the CDR-3.
5. Set JP2 on the PS6 card for *continuous* 24 volts.
6. Wire the CDR-3 as shown in Figure 4-3.

   Note: If a printer is also connected to the control panel, install an IOP3A isolator module between PS6 card's RS-232 port and the CDR-3.
7. Configure the NAC output circuit used to operate the booster power supply as a common alarm output device type

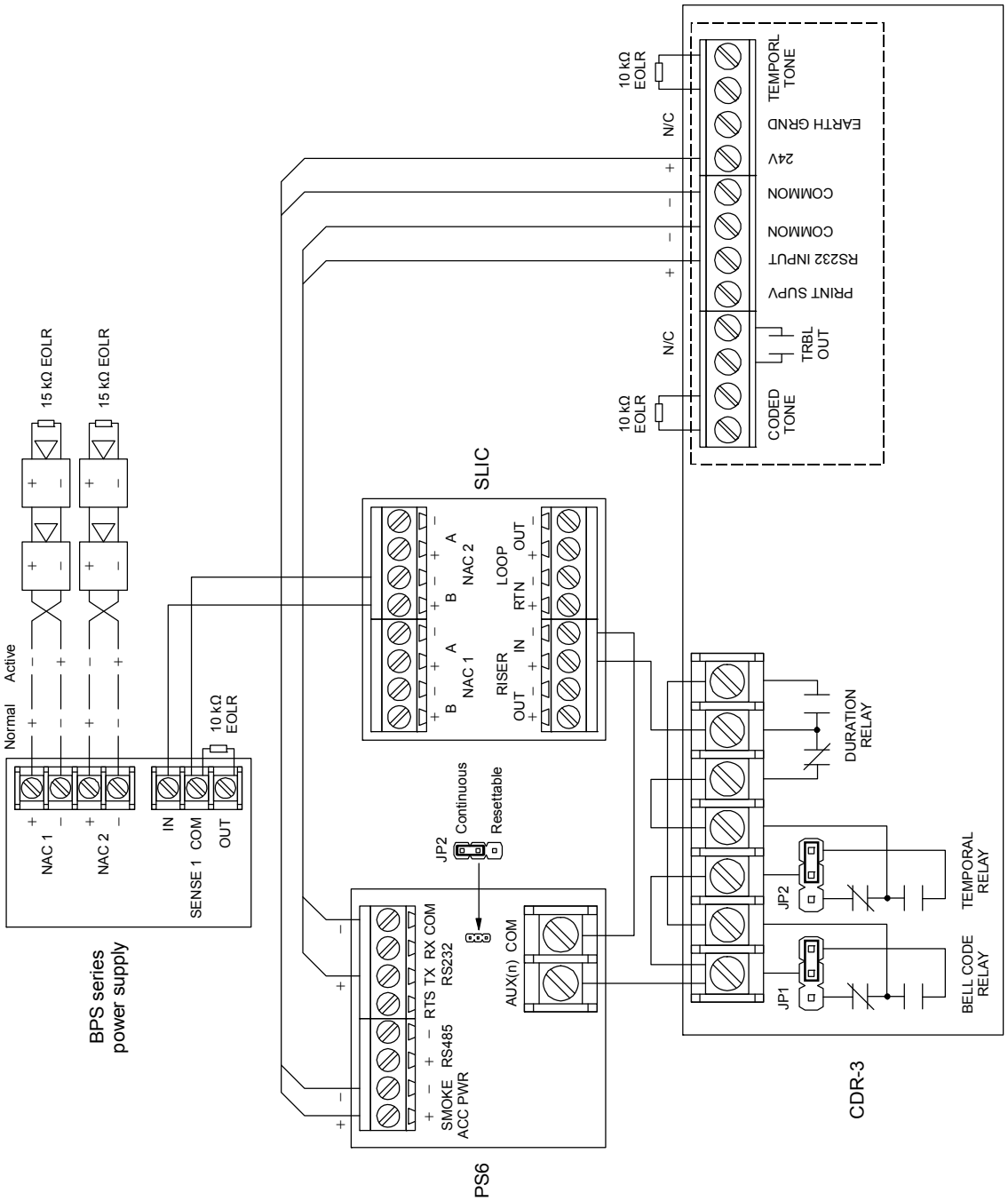


Figure 4-3: Typical CDR-3 application wiring diagram

RPM Reverse Polarity Module

Description

The RPM provides reverse polarity alarm, supervisory, and trouble signals for use in remote station protective signaling system applications using dedicated wire pairs. Each output is independently activated when its corresponding input is pulled to common.

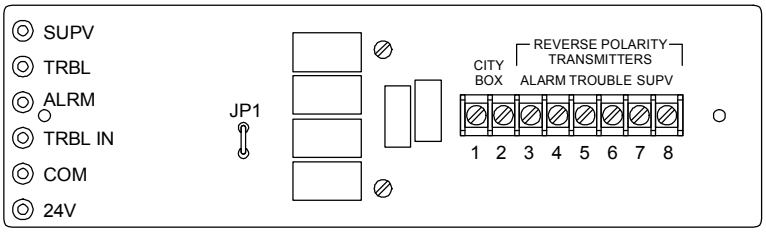


Figure 4-4: RPM front view

Note: You must use a separate relay to signal trouble conditions.

Specifications

Input voltage: 24 Vdc
Current requirements
    Standby: 20 mA
    Active: 270 mA, max.
Reverse polarity circuits
    Open circuit voltage: 24 Vdc
    Short circuit current: 7 mA, max.
Local energy master box circuit
    Voltage: 24 Vdc

Remote station protective signaling system application

In a remote station protective signaling system, when the control panel enters the alarm state, an alarm signal is automatically transmitted to the proper authorities (e.g., a public fire communication services center, a fire station, or similar governmental agency) located away from the protected premises. Supervisory and trouble signals may be transmitted to the same or to a different location.

Installation

1. Mount an MFC-A cabinet in the same room as the control panel. Connect the two using a section of conduit no greater

than 20 ft in length. Run all wiring between the two cabinets through the conduit.

2. Mount the RPM in the MFC-A cabinet.
3. Set JP2 on the PS6 card for *continuous* 24 volts.
4. Wire the RPM to the PS6 card as shown in Figure 4-5.

Operation

The PS6 card's common trouble relay is normally held in the closed position and opens when the control panel enters the trouble state. When wired as shown in Figure 4-5, smoke/accessory power is passed through the common trouble relay and energizes the PAM-1 relay, holding its normally closed contacts in the open position. When there is a system trouble or loss of power, the common trouble relay opens and de-energizes the PAM-1 relay. This in turn closes the relay contacts and pulls the RPM's TRBL input to common.

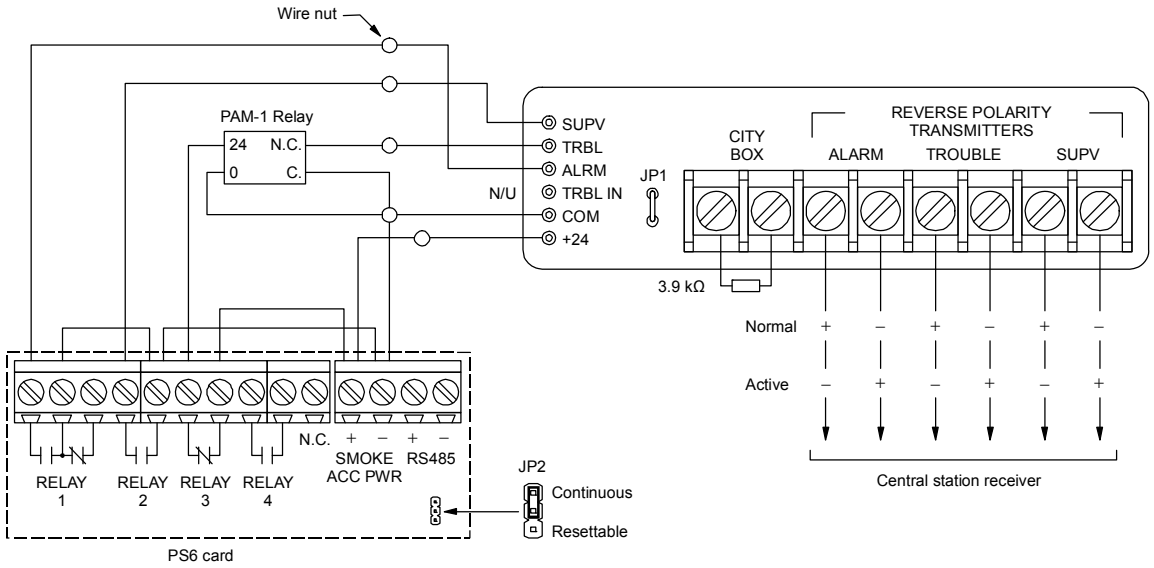


Figure 4-5: RPM wiring diagram

2-CTM City Tie Module

Description

The 2-CTM City Tie Module provides off-premises signal transmission for use in auxiliary protective signaling system applications. It is used in conjunction with a GSA-CC1 to activate a local energy master box.

Specifications

Mounting: Single gang box
Input voltage: 24 Vdc, nominal
Municipal box operation
    Voltage: 24 Vdc, nominal:
    Wire resistance:25 Ω
    Trip current: 200 mA into 14.5 Ω coil
Current requirements
    Standby: 20 mA
    Active: 300 mA, max.
Operating environment
    Temperature: 0 to 49 °C (32 to 120 °F)
    Relative humidity: 0 to 93%, noncondensing

Auxiliary protective signaling system application

In an auxiliary protective signaling system, when the control panel enters the alarm state, an alarm signal is automatically transmitted to the public fire communication services center via the municipal fire alarm system.

Installation

1. Install the 2-CTM in the same room as and within three feet of the GSA-CC1.
2. Configure the GSA-CC1 as a common alarm output device type.
3. Wire the 2-CTM as shown in Figure 4-6.

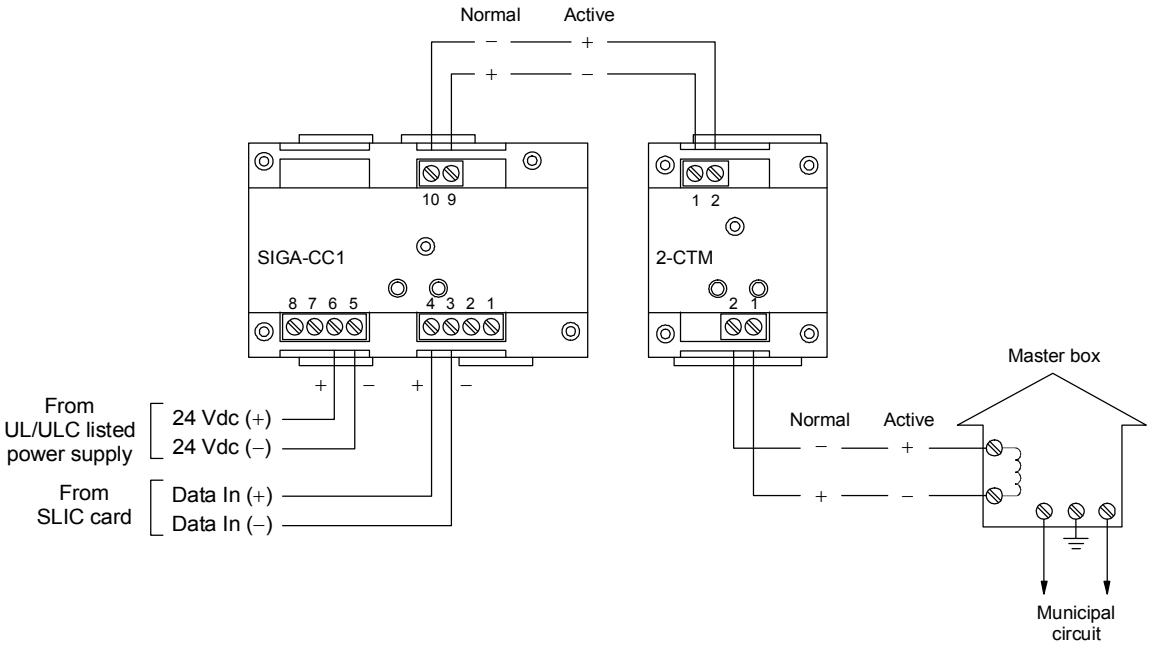


Figure 4-6: 2-CTM application wiring diagram

IOP3A RS-232 Isolator

Description

The IOP3A electrically isolates the fire alarm control panel's RS-232 port from grounds introduced when connecting peripheral devices. The IOP3A provides two isolated RS-232 connections, as well as a DB-9 and an RJ12 connector for downloading. The IOP3A should be used in all applications that require the fire alarm control panel be isolated from earth ground connections.

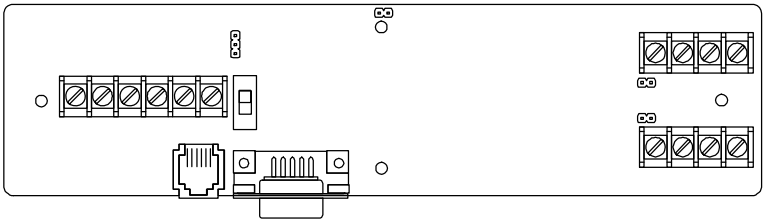


Figure 4-7: IOP3A front view

Specifications

Input voltage: 24 Vdc
Current requirements
Standby: 60 mA
Alarm: 60 mA
Mounting: Standard, half-module footprint
Maximum wire size: 14 AWG (1.5 sq mm)

Jumper settings

Configure the IOP3A as shown in Figure 4-8 and described below.

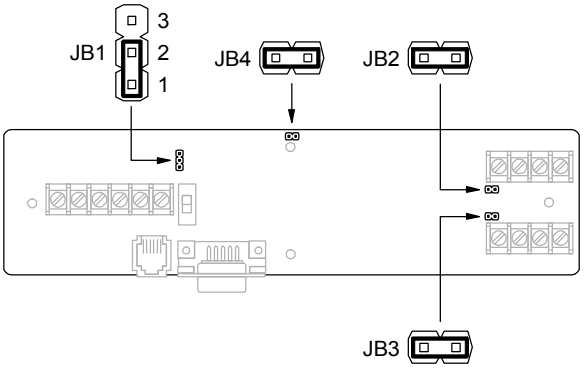


Figure 4-8: IOP3A jumper settings

Jumper	Setting	Description
JB1	1 to 2	Select mode
	2 to 3	Supervision mode
JB2	IN	Output 1 supervision disable. 12 Vdc on TB2-1.
	OUT	Output 1 supervision enable
JB3	IN	Output 2 supervision disable. 12 Vdc on TB3-1.
	OUT	Output 2 supervision enable
JB4	IN	Select mode
	OUT	Supervision mode
Note: JB1 and JB4 settings must agree.		

Switch settings

SW1 (see Figure 4-9) configures the IOP3A as described below.

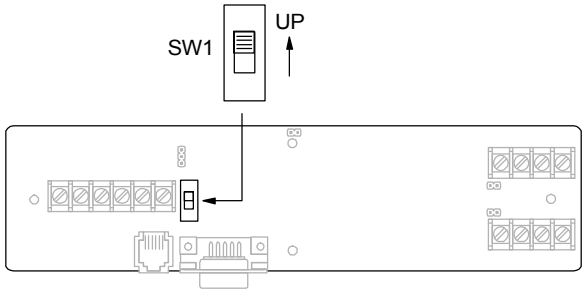


Figure 4-9: IOP3A switch settings

Setting	Description
UP	Outputs 1 and 2 are enabled. RJ-12 and DB-9 connectors are disabled.
DOWN	Outputs 1 and 2 are disabled. RJ-12 and DB-9 connectors are enabled.
Note: Always leave SW1 in the UP position and use the barcode jack on the CPU/Display Unit for downloading to the control panel.	

Connecting two devices to the RS-232 port

In installations that have two devices connected to the control panel's RS-232 port, such a printer and a CDR-3, you need to install an IOP3A to divide the RS-232 transmission path.

1. Mount an MFC-A cabinet in the same room as the control panel. Connect the two using a section of conduit no greater than 20 ft in length. Run all wiring between the two cabinets through the conduit.
2. Mount the IOP3A and the CDR-3 in the MFC-A cabinet.
3. Wire as shown in Figure 4-10.

Note: The external power supply must provide a *continuous* 24 Vdc and be UL/ULC listed for fire protective signaling systems.

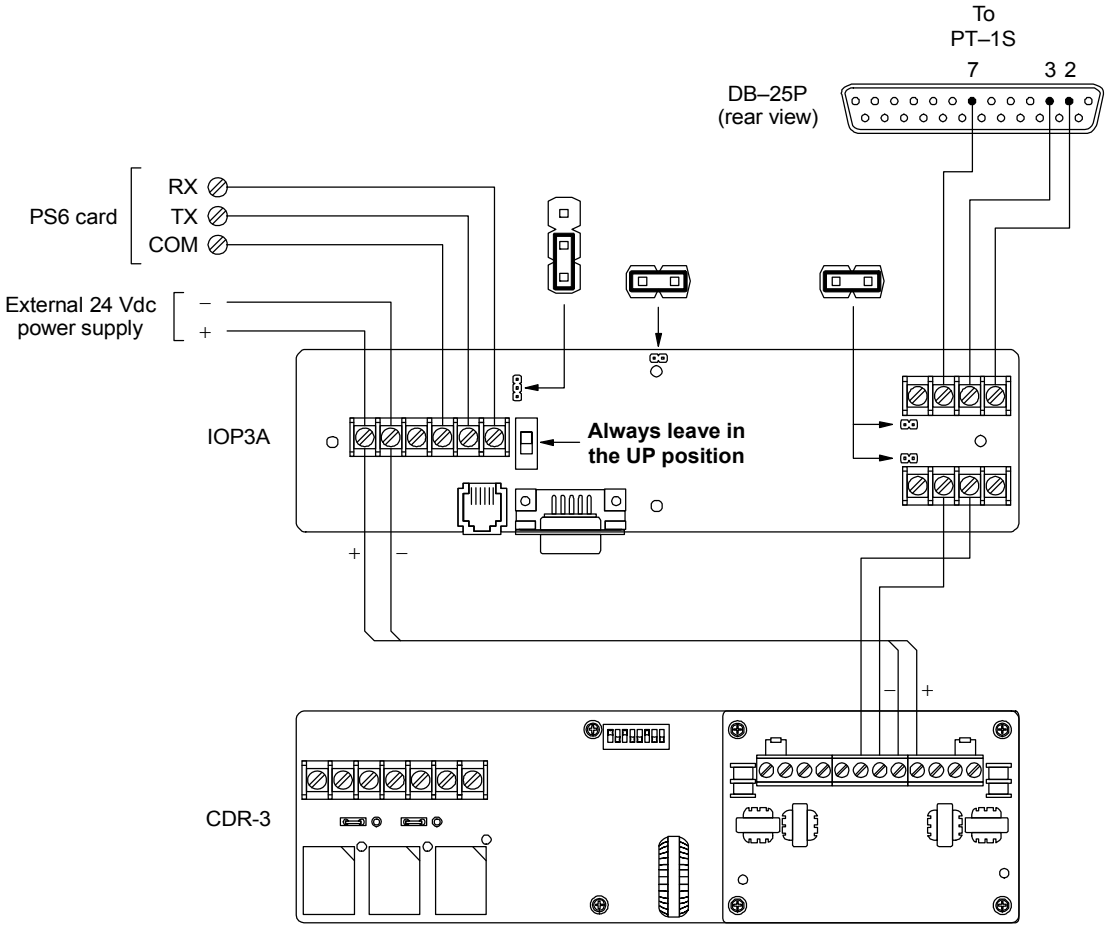


Figure 4-10: IOP3A application wiring diagram

Chapter 5

Operating instructions

Summary

This chapter provides instructions for operating the fire alarm system from the control panel CPU/Display Unit. It is intended for those who might be expected to operate the control panel in a fire alarm emergency.

Content

Logging on to the fire alarm system

Before you can operate any of the system commands, you must first log on to the fire alarm system. The password you use to log on to the fire alarm system determines which command menus you are allowed to use. The password levels are described as follows:

- The level 2 password lets you use the level 2 command menus
- The level 3 password lets you use the level 3 command menus
- The level 4 password lets you use the level 4 command menus

Note: The level 1 command menus do not require a password.

The control panel lets you use the command menus for the password you entered until you log on with a different password or until the user time-out period expires (approximately three minutes). After the user time-out period expires, the control panel automatically returns to using the level 1 command menus.

For more information, see the topic “Command menu organization” in Chapter 2.

To log on to the fire alarm system:

1. Press Menu.
2. Choose Login.
3. Enter the password for the desired command level.

Checking system status

The Status menu commands let you check the status of the fire alarm system. Each command generates a list that you can view on the alphanumeric display or print for later use.

Note: To print a list you must have a printer connected to the panel you are operating.

```
STATUS
►1)All Active
 2)Alarm
 3)Supervisory
 4)Trouble
 5)Monitor
 6)Test
 7)Disabled Pts.
 8)Outputs
 9)Internal
```

```
   ENTER PANEL
        00
00 = All Panels
```

```
REPORT OUTPUT
►1)Display
 2)Print
```

Displaying or printing a list of active points

Use the All Active command on the Status menu to display or print a list of all addressable points that are in an active (abnormal) state.

To display or print a list of active points:

1. Press Status.
2. From the Status menu, choose All Active.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of active alarm points

Use the Alarm command on the Status menu to display or print a list of alarm input device types that are in the alarm state. The list also includes any fire-related pseudo points.

To display or print a list of active alarm points:

1. Press Status.
2. From the Status menu, choose Alarm.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of active supervisory points

Use the Supervisory command on the Status menu to display or print a list of supervisory input device types that are active. The list also includes any supervisory-related pseudo points.

To display or print a list of active supervisory points:

1. Press Status.

2. From the Status menu, choose Supervisory.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of points in the trouble state

Use the Trouble command on the Status menu to display or print a list of device types that are in the trouble state. The list also includes any trouble-related pseudo points.

To display or print a list of points in trouble:

1. Press Status.
2. From the Status menu, choose Trouble.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of active monitor points

Use the Monitor command on the Status menu to display or print a list of monitor input device types that are in the active state. The list also includes any monitor-related pseudo points.

To display or print a list of active monitor points:

1. Press Status.
2. From the Status menu, choose Monitor.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of points in an active service group

Use the Test command on the Status menu to display or print a list of points in an active service group that are in the active or trouble state. The list also includes the name of the active service group.

To display or print a list of points in an active service group:

1. Press Status.
2. From the Status menu, choose Test.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Display or print a list of disabled points

Use the Disabled Pts command on the Status menu to display or print a list of all addressable points that are disabled. The list shows the device type, address, and the event message for each disabled point.

To display or print a list of disabled points:

1. Press Status.
2. From the Status menu, choose Disabled Pts.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing a list of active output points

Use the Outputs command on the Status menu to display or print a list of output device types that are in the active state. The list also includes LED/switch card LEDs.

To display or print a list of active output points:

1. Press Status.
2. From the Status menu, choose Outputs.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing power supply voltages

Use the Internal command on the Status menu to display or print the current power supply voltages.

To display or print power supply voltages:

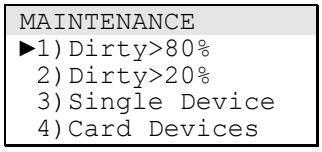
1. Press Status.
2. From the Status menu, choose Internal.
3. Press Enter to accept the default (all panels).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying or printing maintenance reports

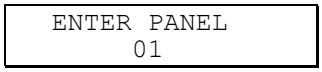
There are four maintenance reports available to help you determine whether any fire alarm sensors require servicing. You can view each report on the alphanumeric display or print it for later use.

Note: To print a report you must have a printer connected to the panel you are operating.

Display or print a Dirty>80% report



Use the Dirty>80% command on the Maintenance menu to display or print a Dirty>80% report. A Dirty>80% report lists all fire alarm sensors whose compensation levels exceed 80%. The compensation level value is an indication of a fire alarm sensor's inability to compensate for environmental conditions.

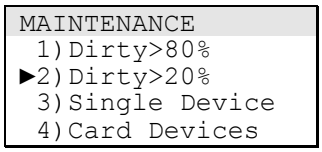


Note: Fire alarm sensors on this list require servicing as soon as possible.

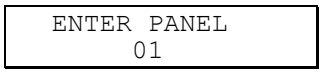
To display or print a Dirty>80% report:

1. Press Menu.
2. From the main menu, choose Reports, then Maintenance, and then Dirty>80%.
3 Press Enter to accept the default (panel 01).
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Display or print a Dirty>20% report



Use the Dirty>20% on the Maintenance menu to display or print a Dirty>20% report. A Dirty>20% report lists all fire alarm sensors whose compensation levels exceed 20%. The compensation level value is an indication of a fire alarm sensor's inability to compensate for environmental conditions.



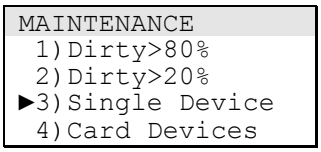
Note: Fire alarm sensors on this list may require servicing and should be watched carefully.

To display or print a Dirty>20% report:

1. Press Menu.
2. From the main menu, choose Reports, then Maintenance, and then Dirty>20%.
3 Press Enter to accept the default (panel 01).
4. On the Report Output menu, choose one of the following:

- Display to view the list on the alphanumeric display
- Printer to print the list

Display or print a Single Device report



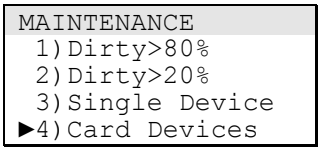
Use the Single Device command on the Maintenance menu to display or print a Single Device report. A Single Device report lists the configuration settings for an individual fire alarm sensor. The report includes the following information:

- The device address
- The detector type
- The location description (if programmed)
- The compensation level (percent dirty)
- The primary alarm sensitivity setting
- The alternate alarm sensitivity setting

To display or print a Single Device report:

1. Press Menu.
2. From the main menu, choose Reports, then Maintenance, and then Single Device.
3. Enter the panel-card-device address (PPCCDDD) of the fire alarm sensor.
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Display or print a Card Devices report



Use the Card Devices command on the Maintenance menu to display or print a Card Devices report. A Card Devices report lists the operating parameters for all fire alarm sensors on a specific loop controller.

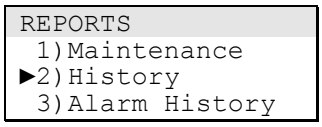
To display or print a Card Devices report:

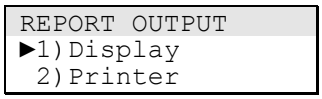
1. Press Menu.
2. From the main menu, choose Reports, then Maintenance, and then Card Devices.

3 Enter the panel-card address (PPCC) of the loop controller.

4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Display or print a history report



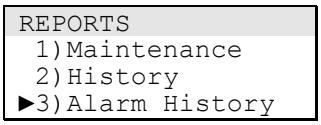


Use the History command on the Reports menu to display or print a history report. A history report lists all of the events that have been introduced to the panel, and the time and date of each occurrence.

To display or print a history report:

1. Log on using the level 2 password or turn the Enable Controls switch to the On position.
2. From the main menu, choose Reports, then History.
3. Enter the panel number.
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

Displaying the alarm history

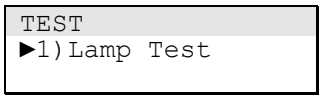


Use the Alarm History command on the Reports menu to display the alarm history while the control panel is in an abnormal state. The alarm history display shows how many times the control panel has entered the fire alarm state.

To display the alarm history:

1. Press Menu.
2. From the main menu, choose Reports then Alarm History.

Performing a lamp test



Use the Lamp Test command on the Test menu to verify the operation of the alphanumeric display and the LED indicators. The lamp test command temporarily turns on the panel buzzer, all LED indicators, and every pixel on the alphanumeric display.

Note: When operated from the control panel's CPU/Display Unit, the lamp test command only tests the control panel. When operated from a remote annunciator's CPU/Display Unit, the lamp test command tests all remote annunciators at the same time.

To perform a lamp test:

1. Press Menu.
2. From the main menu, choose Test, and then Lamp Test.

Silencing the panel buzzer

The panel buzzer sounds whenever an event message is received at the control panel. Pressing the Panel Silence switch silences the panel buzzer and acknowledges all current event messages.

Unless programmed otherwise, the panel buzzer automatically re-sounds 24 hours after being silenced if no new event messages are received at the control panel.

Note: The panel buzzer can be configured to sound periodically as a reminder that there is a fault in the system and the panel has been silenced.

To silence the panel buzzer:

1. Press Panel Silence.

Resetting the fire alarm system

Pressing the Reset switch restores the fire alarm system to its normal state provided there are no inputs still in a latched (active) condition. If any inputs are still in a latched condition at the end of the reset cycle, audible notification appliances, if silenced, will re-sound and the panel buzzer, if silenced, will re-sound.

Caution: Do not reset the fire alarm system until the proper authorities have determined that the threat of fire is no longer present.

To reset the fire alarm system:

1. Press Reset.
2. Enter the level 2 password.

Silencing fire alarm signals

Pressing the Alarm Silence switch silences all audible and common alarm device types, and if configured, visible device types.

Pressing Alarm Silence *does not* silence the device types described above under the following conditions:

- When a waterflow device type is active and the system is not configured to allow silencing when a waterflow device type is active
- When the system is configured to delay the silencing of fire alarm signals, in which case the Alarm Silence switch may not be operational for up to five minutes after the initial fire alarm event

Silenced outputs automatically re-sound when:

- The Alarm Silence switch is pressed a second time
- Another alarm input device type is activated
- A subsequent device in an active zone is activated and the system is configured to allow zone re-sounding.

To silence fire alarm signals:

1. Press Alarm Silence.
2. Enter the level 2 password.

Sounding an alarm

Pressing the Drill switch activates all audible, visible, and common alarm output device types. Pressing the Drill switch a second time returns these outputs to their normal condition.

To sound an alarm:

1. Press Drill.
2. Press Enter to confirm that you want to sound all alarms.
3. Enter the level 2 password.

Disabling and enabling a zone

The fire alarm system can include one or more zones. Each zone represents a defined area in the protected premises. You can disable and enable zones from the control panel using the Zone command on the Disable menu and Enable menu, respectively.

Disabling a zone

```
DISABLE
►1)Zone
 2)Device
```

Use the Zone command on the Disable menu to temporarily take a zone out of service and prevent it from initiating a set of responses.

To disable a zone:

1. Log on using the level 2 password or turn the Enable Controls switch to the On position.
2. From the main menu, choose Disable, then Zone.
3. Select the zone from the pick list, then press Enter.

   — or —

   Press the corresponding zone switch on the LED/switch card.

Enabling a zone

```
ENABLE
►1)Zone
 2)Device
```

Use the Zone command on the Enable menu to return a disabled zone to service and allow it to initiate a set of responses.

Note: If the zone is disabled because all of the points in the zone were individually disabled, you must re-enable at least one point in the zone before the zone can be re-enabled.

To enable a zone:

1. Log on using the level 2 password.
2. From the main menu, choose Enable, then Zone.
3. Select the zone from the pick list, then press Enter.

   — or —

   Press the corresponding zone switch on the LED/switch card.

Disabling and enabling a device

You can disable and enable devices from the control panel using the Disable Device and Enable Device commands. To disable or enable a device you must know the device's address. To determine a device's address, see Appendix D, "System addresses."

Disabling a device

```
DISABLE
 1)Zone
►2)Device
```

Use the Device command on the Disable menu to disable a device and prevent it from activating a response.

```
ENTER DEVICE
   01CCDDD
```

Notes

- Disabling all of the points in a zone also disables the zone
- Common alarm output device types cannot be disabled

To disable a device:

1. Log on using the level 2 password.
2. From the main menu, choose Disable, then Device.
3. Enter the address of the device, where: PP = 01, CC = the card number, and DDD = the device number.

Enabling a device

```
ENABLE
 1)Zone
►2)Device
```

Use the Enable Device command to return a disabled device to service. When you enable the device, all indicators and outputs activated by the device will reactivate.

```
ENTER DEVICE
   01CCDDD
```

To enable a device:

1. Log on using the level 2 password.
2. From the main menu, choose Enable, then Device.
3. Enter the address of the device, where: PP = 01, CC = the card number, and DDD = the device number.

Switching detector alarm sensitivity

Intelligent addressable detectors are configured with a primary and alternate alarm sensitivity setting. Typically, the primary alarm sensitivity setting is used for daytime operation. The alternate alarm sensitivity setting is used for nighttime and weekend operation.

In most applications, a time control is used to automatically switch detectors to their alternate sensitivity setting. When the time control is restored, detector alarm sensitivity is automatically switched back to the primary sensitivity setting. You can override the active alarm sensitivity settings using the Alternate Sensitivity command on the Activate menu and Primary Sensitivity command on the Restore menu.

Note: The default setting for both primary and alternate alarm sensitivity is "Low." When both alarm sensitivity settings are the same, switching alarm sensitivity does not have any effect.

Switching from primary to alternate alarm sensitivity

```
ACTIVATE MENU
 1)Output
►2)Alt Sens
 3)Alt Msg Route
 4)LED
```

Use the Alt Sens (alternate sensitivity) command on the Activate menu to cause intelligent addressable detectors to use their alternate alarm sensitivity setting instead of their primary alarm sensitivity setting.

To switch from primary to alternate sensitivity:

1. Log on using the level 2 password.
2. From the main menu, choose Activate, then Alt Sens.

Switching from alternate to primary alarm sensitivity

```
RESTORE MENU
 1)Output
►2)Prm Sens
 3)Prm Msg Route
 4)LED
```

Use the Prm Sens (primary sensitivity) command on the Restore menu to cause intelligent addressable detectors to use their primary alarm sensitivity setting instead of their alternate alarm sensitivity setting.

To switch from alternate to primary sensitivity:

1. Log on using the level 2 password.
2. From the main menu, choose Restore, then Prm Sens.

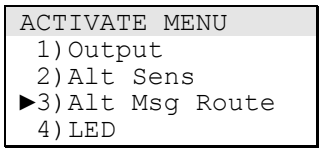
Switching event message routes

Event messages are programmed with a primary and an alternate message route. Typically, a fire alarm system uses the primary message route during daytime operation and the alternate message route during nighttime operation.

In most applications, a time control is used to automatically switch event messages over to their alternate route setting. When the time control is restored, event messages are automatically switched back to their primary route settings. You can override the event message route in effect using the Alternate Message Route command on the Activate menu and the Primary Message Route command on the Restore menu.

Note: The default setting for both primary and alternate message routes is "All Cabinets." When both event message route settings are the same, switching message routes does not have any effect.

Switching from primary to alternate message routing

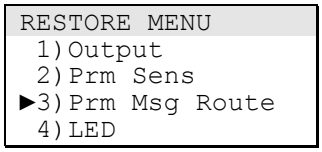


Use the Alt Msg Route (alternate message route) command on the Activate menu to switch event message routing from primary message routing to alternate message routing.

To switch from primary to alternate message routing:

1. Log on using the level 2 password.
2. From the main menu, choose Activate, then Alt Msg Route.

Switching from alternate to primary message routing

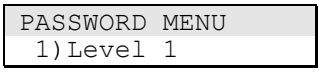


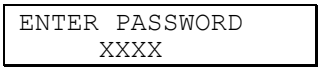
Use the Prm Msg Route (primary message route) command on the Restore menu to switch event messages routing from alternate message routing to primary message routing.

To switch from alternate to primary message routing:

1. Log on using the level 2 password.
2. From the main menu, choose Restore, then Prm Msg Route.

Changing the level 1 password





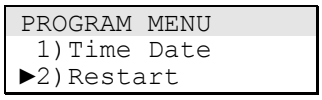
Use the Edit Password command on the Program menu to change the password setting for using level 1 command menus. To change the level 1 password you must log on using the level 2, level 3, or level 4 password.

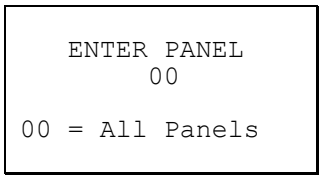
The default level 1 password is 1111.

To change the level 1 password:

1. Log on using the level 2, 3, or 4 password.
2. From the main menu, choose Program, then Edit Password.
3. On the Password menu, choose Level 1.
4. Enter the new password.

Restarting the fire alarm system





Use the Restart command on the Program menu to reinitialize the fire alarm system without removing power.

To restart the fire alarm system:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Restart.
3. Enter a panel number or press Enter to accept the default (all panels).

Chapter 6

Installation

Summary

This chapter provides instructions for installing the fire alarm system. It is intended for trained installers who are familiar with all applicable codes and regulations.

Content

Installation overview

This topic provides a descriptive overview of how to install the fire alarm system. Please read this topic in its entirety before proceeding.

The fire alarm system must be installed in accordance with the manufacturer's instructions, the local authority having jurisdiction (AHJ), and all local, regional, and national electrical and building codes.

Step 1 - Unpack the equipment: Before you begin, you should unpack the equipment to make sure you have everything you need and that it is has not been damaged.

Step 2 - Mount the control panel backbox: Mount the control panel backbox first. When mounting the control panel backbox, please keep in mind the following:

- Make sure the installation location is free from construction dust and debris, and immune to extreme temperature ranges and humidity
- Allow for enough floor and wall space so the panel can be installed and serviced without any obstructions
- Use fasteners that can support the full weight of the cabinet, including the standby batteries
- Tighten fasteners firmly to prevent the cabinet from vibrating

For more information, see the topic "Mounting the control panel backbox" later in this chapter.

Step 3 - Pull the cables into the backbox: Pull all of the cables into the backbox and tag them for easy identification. Do not worry about dressing the cables until after the panel components are installed. For more information, see the topic "Pulling cables into the backbox" later in this chapter.

Step 4 - Install the panel components: Install the panel components only after the threat of construction damage and vandalism has passed. All panel components are sensitive to ESD (electrostatic discharge). To prevent ESD damage:

- Keep panel components in their protective antistatic packaging at all times. Remove only for inspection or installation.
- Ground yourself with an approved static-protective wrist strap when handling panel components
- Do not touch any component leads or connector pins when installing panel components

For more information, see the topic “Installing panel components” later in this chapter. Additional installation information is provided in Chapter 3, “Panel components,” and in the installation sheets that are shipped with each piece of equipment.

Step 5 - Connect mains AC: Connect mains AC power after all the panel components have been installed and wired. Do not energize the panel until you are ready to commission the system. For more information, see the topic “Connecting mains AC” later in this chapter.

Step 6 - Install the standby batteries: Typically, standby batteries are placed in the cabinet but not connected until after the system has been tested in order to preserve battery life. Do not connect the battery until the panel is energized. For more information, see the topic “Installing standby batteries” later in this chapter.

Step 7 - Install remote annunciators: If the system includes remote annunciators, install them before commissioning the system. For more information, see the topic “Installing QSA series remote annunciators” later in this chapter.

Step 8 - Commission the system: Commissioning the system involves energizing the system, programming the system, and then testing the system. You should commission the system only after a complete visual inspection of the control panel and other equipment. Check for any damage that may have occurred during the installation. For more information, see the topic “Commissioning the system” later in this chapter.

Mounting the control panel backbox

Mount the control panel backbox as shown in Figure 6-1. See Figure 6-2 and Figure 6-3 for backbox dimensions and fixing point locations.

For semiflush installations, attach a trim ring to the backbox to give it a more finished appearance and to prevent it from being installed incorrectly.

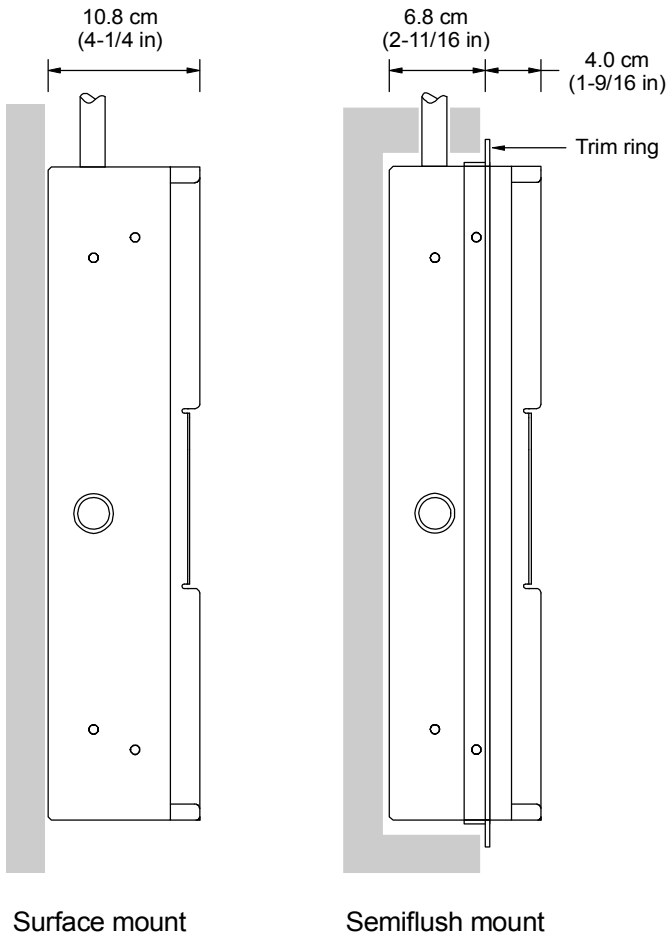


Figure 6-1: Control panel backbox mounting diagram

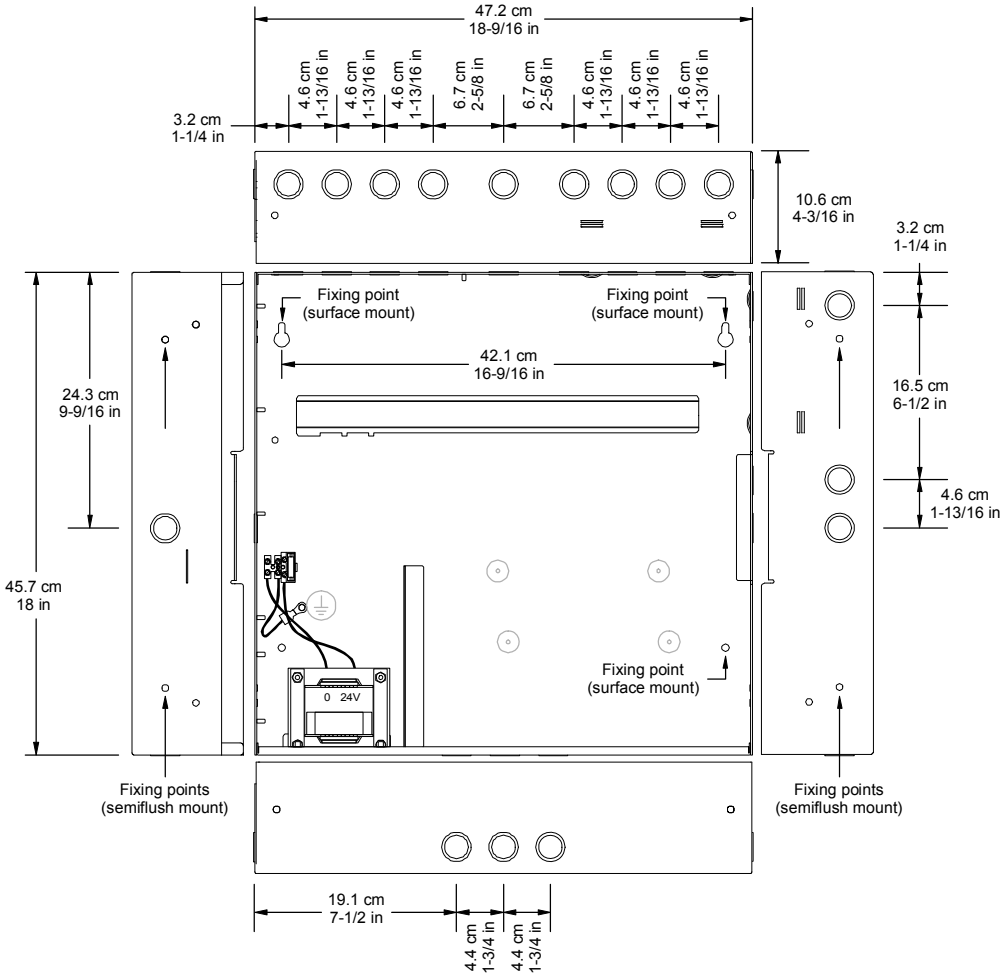


Figure 6-2: Backbox dimensions for a MIR-QS4-5-(G/R)-(1/2)

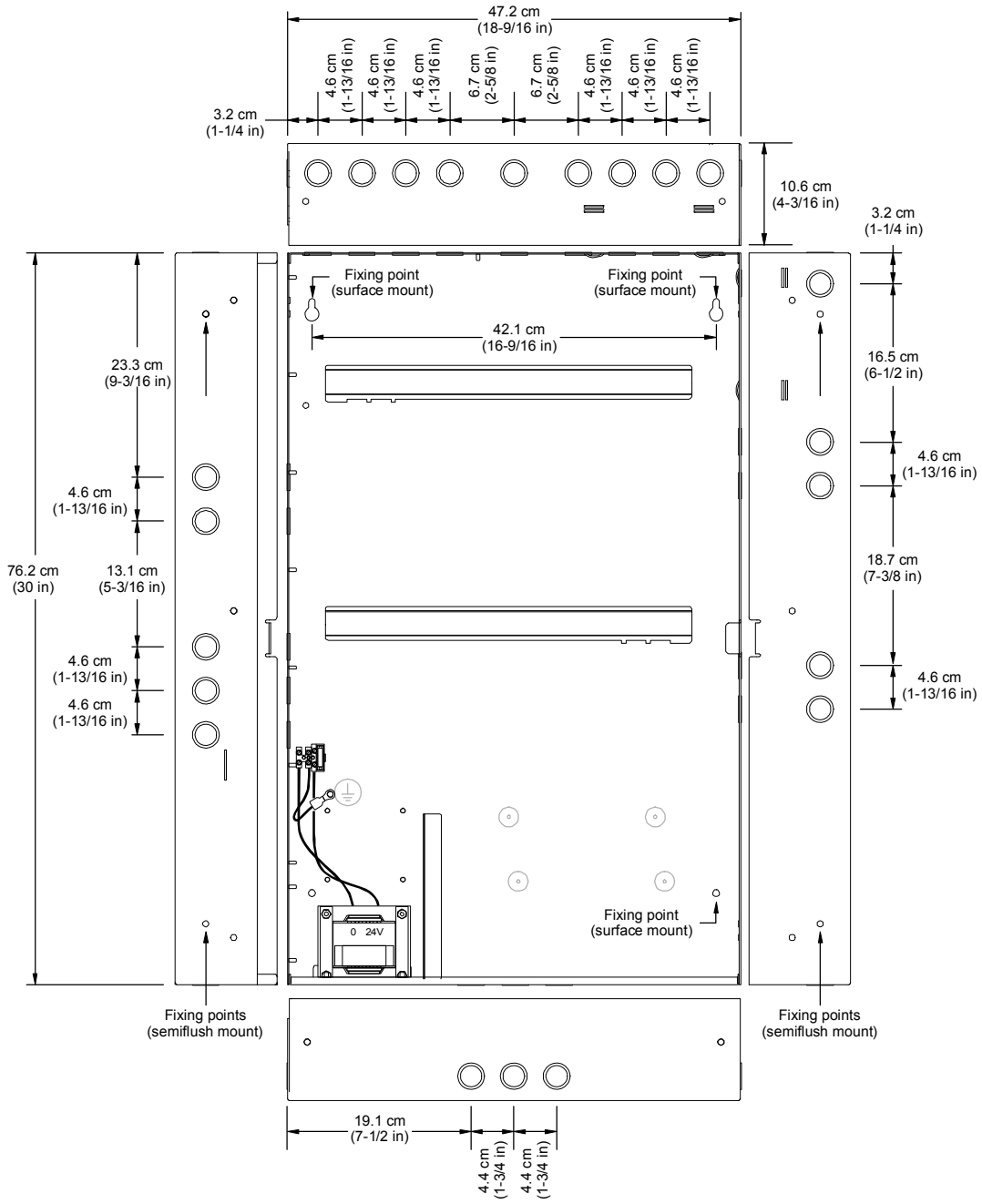


Figure 6-3: Backbox dimensions for a MIR-QS4-12-5-(G/R)-(1/2)

Pulling cables into the backbox

Pull high voltage mains power cables into the backbox through the knockout closest to the terminal block as shown Figure 6-4. Pull all low voltage data cables into the backbox through the remaining knockouts. When pulling cables into the backbox, keep in mind the following:

- Keep low voltage cables within the shaded area. Keep high voltage cables within the unshaded area.
- Do not run cables through the knockouts at the bottom of the backbox if batteries are to be installed in the cabinet
- Make sure to remove any debris and any metal filings after pulling the cables into the backbox

Note: There are a sufficient number of knockouts to pull cables into the backbox in a neat and orderly manner without having to punch additional holes.

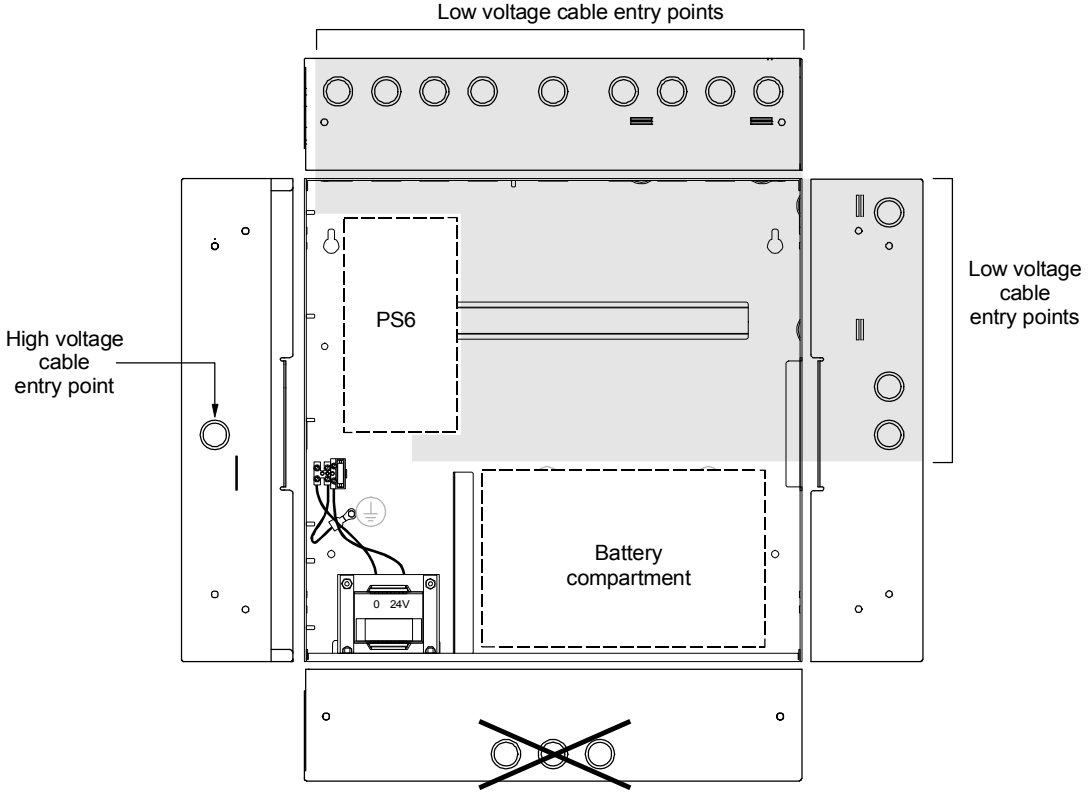


Figure 6-4: Typical cable entry locations

Installing panel components

Figure 6-5 shows the recommended cabinet layouts for five-option and twelve-option cabinets. In a twelve-option cabinet, the panel components installed on the top DIN rail are connected to those installed on the bottom DIN rail via the QS-Cable12 rail-to-rail cable assembly. Install panel components in the following order:

1. Install the PS6 card. For more information, see the topic "Installing the PS6 card" later in this chapter.
2. Install the front panel. For more information, see the topic "Installing the front panel" later in this chapter.
3. Install the RS-485 card, if used, next to the PS6 card.
4. Install all remaining option cards and set their card addresses.

Caution: Do not install any panel components while the control panel is energized.

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

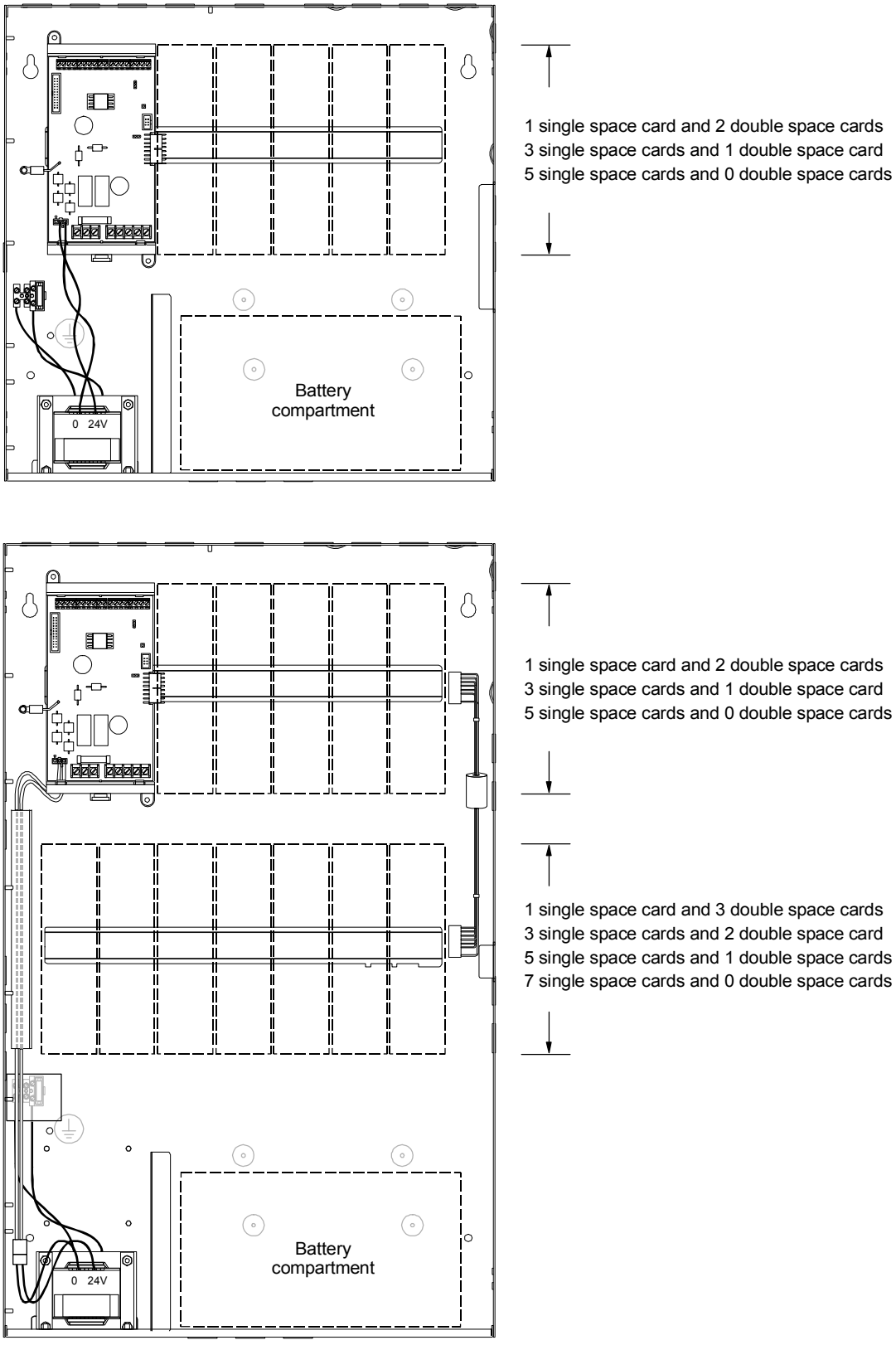


Figure 6-5: Cabinet layout diagram

Installing the PS6 card

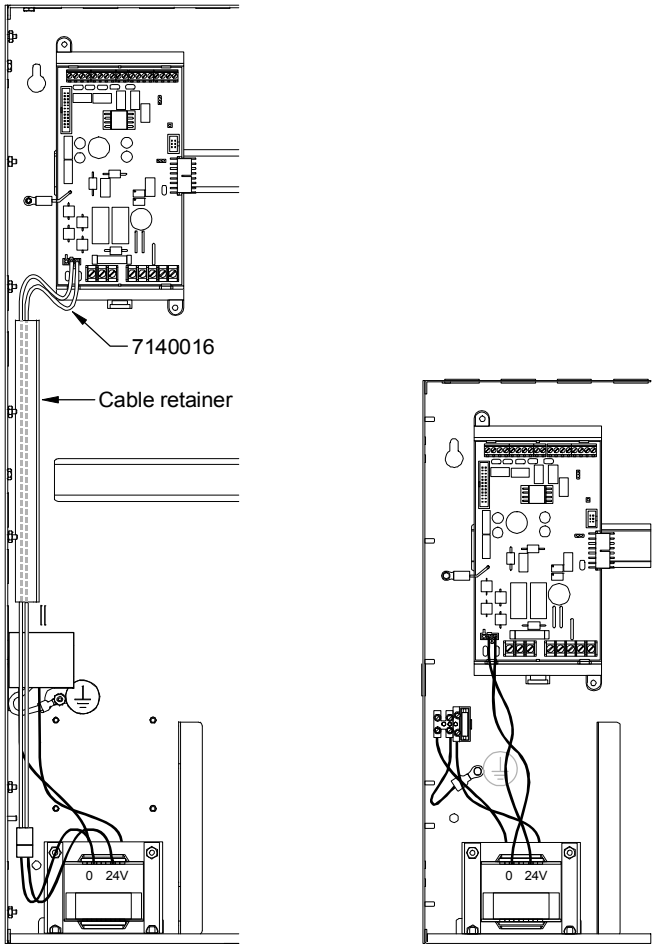
This topic describes how to install the PS6 card. When installing a PS6 card into a twelve-option cabinet enclosure you must use the transformer extension cable (P/N 7140016) to connect the transformer.

Caution: Never plug or unplug the transformer with mains AC applied. Doing so may damage the PS6 card.

To install the PS6 card:

1. Set the PS6 card on the left end of the DIN rail as shown in Figure 6-6 then engage the locking mechanism to prevent the PS6 card from moving.
2. Attach the power supply ground wire to the cabinet backbox.
3. Plug the transformer into the PS6 card.

Tip: Slip the extension cable into the cable retainer before making connections.



Twelve-option cabinet Five-option cabinet

Figure 6-6: Power supply card installation

Installing the front panel

This topic describes how to install the front panel. The front panel consists of the cabinet door, the CPU/Display Unit, and LED/switch cards.

Step 1: Attach the cabinet door to the backbox

Attach the cabinet door to the backbox then connect the ground strap between the backbox and the cabinet door. See Figure 6-7.

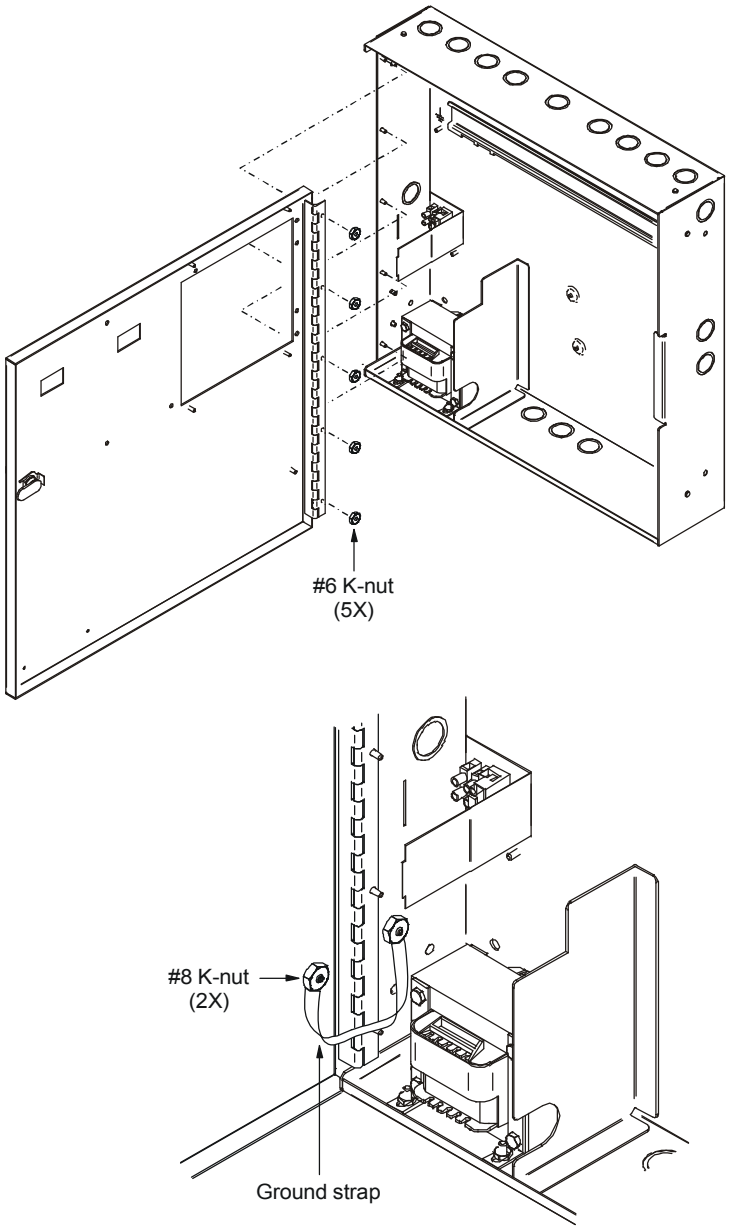


Figure 6-7: Cabinet door assembly

Step 2: Attach the CPU/Display Unit and LED/switch cards to the cabinet door

Set the LED/switch cards inside the CPU/Display Unit then attach the CPU/Display Unit to the cabinet door as shown in Figure 6-8.

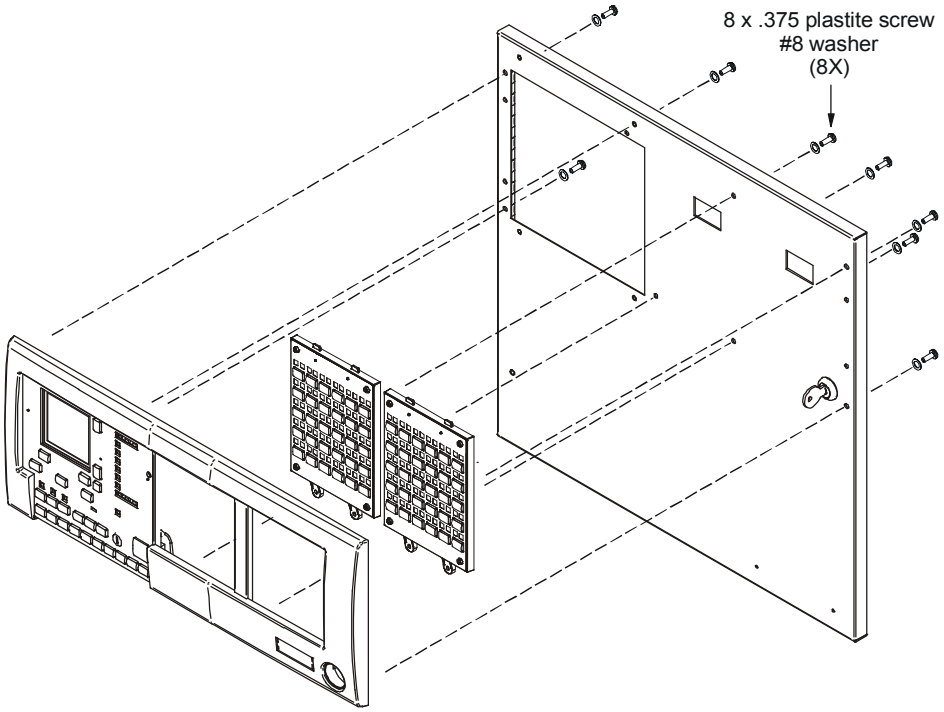
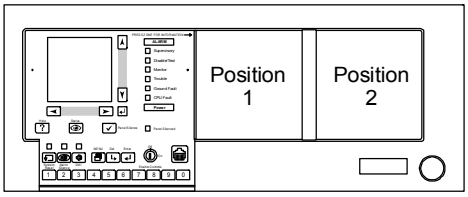


Figure 6-8: Front panel assembly

There are four models of LED/switch card that you can install on the front panel.

Table 6-1 lists the suggested LED/switch card arrangements.

Table 6-1: Suggested LED/switch card arrangements



No. of zones	Position 1	Position 2
1 to 30	SL30L	BLNK or SL20L5S
	SL30	BLNK or SL20L5S
1 to 60	SL30L	SL30L or SL20L5S
	SL30	SL30-1 or SL20L5S

Step 3: Connect the ribbon cables

Connect the ribbon cables as shown in Figure 6-9. After connecting the ribbon cables, attach the CPU cover.

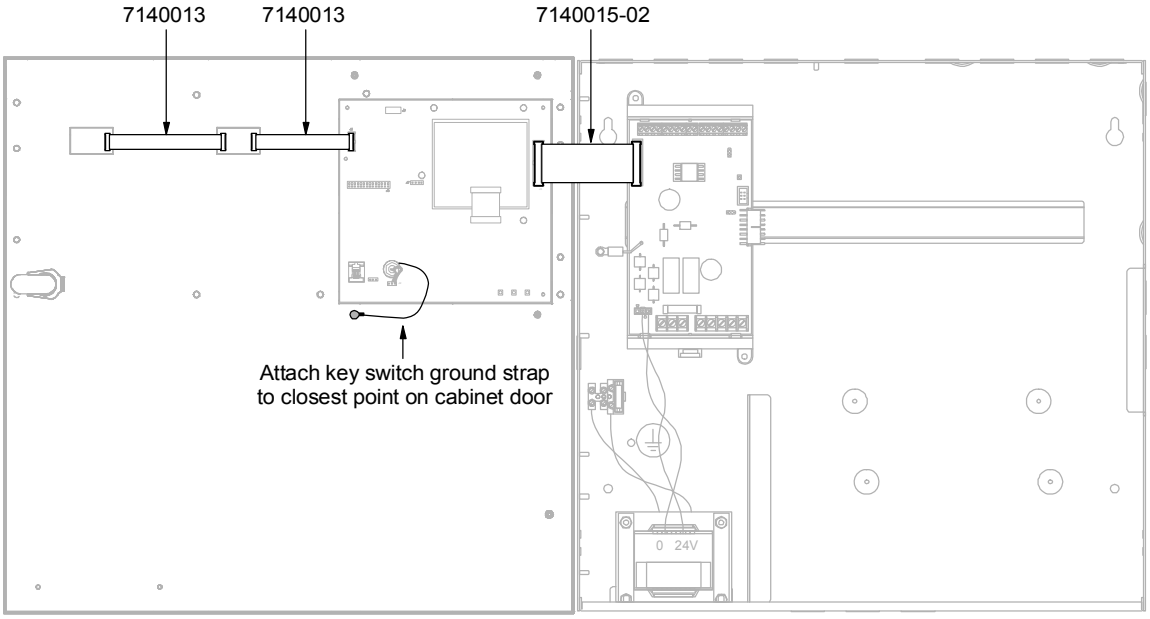


Figure 6-9: Front panel ribbon cable connections

Connecting mains AC

Figure 6-10 shows how to wire mains AC to the terminal block. After you have wired mains AC to the terminal block return the tabbed end of the terminal block cover to its slot in the side of the cabinet.

Note: The control panel must be connected to a dedicated branch circuit from the mains distribution panel with its own double-pole, double-throw disconnect device. In addition, all mains wiring must be double insulated.

Caution: The middle connection on the mains terminal block makes a mechanical connection to chassis (earth) ground. Do not allow the mains live and neutral conductors to make contact with the middle connector on the mains terminal block.

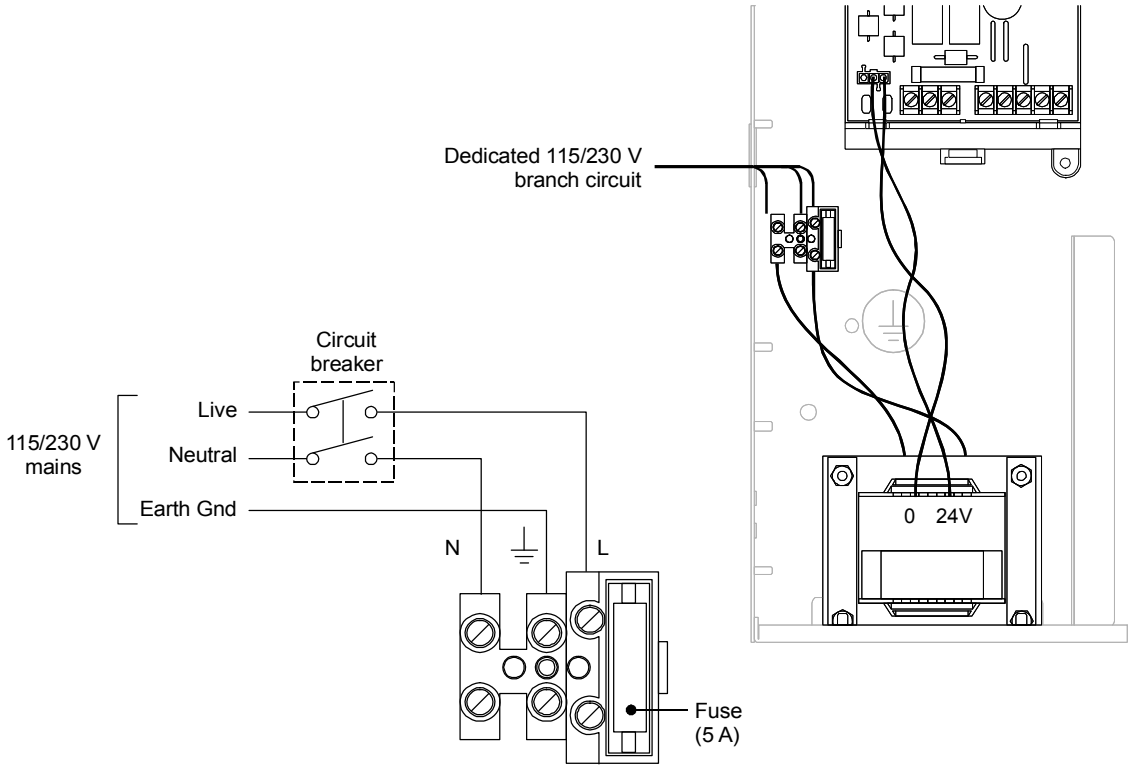


Figure 6-10: Mains AC wiring diagram

Installing standby batteries

Figure 6-11 shows how to install standby batteries. First place the batteries in the backbox battery compartment area then secure the batteries using the appropriate battery bracket, ordered separately.

The table below lists the batteries that can be installed in the backbox. To determine which battery your system requires, use the battery calculation worksheet in Appendix A.

Model	Manufacturer	Rating
12V4A	GS Battery, Inc.	12 volts, 4 ampere-hours
12V6A5	GS Battery, Inc.	12 volts, 6.5 ampere-hours
12V10A	GS Battery, Inc.	12 volts, 10 ampere-hours

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

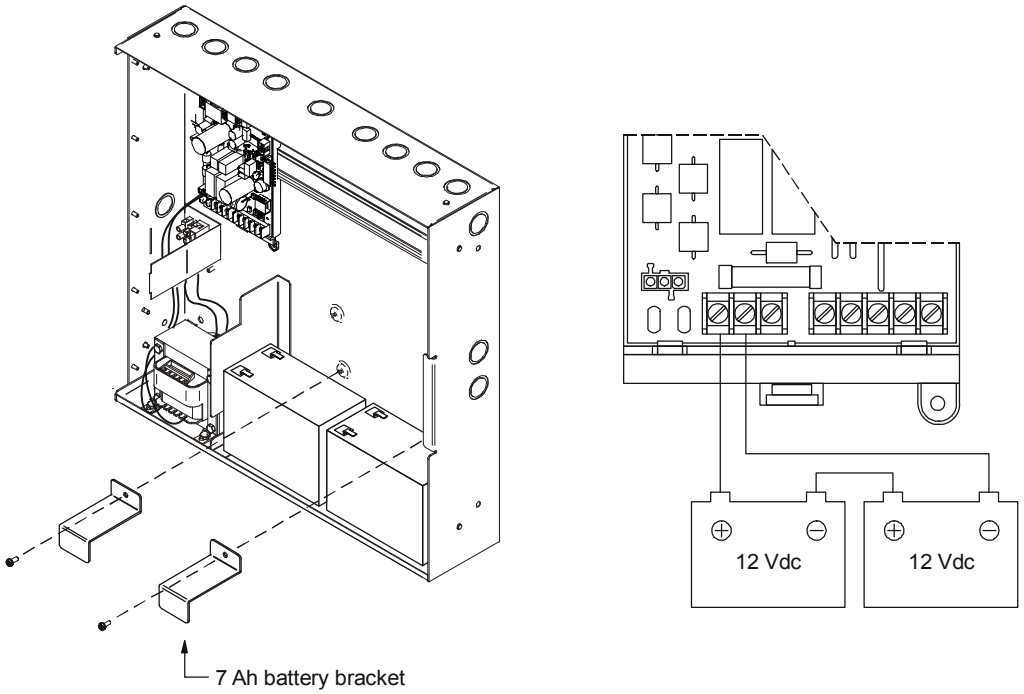


Figure 6-11: Standby battery installation

Installing a QSA series remote annunciator

Remote annunciators are used to provide system controls and indicators at remote locations within the protected premises and are typically configured the same as the control panel. Installing a remote annunciator requires that you perform the following sequence of steps. Each step is discussed in greater detail later in this topic.

To install a remote annunciator:

1. Mount the backbox.
2. Pull cables into the backbox.
3. Install the RAI card.
4. Install the front panel.
5. Connect the power and data cables to the RAI card.

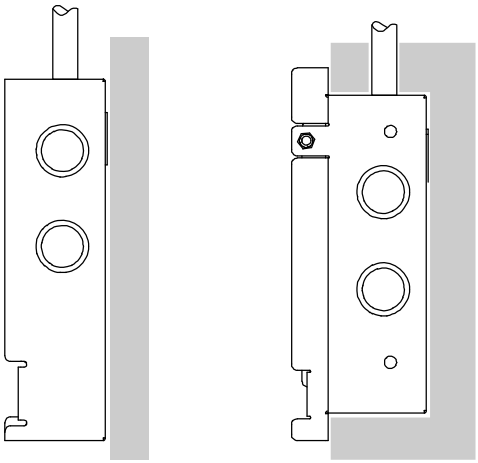
Tip: To prevent the equipment from being damaged or vandalized, stop after you have pulled the cables into the cabinet. Complete the installation only after it is safe to do so.

Mounting the backbox

Mount the backbox as shown in Figure 6-12. When mounting the backbox, always remember the following:

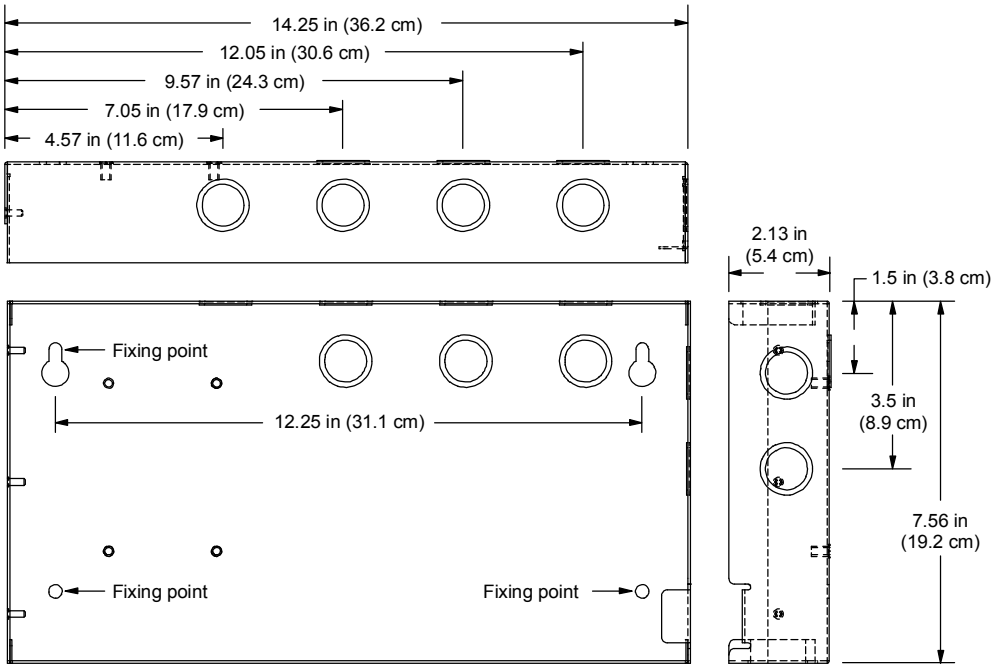
- Use fasteners that can support the full weight of the cabinet
- Tighten fasteners firmly to prevent the cabinet from vibrating

See Figure 6-13 and Figure 6-14 for backbox dimensions and fixing point locations.

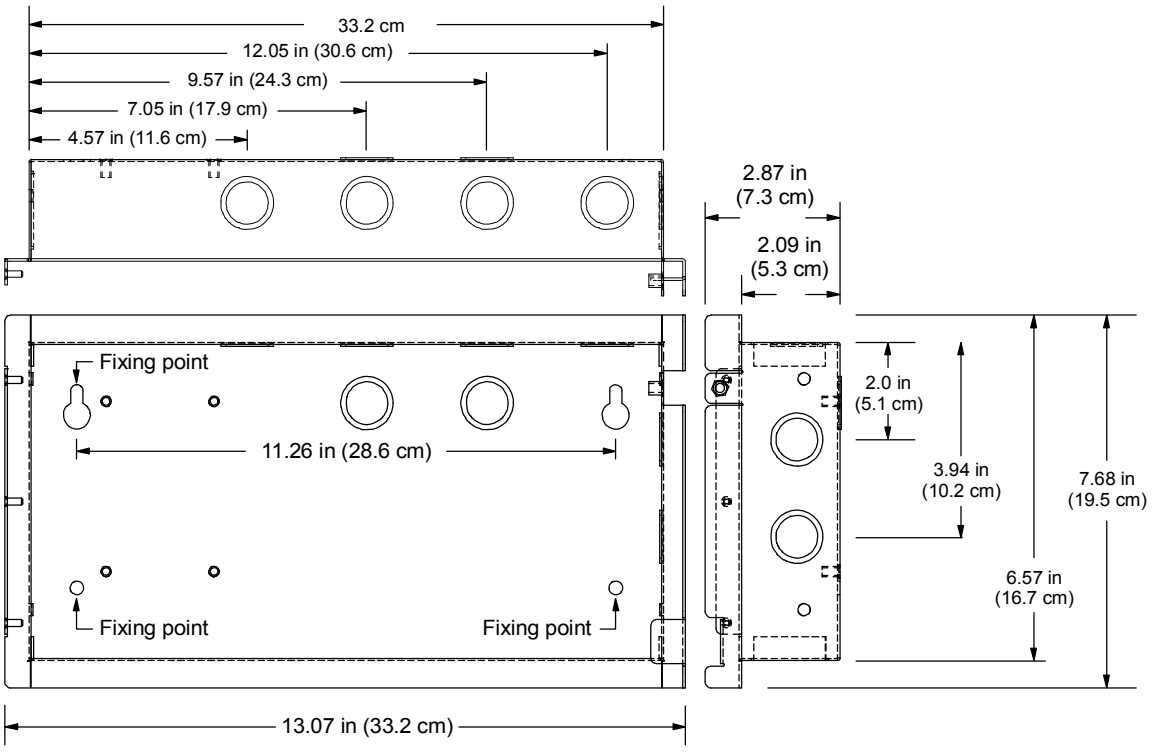


Surface mount Semiflush mount

Figure 6-12: Remote annunciator backbox mounting diagram

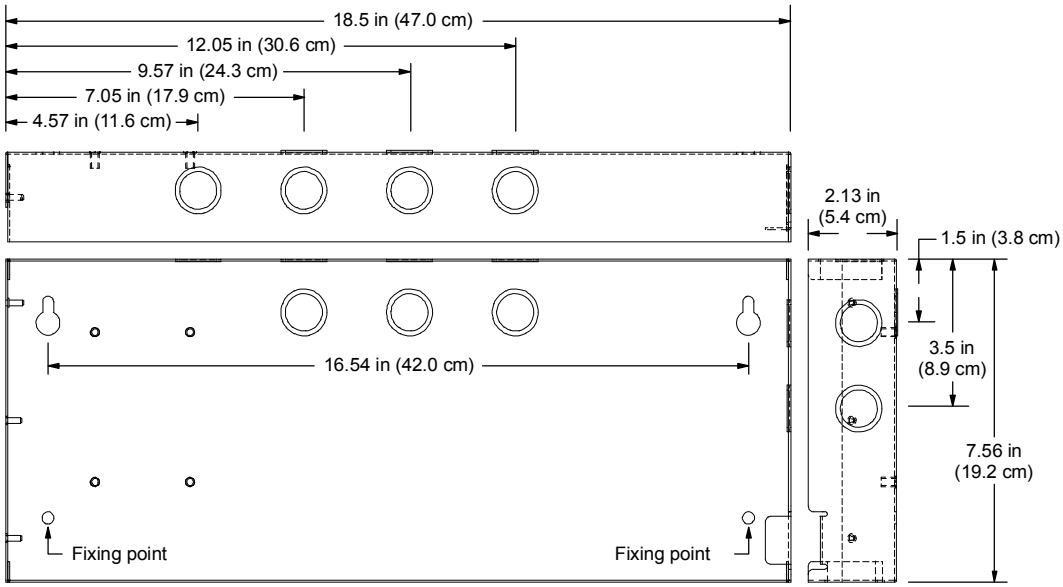


QSA-1-S

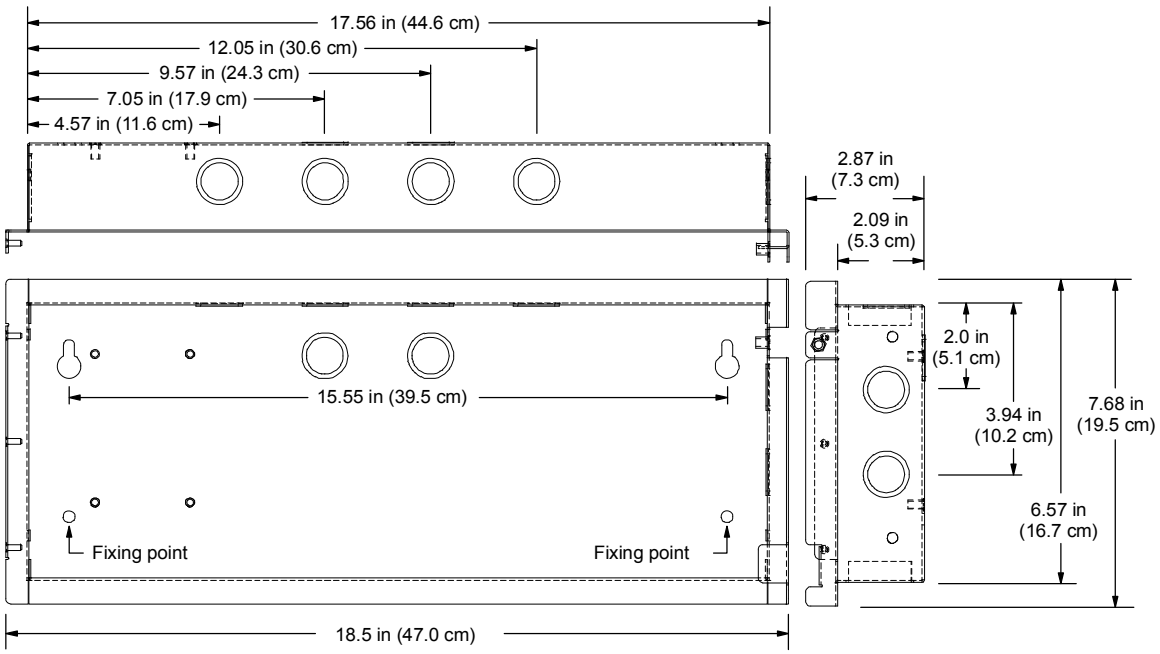


QSA-1-F

Figure 6-13: QSA-1-S and QSA-1-F backbox dimensions



QSA-2-S



QSA-2-F

Figure 6-14: QSA-2-S and QSA-2-F backbox dimensions

Pulling cables into the backbox

Pull power and data cables into the backbox through any of the cable entry points. All cables entering the backbox are low voltage cables so there is no requirement to keep them separated. After pulling the cables into the backbox, make sure to remove any debris and any metal filings.

Note: There are a sufficient number of knockouts to pull cables into the backbox in a neat and orderly manner without having to punch additional holes.

Installing the RAI card

Attach the RAI card to the backbox as shown in Figure 6-15.

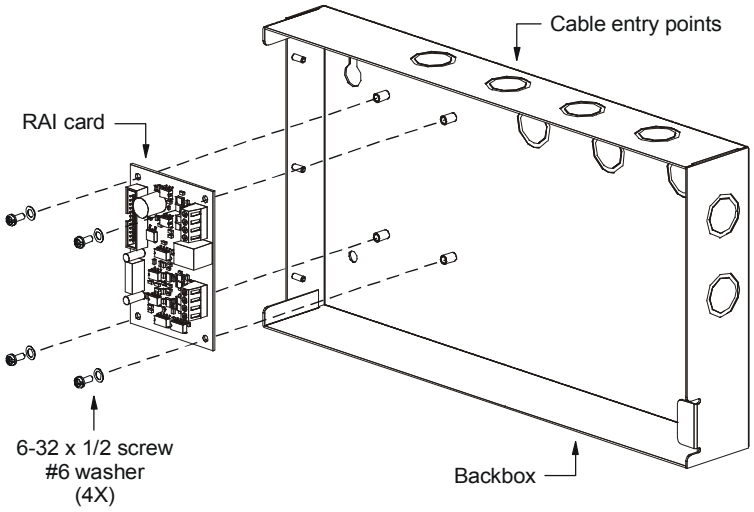


Figure 6-15: RAI card installation

Installing the front panel

The front panel consists of the cabinet door, the CPU/Display Unit, and LED/switch cards. The steps required to install the front panel are described below.

Step 1: Attach the cabinet door to the backbox

Attach the cabinet door to the backbox as shown in Figure 6-16.

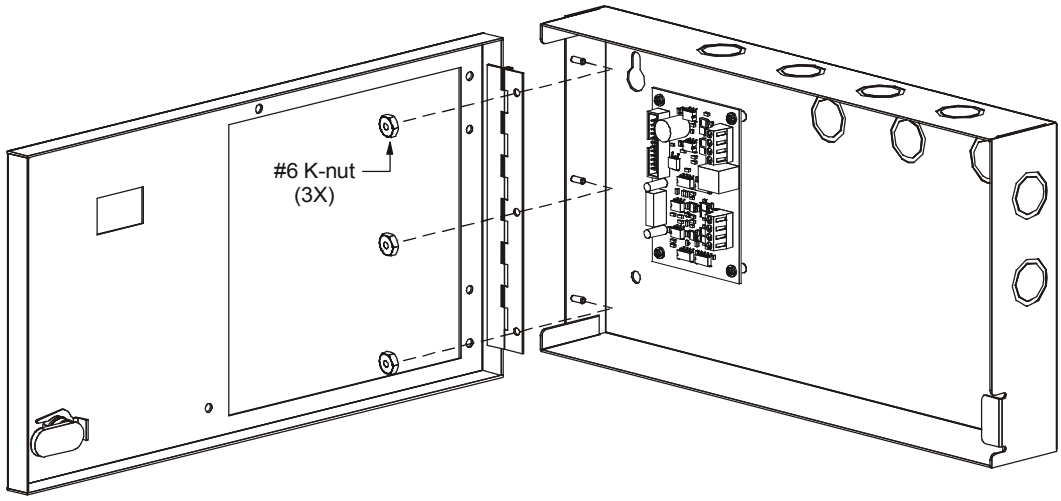


Figure 6-16: Remote annunciator door installation

Step 2: Attach the CPU/Display Unit and LED/switch cards to the cabinet door

Place the LED/switch cards into position on the CPU/Display Unit then attach the CPU/Display Unit to the cabinet door as shown in Figure 6-17.

Note: Remote annunciator CPU/Display Units must be the same CPU type as the CPU/Display Unit installed on the control panel.

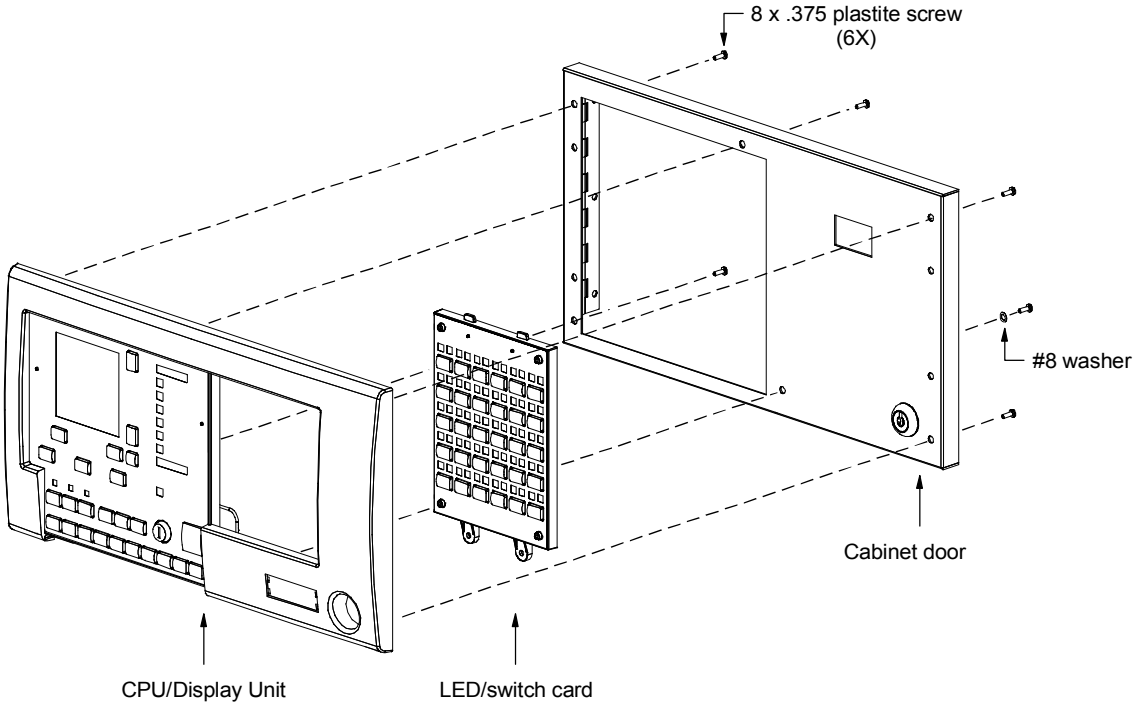


Figure 6-17: Remote annunciator CPU/Display Unit and LED/switch card installation

Attach the key switch ground strap to the cabinet door as shown in Figure 6-18.

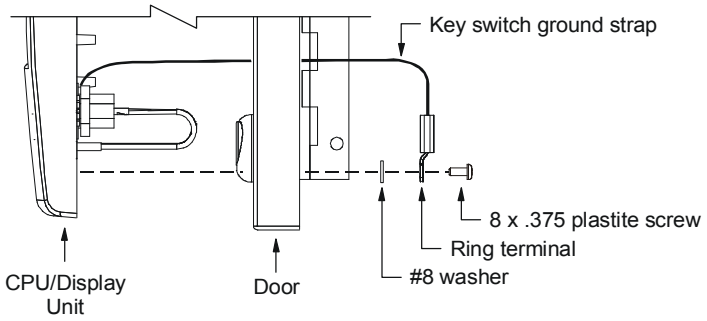


Figure 6-18: Key switch ground strap connection

Step 3: Connect the ribbon cables

Connect the ribbon cables as shown in Figure 6-19.

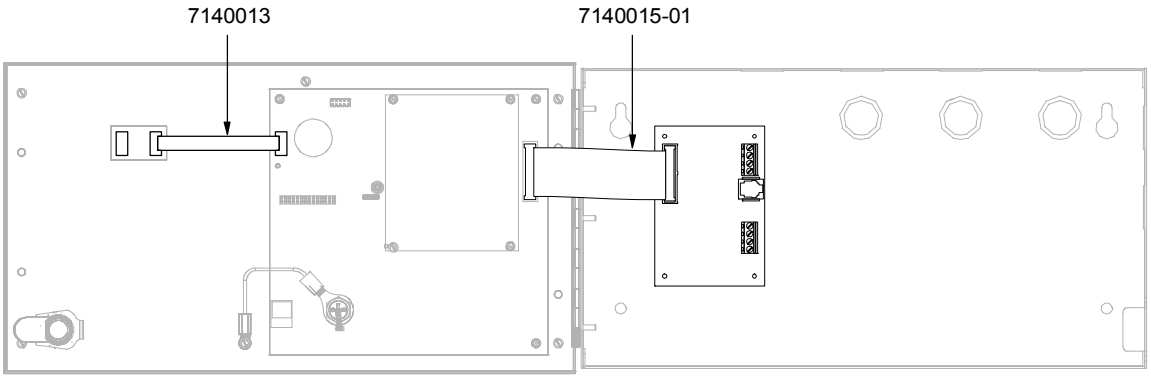


Figure 6-19: Remote annunciator ribbon cable connections

RAI card wiring

The remote annunciator requires a continuous 24 Vdc supply voltage and communicates with the control panel over the RS-485 transmission path. The cable connections are made on the RAI card.

Connecting the power cables

Connect the power cables to the RAI card as shown in Figure 6-20.

For single remote annunciator installations you can use the PS6 card to supply operating power to the remote annunciator. For multiple remote annunciator installations you must use a 24 Vdc supply that is UL/ULC listed for fire protective signaling systems.

WARNING: Make sure the 24-volt supply is de-energized before connecting power cables to the RAI card.

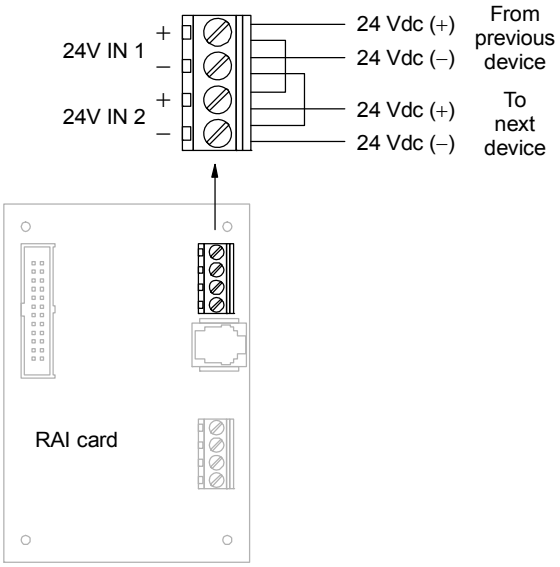


Figure 6-20: Remote annunciator power wiring

Connecting the RS-485 data cables

Connect the RS-485 data cables to the RAI card as shown in Figure 6-21. Do not extend the RS-485 data cables more than 3,000 ft (914.4 m) from the control panel.

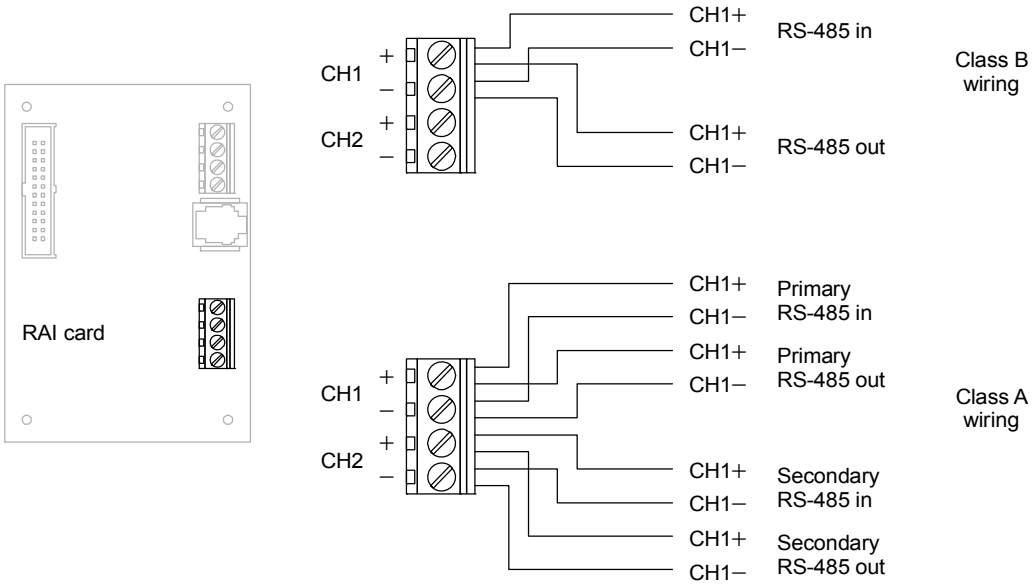


Figure 6-21: Remote annunciator data cable connections

Commissioning the system

After the control panel and remote annunciators have been completely installed and wired, you can begin commissioning the system. There are two ways to commission the system. You can commission the system using the control panel or by using the software configuration utility.

During system testing and programming you may be required to temporarily connect a laptop computer or a serial printer. For more information, see the topic "Connecting peripheral devices" later in this chapter.

Using the control panel

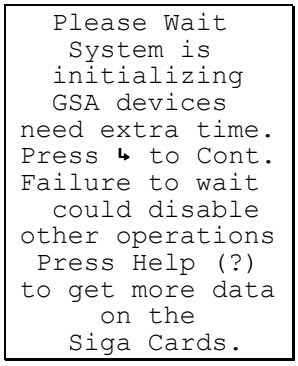
To commission the system using the control panel, follow the steps described below.

Step 1: Energize the system

Apply power to the control panel and all of the remote annunciators. Before applying power, you should verify that each option card installed in the control panel has a unique card address.

Wait until the control panel completes all diagnostic checks before proceeding.

Step 2: Configure the remote annunciators



Initialization progress screen

The next step is to configure the remote annunciators using the AutoLearn command. Configuring a remote annunciator consists of assigning it a panel number, telling it how many panels are connected together, and specifying how it is wired.

Caution: If you set the Network Class option for Class A operation when the remote annunciators are actually wired for Class B operation, the control panel won't be able to communicate with a serial printer or a laptop computer unless you install a QS-232 UART module or "autolearn" the control panel a second time with Class B selected.

To configure a remote annunciator:

1. Log on to the remote annunciator using the level 4 password.
2. From the Main menu, choose Program, and then Configure.

   Wait until the panel is initialized before proceeding.
3. On the Configure menu, choose AutoLearn.
4. Press Del twice, and then enter an unused panel ID from 02 to 09 (01 is reserved for the control panel).

Mark the number on the panel for future reference.

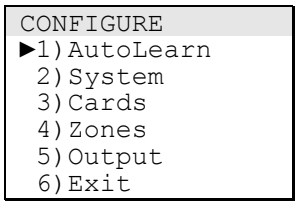
5. Press Del twice then enter the total number of panels in the system (the control panel plus all remote annunciators).
6. On the Network Class menu, select how the remote annunciators are wired (Class A or Class B) then press Enter.

Step 3: Configure the control panel

The next step is to configure the control panel using the AutoLearn command. Configuring the control panel consists of assigning it a panel number, telling it how many panels are connected together, and specifying how it is wired.

If a DLD card is installed, you must enter the receiver telephone numbers, the identification number, and in some cases the default dialer strings for the default subscriber account (Account 1). Other accounts can be added later.

Note: Before proceeding, view a revision report to make sure that all optional panel components are listed and addressed correctly. For more information, see the topic "Display or print a revision report" in Chapter 8.

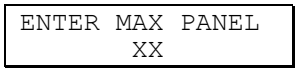


To configure a control panel:

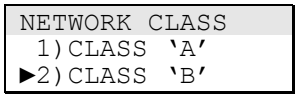
1. Log on to the control panel using the level 4 password.
2. From the Main menu, choose Program, and then Configure.

   Wait until the panel is initialized before proceeding.

3. On the Configure menu, choose AutoLearn.
4. Press Del twice, and then enter a panel ID of 01.



5. Press Del twice then enter the total number of panels in the system (the control panel plus all remote annunciators).



6. On the Network Class menu, select the wiring configuration (Class A or Class B) of the RS-485 transmission path, and then press Enter.

   Wait until the database is updated before proceeding.

The following steps are only required when a DLD card is installed.

To configure the dialer:

1. Enter the first telephone number used to connect to the receiver. The telephone number can consist of up to 23 numeric characters.

   Example: For 1-555-867-5309, enter 15558675309.

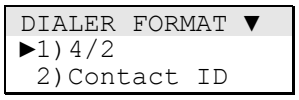
2. Enter the second telephone number used to connect to the receiver. The telephone number can consist of up to 23 numeric characters.

   Example: For 1-555-752-1792, enter 15557521792.

3. Enter the 4-digit subscriber account number.

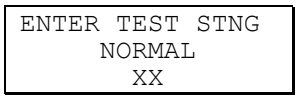
4. Enter the time when you want the dialer to perform its 24-hour periodic test. Enter the time in 24-hour format, where HH is the hour and MM is the minutes.

   Example: For 12:45 in the morning, enter 0045. For 12:45 in the afternoon, enter 1245.

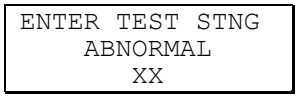


5. On the Dialer Format menu, choose one of the following:
   - 4/2 to transmit status changes in 4/2 format
   - Contact ID to transmit status changes using the predefined set of Contact ID dialer strings.

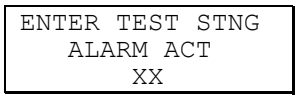
   If you chose Contact ID, skip to step 14. If you chose 4/2, complete the steps below.



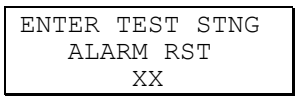
6. Enter the number that you want the dialer to send when it performs its 24-hour periodic test and the control panel is in the normal state.



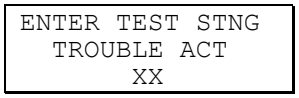
7. Enter the number that you want the dialer to send when it performs its 24-hour periodic test and the control panel is *not* in the normal state. This number must be distinctively different from the number entered in the previous step.



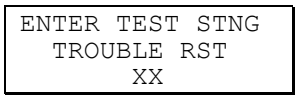
8. Enter the number that you want the dialer to send when an alarm input is activated (goes into alarm) and the alarm input is not programmed to initiate a custom dialer response This is the default alarm activation string.



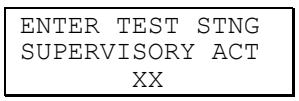
9. Enter the number that you want the dialer to send when an active alarm input is restored and the alarm input is not programmed to initiate a custom dialer response This is the default alarm restoration string.



10. Enter the number that you want the dialer to send when a point signals a trouble condition and the point is not programmed to initiate a custom dialer response. This is the default trouble activation string.



11. Enter the number that you want the dialer to send when a point that signaled a trouble condition is restored and the point is not programmed to initiate a custom dialer response. This is the default trouble restoration string.



12. Enter the number that you want the dialer to send when a supervisory input is activated and the supervisory input is

not programmed to initiate a custom dialer response This is the default supervisory activation string.

```
ENTER TEST STNG
SUPERVISORY RST
       XX
```

13. Enter the number that you want the dialer to send when an active supervisory input is restored and the supervisory input is not programmed to initiate a custom dialer response This is the default supervisory restoration string.

```
EXIT
►1)Save Edits
```

14. On the Exit menu, choose Save Edits. Wait while the database is updated.

```
UPDATE DATABASES
►1)Save
```

15. On the Update Databases menu, choose Save. Wait while the database is updated.

Step 4: Add loop devices to the project database

At this point, the control panel has a partial default project database that includes each option card installed in the panel. What the project database doesn't include are the devices installed on the Signature loops. For each Signature loop, the control panel displays the following trouble message:

```
LCL TROUBLE: Unconfig. Device
```

The next step is to add the loop devices to the project database. The easiest way to do this is to use the Auto Loop command.

```
SLIC
 1)Config Card
 2)Config Detect
 3)Config Module
►4)Auto Loop
 5)Accept Map
 6)Exit
```

To add the loop devices to the project database

1. Log on to the control panel using the level 4 password.
2. From the Main menu, choose Program, and then Configure.

   Wait while the panel initializes before proceeding.

```
# Detectors :032
# Modules   :007

Enter: Accept
Delete: Cancel
```

3. For each SLIC card installed in the control panel, on the Configure menu, choose Cards.
4. On the Edit Card menu, choose Edit then enter the SLIC card's address.
5. On the SLIC menu, choose Auto Loop.

   The system displays a screen that shows how many detectors and modules were detected on the loop.
6. If the number of devices found is correct, press Enter then wait while the database is updated. If not, press Del to cancel.

   If the correct device count is not displayed, it is probably due to a wiring error or loose terminal connection and should be corrected before continuing.
7. Choose Exit, then Exit, and then Save.

Step 5: Clear trouble messages

The next step is to clear the trouble messages displayed on the control panel CPU/Display Unit. To help with troubleshooting, see the topic “Clearing trouble messages” in Chapter 8.

For each remote annunciator installed, you should have the following trouble messages:

```
LCL FAULT: CH1 Communications
LCL FAULT: CH2 Communications
LCL FAULT: Database Incompatible
```

These trouble messages are expected and will be cleared once the project databases are synchronized in the final step. If only the communication trouble messages are displayed and not an incompatible database message, there is a problem with the remote annunciator wiring. The wiring fault must be corrected before the project databases can be synchronized.

Note: The CH2 Communications trouble message is not displayed on systems where Network Class is programmed for Class B.

Step 6: Make changes to the project database

The default project database creates a general fire alarm system. In a general fire alarm system, all notification appliance circuits turn on when any fire alarm input is activated. If your system requirements exceed that of a general fire alarm system (such as zone reporting and location descriptions), you can make changes to the project database from the control panel CPU/Display Unit at this time.

If you need to make any changes, do so in the following sequence:

1. System
2. Cards
3. Devices
4. Output groups
5. Zones

Save your changes after each step. Do not update the remote annunciators until after all output group testing and zone testing has been completed. For more information, see Chapter 7 “Front panel programming.”

Step 7: Synchronize the project databases

After the system has been completely tested and all the trouble messages have been cleared (except for the three described earlier) you can use the Save & Sync command to synchronize the project databases. Synchronizing the project databases is necessary so all of the panels are operating with the same database. The Save & Sync command saves the project database

in the control panel and then automatically updates all of the remote annunciators.

Note: Only use the Save & Sync command when the system is completely programmed from the front panel. Do not use the software configuration utility to download a project database to the control panel then use the Save & Sync command to update the remote annunciators.

Using the software configuration utility

To commission the system using the software configuration utility, follow the steps described below.

Step 1: Energize the system

Apply power to the control panel and all of the remote annunciators. Wait until the control panel completes all diagnostic checks before proceeding.

Step 2: Download the project database into each panel

After you have energized the system, download the project database into the control panel and each remote annunciator, starting with the control panel. Figure 6-22 shows the dialog box that you use to download the project database.

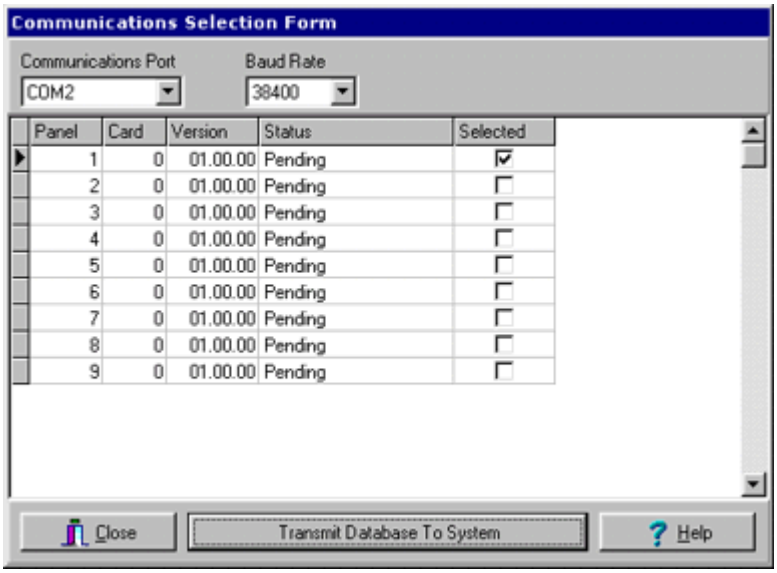


Figure 6-22: Communications Selection Form dialog box

Each CPU/Display Unit is shipped from the factory with a panel ID of 1. When you download the project database to a remote annunciator, you must confirm that you want to overwrite the existing panel ID number with the one selected in the Communications Selection Form dialog box.

Figure 6-23 shows the message that is displayed when the CPU/Display Unit panel ID number does not match the panel ID number selected in the Communications Selection Form dialog box. Clicking OK at this point overwrites the existing panel ID number with the one selected.

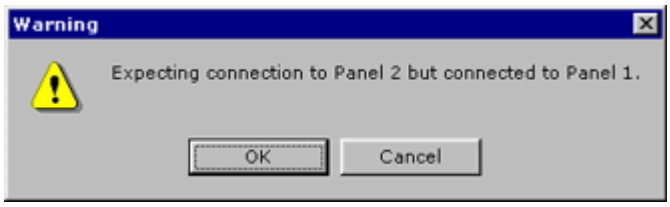


Figure 6-23: Panel ID mismatch message box

To download the project database:

1. Start the software configuration utility then open the project.
2. Connect the laptop computer to the panel.
3. On the Tools menu, choose Send Database To Panel.
4. In the Communications Selection Form dialog box, click the Communications Port arrow, and then select the COM port used to connect the laptop computer to the panel.
5. If you are downloading to the control panel, check only the Selected check box for Panel 1.

   If you are downloading to a remote annunciator, check the Selected check box for the panel ID number that you want assigned to the remote annunciator.
6. Click Transmit Database To System.
7. After the transfer is complete click OK, and then close the Communications Selection Form dialog.

Step 3: Clear trouble messages

After you have downloaded the project database to all of the panels, clear all of the trouble messages displayed on the control panel CPU/Display Unit. For more information, see the topic “Clearing trouble messages” in Chapter 8.

Step 4: Make changes to the project database

If you have to make any changes to the project database, make the changes in the software configuration utility then download the corrected project database to all of the panels as described above.

Note: Do not use the Save & Sync command to update the project database in the remote annunciators if you have programmed the system using the software configuration utility.

Connecting peripheral devices

Connect peripheral devices to the control panel as described below. The laptop computer is used for programming purposes only and should be disconnected when not in use.

Connecting a laptop computer

There are two ways to connect a laptop computer to the control panel. You can use the RS-232 terminals on the PS6 card or you can use the RJ-12 modular jack on the CPU/Display Unit.

Figure 6-24 shows how to connect a laptop computer to the RS-232 terminals on a PS6 card. Connecting a laptop computer in this manner requires that you use programming cable P/N 260097, ordered separately.

Note: Connecting a laptop computer to the RS-232 terminals may cause a ground fault. The ground fault event message goes away when you remove the connection.

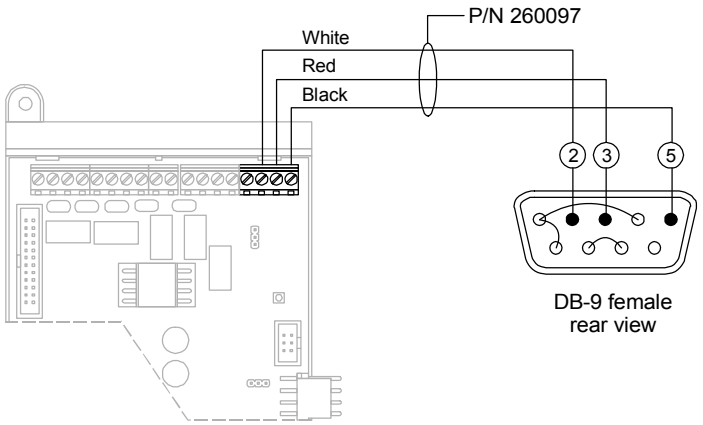


Figure 6-24: Laptop computer connection via the RS-232 terminals

You can also connect a laptop computer to the RJ-12 modular jack on the CPU/Display Unit. Connecting a laptop computer in this manner requires that you use programming cable Model no. PROGCABLE-1, ordered separately.

Connecting a serial printer

Figure 6-25 shows how to connect a serial printer to the RS-232 terminals on a PS6 card. Locate the printer within 20 ft of the control panel and set the printer configuration switches for 9600 baud, 8 bits, 1 stop bit, no parity, and no flow control.

Note: Connecting a serial printer to the RS-232 terminals may cause a ground fault. The ground fault event message goes away

when you disconnect the printer. To prevent ground faults use an IOP3A RS-232 Isolator.

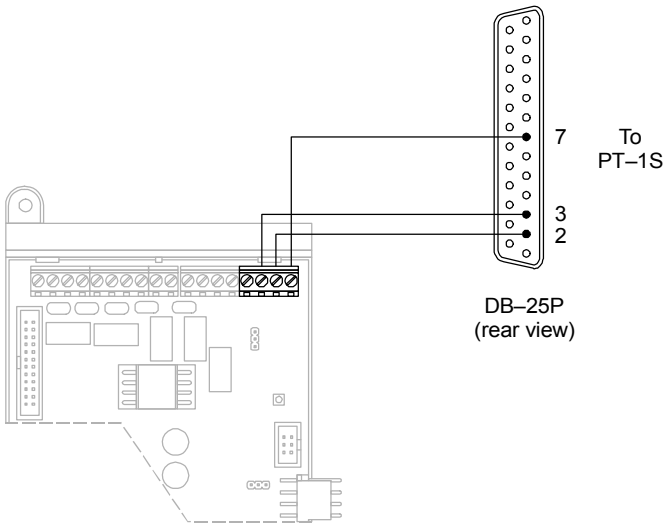


Figure 6-25: Serial printer connection diagram

Chapter 7

Front panel programming

Summary

This chapter provides instructions for programming the fire alarm system from the control panel CPU/Display Unit. It is intended for those trained and authorized to program the fire alarm system.

Content

Before you begin

This topic describes several programming features that you should understand before you begin programming the fire alarm system.

What is a zone?

A zone is a collection of points that are grouped together in the project database in the same manner that the system designer divided the protected premises. Zones provide a single zonal response and are used to limit the number of event messages processed by the system. Firewall designations, planned evacuation criteria, architectural design, and other factors determine how points are grouped into zones.

What is an output group?

An output group is a collection of responses organized into sets according to specific response types. The response types for which you can create and edit responses from the control panel CPU/Display Unit are described below.

Active: The set of responses that is executed when a point assigned to the output group changes to the active state.

Trouble: The set of responses that is executed when a point assigned to the output group signals a trouble condition.

In addition to active and trouble responses, there are a number of response types for which you can create and edit responses using the software configuration utility. These response types are described below.

Active Test: The set of responses that is executed when a point in a service group assigned to the output group changes to the active state and the service group is active.

Disablement: The set of responses that is executed when a point assigned to the output group changes to the disabled state.

Trouble Test: The set of responses that is executed when a point in a service group assigned to the output group signals a trouble condition and the service group is active.

Pre Alarm: The set of responses that is executed when a fire alarm detector assigned to the output group signals that its prealarm threshold has been crossed.

Running: The set of responses that is executed when a service group assigned to the output group is activated.

Verify: The set of responses that is executed when a fire alarm detector assigned to the output group is in the process of verifying a possible fire alarm condition.

The size of a project database is limited. Effective use of output groups keeps the size of the project database manageable and makes programming easier and quicker. The following examples show how to use output groups effectively.

Example 1: Combining common responses in the same output group

Instead of programming separate output groups for each input when the output groups include the same responses, program a single output group that includes the common responses as shown in Figure 7-1.

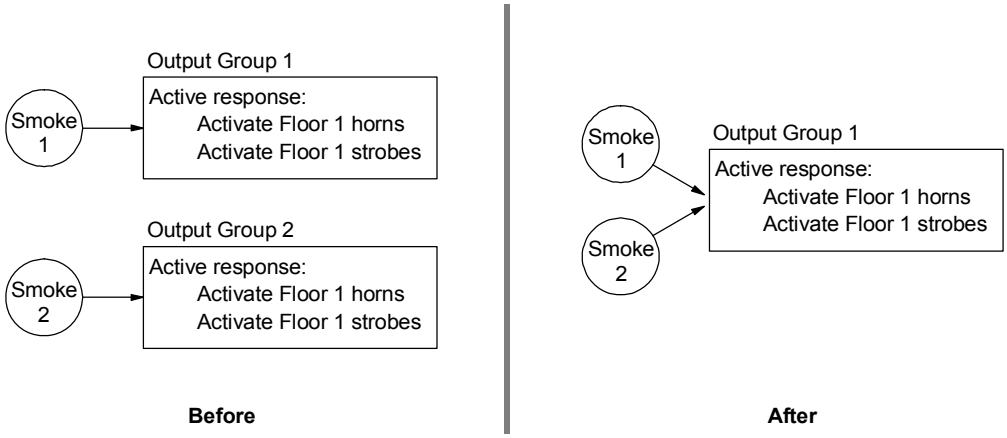


Figure 7-1: Combining common responses in the same output group

Example 2: Combining sets of responses in the same output group

Instead of programming separate output groups for individual response types that share common inputs, program a single output group that includes each response type as shown in Figure 7-2.

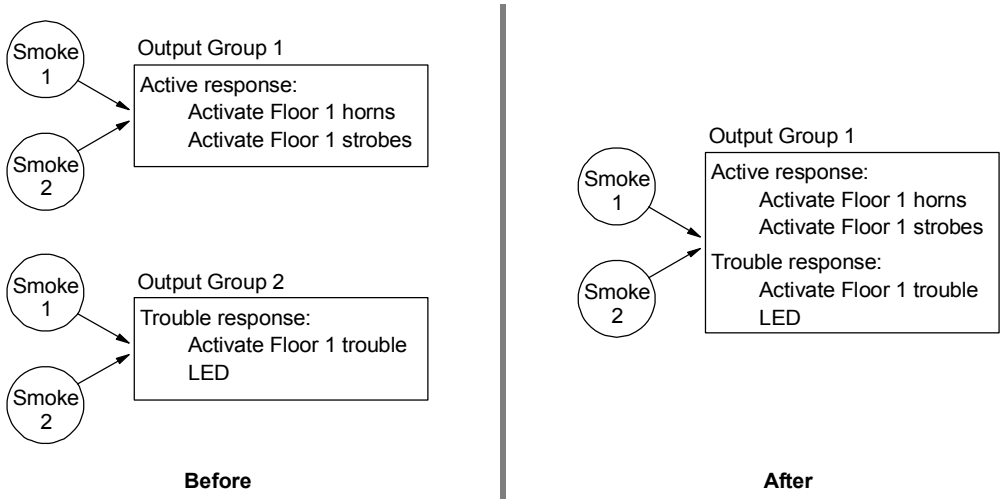


Figure 7-2: Combining response types in the same output group

Example 3: Combining mutually exclusive responses in the same output group

Instead of programming separate output groups that include mutually exclusive responses when the responses are activated by different inputs, program a single output group as shown in Figure 7-3.

A good example is combining zone responses and service group responses. Zones can activate active and fault responses but not active test responses. Service groups on the other hand can activate active test responses but not active and fault responses.

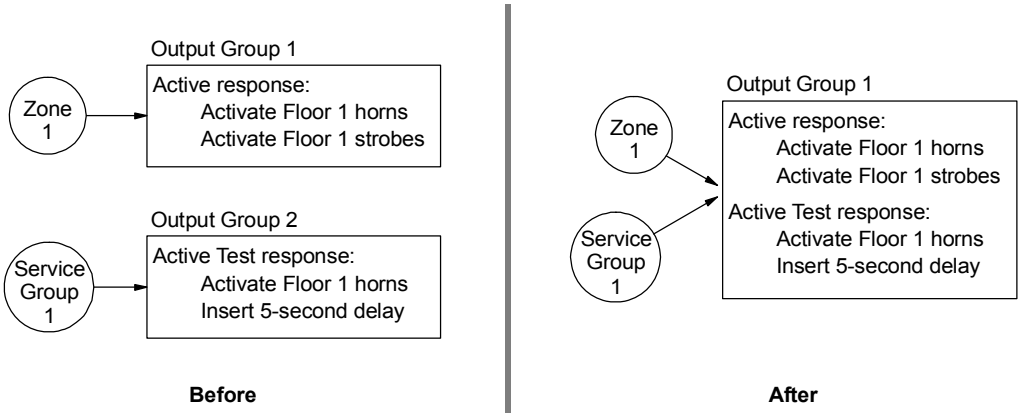


Figure 7-3: Combining mutually exclusive responses in the same output group

What is a service group?

A service group is a collection of points in the project database that are grouped together to facilitate periodic system testing.

Service groups can comprise all of the devices in the protected premises or you can divide the protected premises into multiple service groups to lessen the impact periodic testing has on the building occupants.

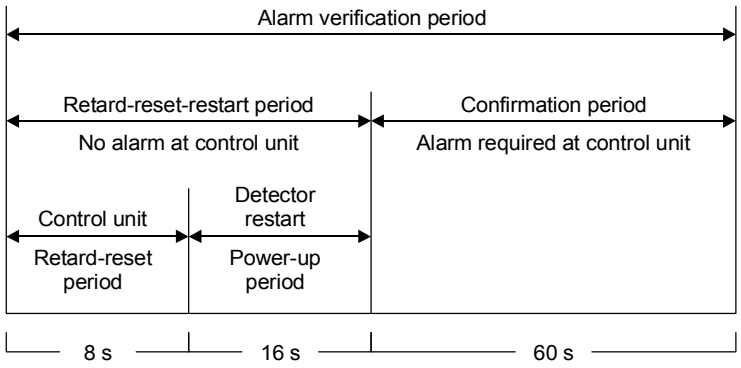
By default, the system provides one service group (service group129) that allows a service technician to perform an active test and a fault test on every device in the system. To program multiple service groups you must use the software configuration utility.

Device type descriptions

Device types determine the operation of the points to which they are assigned. The device types that can be used to program the system are described below.

Alarm verify: Device type assigned to system inputs that test for smoke particles in the air a second time before signaling an alarm condition. System inputs with this device type are commonly called *verified smoke inputs*. When activated, verified smoke inputs generate an Alarm Verify event when the presence of smoke is first detected then a Fire Active event if the presence of smoke is confirmed.

Alarm verification helps prevent false alarms in areas where transient smoke is anticipated by resetting the smoke detector after it first latches then waiting to see if it latches again within the designated confirmation period. The figure below shows the alarm verification timing.



Pull station: Device type assigned to system inputs that are used to signal the manual initiation of a fire alarm. System inputs with this device type are commonly called *pull station inputs*. When activated, pull station inputs generate Pull Station events and cause the system to enter the alarm state.

Dry contact: Device type assigned to relay control circuits that are used to operate normally open or normally closed controls

for ancillary equipment. System outputs with this device type are commonly called *dry contact outputs*. Dry contact outputs operate as follows:

- They can be programmed to activate on any automatic or manual event
- They are *not* automatically turned off (silenced) when the Alarm Silence switch is pressed
- They are *not* automatically turned on when the Drill switch is pressed

Alarm active: Device type assigned to system inputs that are used signal the presence of smoke particles in the air. System inputs with this device type are commonly called *smoke inputs*. When activated, smoke inputs generate Fire Active events and cause the system to enter the alarm state.

Alarm output: Device type assigned to system outputs that are used to automatically operate audible notification appliances (e.g., horns), visible notification appliances (e.g., strobes), or controls for ancillary equipment. System outputs with this device type are commonly called *common alarm outputs*. Common alarm outputs operate as follows:

- They are automatically activated when the control panel enters the alarm state.
- They are automatically turned off (silenced) when the Alarm Silence switch is pressed
- They are automatically turned on when the Drill switch is pressed

In contrast to other output device types, common alarm outputs cannot be disabled and do not require programming.

Heat alarm: Device type assigned to system inputs that are used to signal an abnormal increase in temperature. System inputs with this device type are commonly called *heat inputs*. When activated, heat inputs generate Heat Alarm events and cause the system to enter the alarm state.

Latching supervisory: Device type assigned to system inputs that are used to signal an abnormal condition with a component of the fire suppression system (e.g., low water pressure). System inputs with this device type are commonly called *latching supervisory inputs*. When activated, latching supervisory inputs generate Latch Supv events and cause the system to enter the supervisory state. The Latch Supv event is not automatically restored when the supervisory input is restored. Restoring the Latch Supv event requires a panel reset.

Latching tamper: Device type assigned to system inputs that are used to signal an abnormal condition that could prevent the

required operation of the fire suppression system (e.g., a shut water control valve). System inputs with this device type are commonly called *latching tamper inputs*. When activated, latching tamper inputs generate Latch Tamper events and cause the system to enter the supervisory state. The Latch Tamper event is not automatically restored when the tamper input is restored. Restoring the Latch Tamper event requires a panel reset.

Monitor: Device type assigned to system inputs that signal the operation of ancillary system functions (e.g., a switch closure). System inputs with this device type are commonly called *monitor inputs*. When activated, monitor inputs generate Monitor events and cause the system to enter the monitor state.

Output: Device type assigned to system outputs that are used to operate polarized controls for ancillary equipment. System outputs with this device type are commonly called *supervised outputs*. Supervised outputs operate as follows:

- They can be programmed to activate on any automatic or manual event
- They are *not* automatically turned off (silenced) when the Alarm Silence switch is pressed
- They are *not* automatically turned on when the Drill switch is pressed

Audible: Device type assigned to system outputs that are used to operate polarized notification appliances (e.g., horns). System outputs with this device type are commonly called *audible outputs*. Audible outputs operate as follows:

- They can be programmed to activate on any automatic or manual event
- They are automatically turned off (silenced) when the Alarm Silence switch is pressed
- They are automatically turned on when the Drill switch is pressed

Supervisory: Device type assigned to system inputs that are used to signal an abnormal condition with a component of the fire suppression system (e.g., low water pressure). System inputs with this device type are commonly called *supervisory inputs*. When activated, supervisory inputs generate Supervisory events and cause the system to enter the supervisory state. The Supervisory event is automatically restored when the supervisory input is restored.

Tamper: Device type assigned to system inputs that are used to signal an abnormal condition that could prevent the required operation of the fire suppression system (e.g., a shut water

control valve). System inputs with this device type are commonly called *tamper inputs*. When activated, tamper inputs generate Tamper events and cause the system to enter the supervisory state. The Tamper event is automatically restored when the tamper input is restored.

Visual: Device type assigned to system outputs that are used to operate polarized visible indicators (e.g., strobes). System outputs with this device type are commonly called *visible outputs*. Visible outputs operate as follows:

- They can be programmed to activate on any automatic or manual event
- They are automatically turned off (silenced) when the Alarm Silence switch is pressed
- They are automatically turned on when the Drill switch is pressed

Water Flow: Device type assigned to system inputs that are used to signal when water is flowing through the sprinkler system. System inputs with this device type are commonly called *waterflow inputs*. When activated, waterflow inputs generate a Waterflow event and cause the system to enter the alarm state.

Programming limits

Table 7-1 lists the maximum limits for front panel programming and the software configuration utility.

Table 7-1: Front panel and software configuration utility programming limits

Feature	Front panel	Software configuration utility
Zones	Quantity: 480 Members: 32 Output groups per zone: 6	Quantity: 480 Members: 32 Output groups per zone: 16
Output groups	Quantity: 250 Devices activating an output group: limited to zones	Quantity: 250 Devices activating an output group: unlimited
Service groups	None [1]	Quantity: 128 Members: unlimited Output groups per service group: 16
AND groups	None	Quantity: 64 Members: 16 Output groups per AND group: 16
Matrix groups	None	Quantity: 64 Members: 64 Output groups per matrix group: 16
Time controls	None	Quantity: 32 Output groups per time control: 16
Switch groups	None [2]	16

Notes

[1] A single service group (service group 129) is automatically created that allows the periodic testing of the entire system and cannot be changed through front panel programming

[2] Switch groups 1 and 2 are automatically assigned and cannot be changed through front panel programming

3. A device can't be a member of more than one zone, one service group, five AND groups, and five matrix groups at the same time

4. The project database can't have more than 4,186 objects

Automatically configuring the system

The two commands that you can use to automatically configure the system are described below.

Using the AutoLearn command

Use the AutoLearn command to automatically configure the control panel and remote annunciators from their respective CPU/Display Units. The AutoLearn command lets you:

- Assign panel numbers
- Designate how the control panel and remote annunciators are wired together
- Detect which option cards are installed in the control panel

The AutoLearn command replaces the existing project database with a default project database based on the hardware configuration it detects. The default project database configures the system as a general fire alarm system that activates all notification appliance circuits when any fire alarm input is activated. The default project database also includes one service group (129) and two output groups (249 and 250).

Service Group 129 consists of all fire alarm, supervisory, and monitor device types that are not members of another service group.

Output Group 249 provides an active test response that briefly turns on all Alarm Output device types and the Visible device types detected when the default project database was created. The active test response *does not* turn on any Audible, Visible, or Output device types added after the default database was created. The active test response is activated when a member of Service Group 129 changes to the active or trouble state and Service Group 129 is active.

Output Group 250 provides an active response that turns on the Visible device types detected when the default project database was created. The active response *does not* turn on any Audible, Visible, or Output device types added after the default project database was created. The active response is activated when the control panel enters the alarm state.

Using the Auto Loop command

Use Auto Loop command to automatically add the intelligent addressable devices to the SLIC card. The Auto Loop command replaces the data in the SLIC card's *actual* data table with the devices it finds installed on the loop. For more information, see the topic "Adding intelligent addressable devices automatically."

Changing level 3 and level 4 passwords

```
PROGRAM MENU
 1)Time Date
►2)Edit Password
 3)Restart
 4)Clear History
 5)Configure
```

```
PASSWORD MENU
 1)Level 1
 2)Level 2
►3)Level 3
 4)Level 4
```

```
ENTER PASSWORD
     XXXX
```

Use the Edit Password command on the Program menu to change the password setting for using level 3 command menus. To change the level 3 password you must log on using the level 4 password.

The default level 3 password is 3333.

The default level 4 password is 4444.

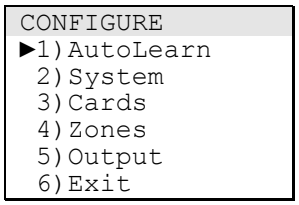
To change the level 3 password:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Edit Password.
3. On the Password menu, choose Level 3.
4. Enter the new password then wait while the database is updated.

To change the level 4 password:

1. On the Password menu, choose Level 4.
2. Enter the new password then wait while the database is updated.

Configuring the system automatically



Use the AutoLearn command on the Configure menu to configure the control panel and remote annunciators from their respective CPU/Display Units. For more information about the AutoLearn command, see the topic "Automatically configuring the system" earlier in this chapter.

Caution: Do not use the AutoLearn command if you have made any changes to the project database from the front panel or have downloaded a project database from the software configuration utility. The AutoLearn command replaces the existing project configuration settings with default values that may be contrary to those you have programmed.

Note: Before proceeding, if configuring a control panel, view a revision report to make sure that all optional panel components are accounted for and are addressed correctly. For more information, see the topic "Display or print a revision report" in Chapter 8.

To configure the system automatically:

1. Log on to the panel using the level 4 password.
2. From the Main menu, choose Program, then Configure, and then AutoLearn.
3. If configuring a control panel, enter a panel ID number of 01.

   If configuring a remote annunciator, enter a panel ID from 02 to 09.
4. Enter the total number of panels in the system (the control panel plus all remote annunciators).
5. On the Network Class menu, select the wiring configuration (Class A or Class B) of the RS-485 transmission path, and then press Enter.

Editing system configuration settings

This topic describes how to edit system configuration settings. To see a diagram of the process, refer to "System configuration menus" in Appendix C. Table 7.2 lists the default system settings.

Table 7.2: Default system settings

Option	NFPA 72 defaults	ULC-527
Marketplace	NFPA72	ULC-527
Language	English (US)	English (US)
Date Format	MM/DD/YYYY	MM/DD/YYYY
Annunciator Baud Rate	9600	9600
Annunciator Communication Class	Class B	Class B
Alarm Silence	Audible and Com Alarm Out device types	Audible and Com Alarm Out device types
Drill	Audible, Visible, and Com Alarm Out device types	Audible, Visible, and Com Alarm Out device types
Drill Activation Type	Steady	Steady
Waterflow Silence	Disabled	Disabled
Zone Resound Inhibit	Disabled	Disabled
2-Stage Operation	Disabled	Enabled (5-minute delay)
Trouble Reminder	Disabled	Disabled
Automatic Alarm Signal Silence	Disabled	Disabled
Alarm Signal Silence/Reset Inhibit [1]	Disabled	Disabled
Panel Silence Resound	Disabled	24 hours
AC Power Trouble Delay [1]	Disabled	6 hours
User labels [1]	No text	No text

[1] Can be changed through front panel programming. All others require the software configuration utility.

To edit the system's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then System.
3. Follow the instructions provided below.

Adding user labels

```
CONFIG SYSTEM
►1)User Labels
 2)ALM/RST Inhib
 3)AC Power Dly
 4)Exit
```

Use the User Labels command on the Config System menu to add user-defined labels to the project database as described below.

Note: Entering text from the front panel requires that you use a compatible bar code scanning device.

To add user labels:

1. On the Config System menu, choose User Labels then follow the instructions provided below.

Entering the facility's name

```
USER LABEL
►1)Facility Name
 2)Inst Company
 3)Phone Number
 4)Programmer
 5)Exit
```

Use the Facility Name command on the User Label menu to enter the name of the building in which the fire alarm system is installed. This information is displayed when the control panel is in the normal condition.

```

```

To enter the name of the facility:

1. On the User Labels menu, choose Facility Name.
2. Using the bar code scanning device, scan in the required text.
3. Press Enter to accept the text and return to the User Labels menu.

Entering the installing company's name

```
USER LABEL
 1)Facility Name
►2)Inst Company
 3)Phone Number
 4)Programmer
 5)Exit
```

Use the Inst Company command on the User Label menu to enter the name of the company that installed the fire alarm system (i.e., your company's name.)

```
InstallerComp
```

To enter the name of the installing company:

1. On the User Labels menu, choose Inst Company.
2. Using the bar code scanning device, scan in the required text.
3. Press Enter to accept the text and return to the User Labels menu.

Entering the installing company's telephone number

```
USER LABEL
 1)Facility Name
 2)Inst Company
►3)Phone Number
 4)Programmer
 5)Exit
```

Use the Phone Number command on the User Label menu to enter the telephone number of the company that installed the fire alarm system (i.e., your company's telephone number) or the person to contact for technical assistance.

Note: If the telephone number contains numbers and letters, you must use a compatible bar code scanning device to enter the text portion from the front panel.

```
Phone Number
```

To enter the telephone number of the installing company:

1. On the User Labels menu, choose Phone Number.
2. Using the bar code scanning device, scan in the telephone number.
3. Press Enter to accept the text and return to the User Labels menu.

Entering the programmer's name

```
USER LABELS
 1)Facility Name
 2)Inst Company
 3)Phone Number
►4)Programmer
 5)Exit
```

Use the Programmer command on the User Labels menu to enter the name of the person that programmed the fire alarm system.

```
Programmer Name
```

To enter the name of the system programmer:

1. On the User Labels menu, choose Programmer.
2. Using the bar code scanning device, scan in the required text.
3. Press Enter to accept the text and return to the User Labels menu.

Saving user labels

```
USER LABELS
 1)Facility Name
 2)Inst Company
 3)Phone Number
 4)Programmer
►5)Exit
```

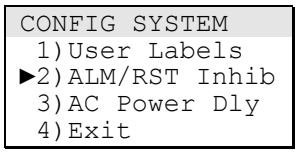
Use the Exit command on the User Labels menu to save your changes and return to the Configure menu. You also have the option to not save any of your changes.

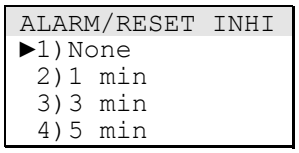
```
EXIT
►1)Save Edits
 2)NO Save
```

To save user labels:

1. On the User Labels menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Setting the alarm silence/reset inhibit timer



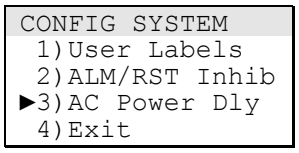


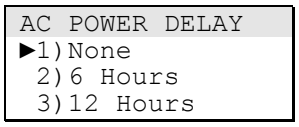
Use the ALM/RST Inhib command on the Config System menu to set the duration of the alarm silence/reset inhibit timer. The alarm silence/reset inhibit timer determines how long notification appliances must remain active before an operator can silence them or reset the fire alarm system.

To set the alarm silence/reset inhibit timer:

1. On the Config System menu, choose ALM/RST Inhib.
2. On the Alarm/Reset Inhibit menu, choose the duration.

Setting the AC power delay timer



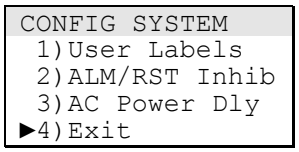


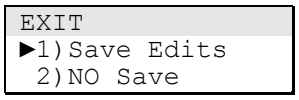
Use the AC Power Dly command on the Config System menu to set the duration of the AC power delay timer. The AC power delay timer determines how long the control panel waits before reporting a primary AC power failure off-premises provided there are no other trouble conditions present.

To set the AC power delay timer:

1. On the Config System menu, choose AC Power Dly.
2. On the AC Power Delay menu, choose the duration.

Saving system configuration changes



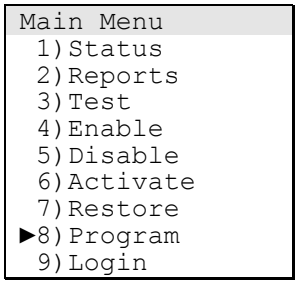


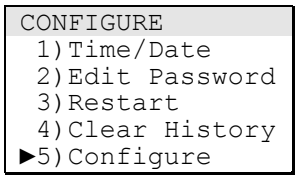
Use the Exit command on the Config System menu to save the system configuration changes and return to the Configure menu. You also have the option to return to the Configure menu without saving your changes.

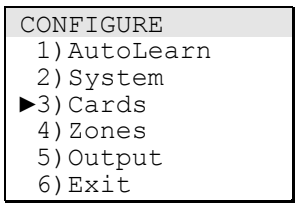
To save system configuration changes:

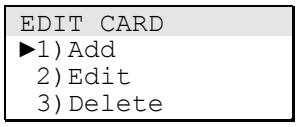
1. On the Config System menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Adding and deleting option cards









Adding an option card

Use the Add command on the Edit Card menu to add an option card to the project database. Before the option card can be added to the project database, it must be installed in the control panel. After you have added the option card, you can edit its configuration or accept the default settings.

Caution: Do not use the AutoLearn command to add an option card after you have made any programming changes from the front panel or have downloaded a project database from the software configuration utility. The AutoLearn command replaces the existing project database with a default database and removes any custom programming.

To add an option card:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Add, and then enter the card's address.

   The system automatically displays the configuration menu for the selected card.
4. Choose Exit to accept the card's default settings and return to the Configure menu
   — or —
   Continue and edit the card's configuration settings.

   For ZB16-4 cards, see "Editing ZB16-4 card configuration settings."

   For ZA8-2 cards, see "Editing ZA8-2 card configuration settings."

   For SLIC cards, see "Editing SLIC card configuration settings."

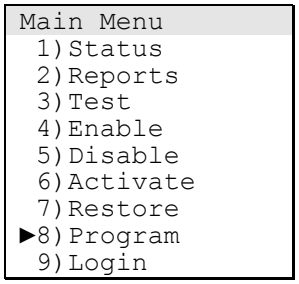
   For DLD cards, see "Editing DLD card configuration settings."

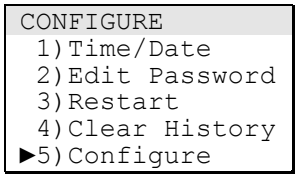
Deleting an option card

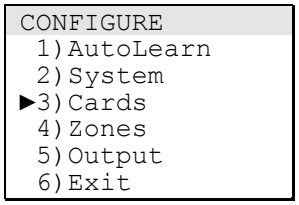
Use the Delete command on the Edit Card menu to remove an option card from the project database. The system provides a warning screen to confirm you selected the correct card before it deletes it from the project database.

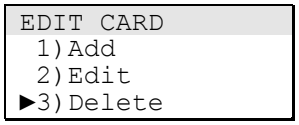
To delete an option card:

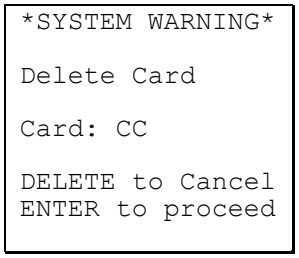
1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Delete, and then enter the address of the card you want deleted.
4. On the warning screen, verify the card number then do one of the following:
   - Press Del to return to the Configure menu without deleting the selected card
   - Press Enter to delete the card and return to the Configure menu











Editing ZB16-4 card configuration settings

This topic describes how to edit a ZB16-4 card's configuration settings. To see a diagram of the process, refer to "ZB16-4 card configuration menus" in Appendix C. Table 7-3 lists the ZB16-4 card's default settings.

Table 7-3: ZB16-4 card default settings

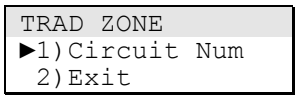
Circuit	Device No.	Default setting
Z1 to Z12	001 to 012	Text message = No text Device type = Alarm Active
Z13 to Z14	013 to 014	Text message = No text Device type = Comm Alm Out
Z15 to Z16	015 to 016	Text message = No text Device type = Visual

To edit a ZB16-4 card's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the ZB16-4 card's address.
4. For each circuit on the ZB16-4 card, do the following:

   On the Trad Zone menu, choose Circuit Num then enter the device address of the circuit whose settings you want to edit.

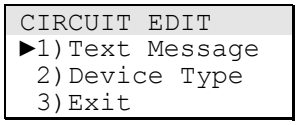
   Follow the instruction provided below.

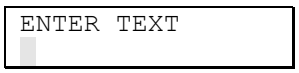


Adding a location description to the event message

Use the Text Message command on the Circuit Edit menu to add a location description to a circuit's event message. The location description is displayed when the circuit is in an abnormal condition. If you do not add a location description, only the circuit's panel-card-device address is displayed.

Note: Entering text from the front panel requires that you use a compatible bar code scanning device.





To add a location description:

1. On the Circuit Edit menu, choose Text Message.
2. Using the bar code scanning device, scan in the location description text.

3. Press Enter to accept the text and return to the Circuit Edit menu.
4. Continue making changes to the selected circuit or choose Exit on the Circuit Edit menu to return to the Trad Zone menu. From there you can save your changes.

Changing the device type setting

```
CIRCUIT EDIT
 1)Text Message
►2)Device Type
 3)Exit
```

```
DEVICE EDIT   ▼
►ALARM ACTIVE
 PULL STATION
 HEAT ALARM
 WATERFLOW
 SUPERVISORY
 TAMPER
 MONITOR
 LATCH SUPV
 LATCH TAMPER
 ALARM VERIFY
 COMM ALM OUT
 AUDIBLE
 VISUAL
 SUPER OUTPUT
```

Use the Device Type command on the Circuit Edit menu to change a circuit's device type. The device type setting determines the circuit's operation. For device type descriptions, see the topic "Before you begin" earlier in this chapter.

WARNING: In some cases, changing an IDC input circuit's device type removes it from all zones, AND groups, and matrix groups. Likewise, changing an NAC output circuit's device type removes it from all output groups. When this happens all correlations are removed and the panel does not provide any indication.

To change the device type setting:

1. On the Circuit Edit menu, choose Device Type.
2. Select a device type from the list then press Enter to accept the change and return to the Circuit Edit menu.
3. Continue making changes to the selected circuit or choose Exit on the Circuit Edit menu to return to the Trad Zone menu. From there you can save your changes.

Saving ZB16-4 card configuration changes

```
TRAD ZONE
 1)Circuit num
►2)Exit
```

```
EXIT
►1)Save Edits
 2)NO Save
```

Use the Exit command on the Trad Zone menu to return to the Configure menu. Upon exiting the Trad Zone menu, you can save your changes or return to the Configure menu without saving your changes.

To save ZB16-4 card configuration changes:

1. On the Trad Zone menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Editing ZA8-2 card configuration settings

This topic describes how to edit a ZA8-2 card's configuration settings. To see a diagram of the process, refer to "ZA8-2 card configuration menus" in Appendix C. Table 7-4 lists the ZA8-2 card's default settings.

Table 7-4: ZA8-2 card default settings

Circuit	Device No.	Default setting
Zone 1 to Zone 3	001 to 003	Text message = No text Device type = Alarm Active
Zone 4	004	Text message = No text Device type = Comm Alm Out
Zone 5 to Zone 7	005 to 007	Text message = No text Device type = Alarm Active
Zone 8	008	Text message = No text Device type = Visual

To edit a ZA8-2 card's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the ZA8-2 card's address.
4. For each circuit on the ZA8-2 card, do the following:

   On the Trad Zone menu, choose Circuit Num then enter the device address of the circuit whose settings you want to edit.

   Follow the instruction provided below.

```
TRAD ZONE
►1)Circuit Num
 2)Exit
```

```
 ENTER DEVICE
       DDD
```

Adding a location description to the event message

```
CIRCUIT EDIT
►1)Text Message
 2)Device Type
 3)Exit
```

```
ENTER TEXT
```

Use the Text Message command on the Circuit Edit menu to add a location description to a circuit's event message. The location description is displayed when the circuit is in an abnormal condition. If you do not add a location description, only the circuit's panel-card-device address is displayed.

Note: Entering text from the front panel requires that you use a compatible bar code scanning device.

To add a location description:

1. On the Circuit Edit menu, choose Text Message.

2. Using the bar code scanning device, scan in the location description text.
3. Press Enter to accept the text and return to the Circuit Edit menu.
4. Continue making changes to the selected circuit or choose Exit on the Circuit Edit menu to return to the Trad Zone menu. From there you can save your changes.

Changing the device type setting

```
CIRCUIT EDIT
 1)Text Message
►2)Device Type
 3)Exit
```

```
DEVICE EDIT   ▼
►ALARM ACTIVE
 PULL STATION
 HEAT ALARM
 WATERFLOW
 SUPERVISORY
 TAMPER
 MONITOR
 LATCH SUPV
 LATCH TAMPER
 ALARM VERIFY
 COMM ALM OUT
 AUDIBLE
 VISUAL
 SUPER OUTPUT
```

Use the Device Type command on the Circuit Edit menu to change a circuit's device type. The device type setting determines the circuit's operation. For device type descriptions, see the topic "Before you begin" earlier in this chapter.

WARNING: In some cases, changing an IDC input circuit's device type removes it from all zones, AND groups, and matrix groups. Likewise, changing an NAC output circuit's device type removes it from all output groups. When this happens all correlations are removed and the panel does not provide any indication.

To change the device type setting:

1. On the Circuit Edit menu, choose Device Type.
2. Select a device type from the list then press Enter to accept the change and return to the Circuit Edit menu.
3. Continue making changes to the selected circuit or choose Exit on the Circuit Edit menu to return to the Trad Zone menu. From there you can save your changes.

Saving ZA8-2 card configuration changes

```
TRAD ZONE
 1)Circuit num
►2)Exit
```

```
EXIT
►1)Save Edits
 2)NO Save
```

Use the Exit command on the Trad Zone menu to return to the Configure menu. Upon exiting the Trad Zone menu, you can save your changes or return to the Configure menu without saving your changes.

To save ZA8-2 card configuration changes:

1. On the Trad Zone menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Editing SLIC card configuration settings

This topic describes how to edit a SLIC card's configuration settings. To see a diagram of the process, refer to "SLIC card configuration menus" in Appendix C. Table 7-5 lists the SLIC card's default settings.

Table 7-5: SLIC card default settings

Option	Default setting
NAC 1	Visible device type
NAC 2	Com Alarm Out device type
Wiring class	Class A or Class B (defined by actual wiring)

To edit a SLIC card's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Card then follow the instructions provided below.

```
SLIC
►1)Config Card
 2)Config Detect
 3)Config Module
 4)Auto Loop
 5)Accept Map
 6)Exit
```

Changing the device type setting of NAC 1 and NAC 2

Use the NAC 1 and NAC 2 commands on the Config Card menu to change the device type of the SLIC card's NAC output circuits. The device type setting determines the circuit's operation. For device type descriptions, see the topic "Before you begin" earlier in this chapter.

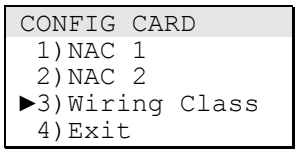
```
CONFIG CARD
►1)NAC 1
 2)NAC 2
 3)Wiring Class
 4)Exit
```

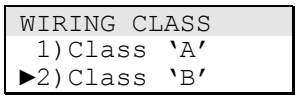
```
NAC 1
 1)Audible
►2)Visible
 3)Com Alarm Out
 4)Output
```

To change the device type setting of NAC 1 or NAC 2:

1. On the Config Card menu, choose one of the following:
   - NAC 1 to change the device type of the NAC output circuit labeled NAC 1
   - NAC 2 to change the device type of the NAC output circuit labeled NAC 2
2. Select a device type from the list.

Changing the wiring class setting





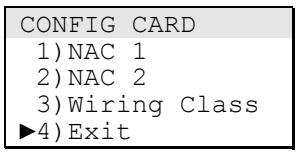
Use the Wiring Class command on the Config Card menu to change the wiring class designation of the intelligent addressable loop.

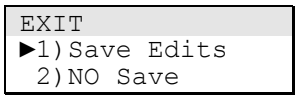
Note: The wiring class designation must match the actual wiring configuration of the intelligent addressable loop.

To change the wiring class setting:

1. On the Config Card menu, choose Wiring Class.
2. On the Wiring Class menu, choose one of the following:
   - Class A for Class A operation
   - Class B for Class B operation

Saving SLIC card configuration changes



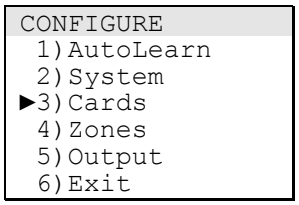


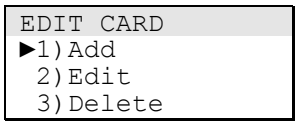
Use the Exit command on the Config Card menu to save your changes and return to the SLIC menu. You can also return to the SLIC menu without saving your changes.

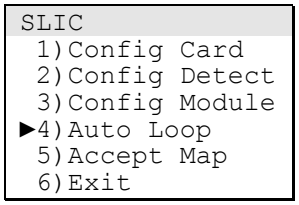
To save SLIC card configuration changes:

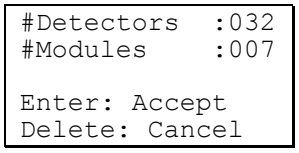
1. On the Config Card menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the SLIC menu
   - NO Save to return to the SLIC menu without saving your changes

Adding intelligent addressable devices automatically









Use the Auto Loop command on the SLIC menu to automatically add intelligent addressable devices (detectors and modules) to a SLIC card's loop. The AutoLoop command detects which devices are installed on the loop and adds them to the project database using the current settings stored in each device.

Caution: Do not use the AutoLoop command to add devices after you have made any programming changes from the front panel or have downloaded a project database from the software configuration utility. The AutoLoop command replaces existing project configuration settings with default values that may be contrary to those you have programmed.

To automatically add devices to the loop:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Auto Loop.

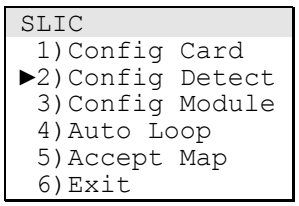
   The system displays a screen that shows how many detectors and modules were detected on the loop.
5. If the number of devices found is correct, press Enter to update the database. If not, press Del to cancel.

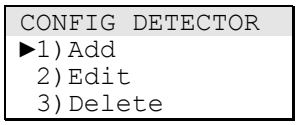
Table 7-6: Factory default settings for intelligent addressable devices

Model	Personality	Device Type	Description
IPHS, PHS, PS, IS	none	Alarm	Smoke detector settings as follows: Sensitivity: Least Verification: None Prealarm: None
HFS, HRS, IM	none	Heat	Heat detector settings not programmable
Single-stage pull stations	01	Pull	Class B Alarm Latching
Dual-stage pull stations	01	Monitor	Class B Alarm Latching
	01	Pull	Class B Alarm Latching
APS	03	Monitor	Class B Active Nonlatching
	03	Monitor	Class B Active Nonlatching
CC1(S), MCC1(S)	05	Common Alarm Output	Riser selector
CC2, MCC2	07	Common Alarm Output	Dual riser selector
CR(R), MCR(R)	08	Nonsupervised Output	Dry contact
CT1, MCT1	01	Alarm	Class B Alarm Latching
CT2, MCT2	01	Alarm	Class B Alarm Latching
	01	Alarm	Class B Alarm Latching
DTS	01	Alarm	Class B Alarm Latching
IO	31	Monitor	Monitor Input/Output N.O.
MAB	04	Monitor	Class A Signal Output
	04		not used
UM	04	Monitor	Class A Signal Output
	04		not used
MM1	03	Monitor	Class B Active Nonlatching
WTM	02	Alarm	Class B Active Latching - Delayed
	04	Supervisory	Class B Active Latching
RM1, MRM1	23	Monitor	Riser monitor - 24 Vdc

Adding and deleting intelligent addressable detectors

Adding an intelligent addressable detector



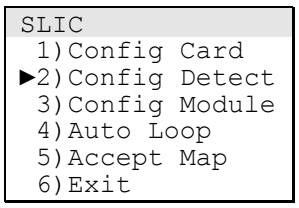


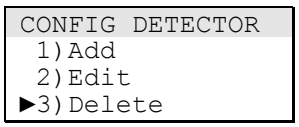
Use the Add command on the Config Detector menu to add an intelligent addressable detector to the project database. After you have added the detector, you can edit its configuration settings. For more information, see the topic "Editing intelligent addressable detector settings" later in this chapter.

To add an intelligent addressable detector:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Detect.
5. On the Config Detector menu, choose Add then do one of the following:
   - Choose Device Addres to add a detector by assigning a device address then entering the detector's serial number
   - Choose Enter Serial# to add a detector by entering its serial number and letting the system assign the device address
6. Edit the detector's configuration settings or Exit and accept the detector's default settings.

Deleting an intelligent addressable detector





Use the Delete command on the Config Detector menu to delete an intelligent addressable detector from the project database.

To delete an intelligent addressable detector:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Detect.
5. On the Config Detector menu, choose Delete then do one of the following:

- Choose Device Addres to delete a detector using its device address
- Choose Enter Serial# to delete a detector using its serial number

6. On the Config Detector menu, choose Exit.
7. On the Exit menu, choose one of the following:
   - Save to delete the detector and return to the Config Detector menu
   - NO Save to return to the Config Detector menu without deleting the detector

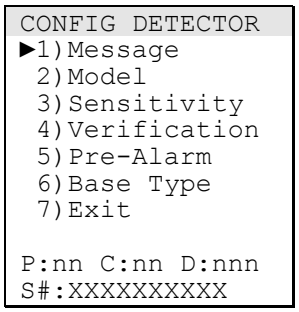
Editing intelligent addressable detector settings

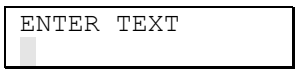
This topic describes how to edit an intelligent addressable detector's configuration settings. To see a diagram of the process, refer to "SLIC card configuration menus" in Appendix C

To edit a detector's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Detect.
5. On the Config Detect menu, choose Edit then do one of the following:
   - Choose Device Addres then enter the detector's device address
   - Choose Enter Serial# then enter the detector's serial number
6. Follow the instructions provided below.

Adding a location description to the event message



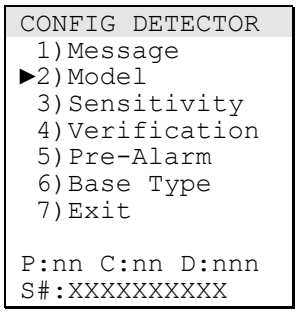


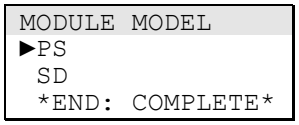
Use the Message command on the Config Detector menu to add a location description to a detector's event message. The location description is displayed when the detector is in an abnormal condition. If you do not add a location description, only the detector's panel-card-device address is displayed.

Note: Entering text from the front panel requires that you use a compatible bar code scanning device.

To add a location description:

1. On the Config Detector menu, choose Message.
2. Using the bar code scanning device, scan in the location description text.
3. Press Enter to accept the text and return to the Config Detector menu.





Viewing the model type setting

Use the Model command on the Config Detector menu to view the selected detector's model type. Do not use the Model command to change a detector's model type.

Note: Changing a detector's model type resets its current sensitivity, verification, and prealarm settings to the selected model type's default values.

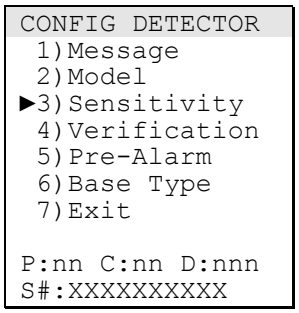
To view the detector's model type:

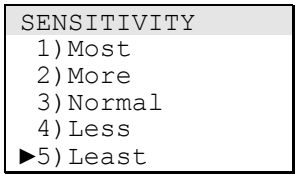
1. On the Config Detector menu, choose Model.

   The arrow on the Module Model pick list indicates the selected detector's model type.

2. Press Del to return to the Config Detector menu.

Changing the alarm sensitivity setting





Use the Sensitivity command on the Config Detector menu to change a detector's primary and alternate alarm sensitivity settings. Each setting corresponds to a %obscuration level as listed in the table below.

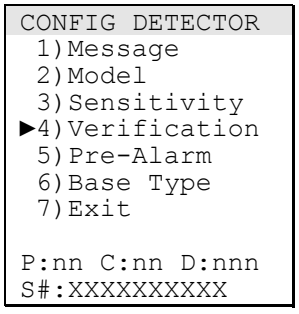
	Alarm %obscuration levels	
Setting	**IPHS, PHS, and PS**	**IS**
Most	1.0	0.7
More	2.0	1.0
Normal	2.5	1.2
Less	3.0	1.4
Least	3.5	1.6

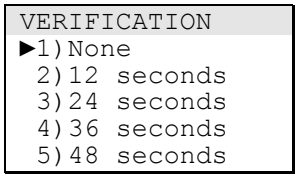
Note: To configure a detector's primary and alternate alarm sensitivity for different values (daytime/nighttime operation) you must use the software configuration utility.

To change the alarm sensitivity setting:

1. On the Config Detector menu, choose Sensitivity.
2. On the Sensitivity menu, choose a sensitivity setting according to the table above.

Changing the alarm verification setting:



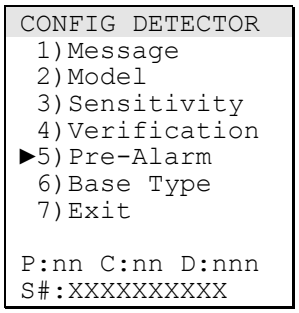


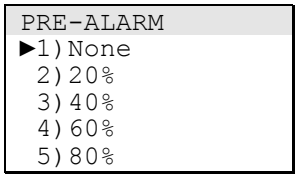
Use the Verification command on the Config Detector menu to change a detector's alarm verification setting. Alarm verification provides a brief period for the detector to confirm the presence of smoke before signaling an alarm condition.

To change the alarm verification setting:

1. On the Config Detector menu, choose Verification.
2. On the verification menu, choose one of the following:
   - None
   - 12 seconds
   - 24 seconds
   - 36 seconds
   - 48 seconds

Changing the prealarm setting





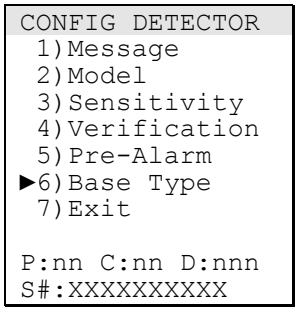
Use the Pre-Alarm command on the Config Detector menu to change a detector's prealarm setting. The prealarm setting provides an early notification of a possible fire alarm condition and is a percentage of the detector's alarm sensitivity setting.

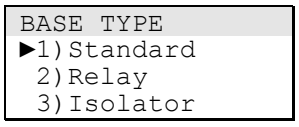
WARNING: Prealarm obscuration levels below 80% should not be used without full knowledge of the possible consequences.

To change the prealarm setting:

1. On the Config Detector menu, choose Pre-Alarm.
2. On the Pre-Alarm menu, choose one of the following:
   - None
   - 20%
   - 40%
   - 60%
   - 80%

Changing the base type setting

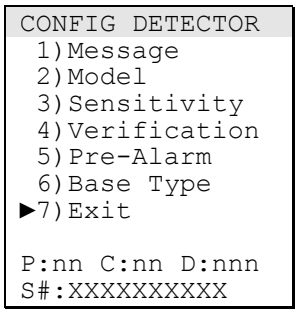


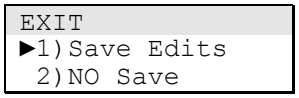


Use the Base Type command to change the type of base to which the selected detector is mounted.

To change the base type setting:

1. On the Config Detector menu, choose Base Type.
2. On the Base Type menu, choose one of the following:
   - Standard
   - Relay
   - Isolator





Saving detector configuration changes

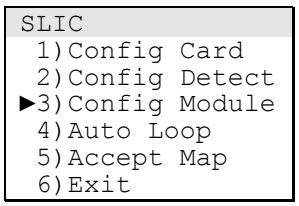
Use the Exit command on the Config Detector menu to save the detector configuration changes and return to the Configure Loop menu. You also have the option to return to the Configure Loop menu without saving your changes.

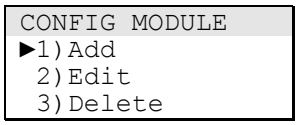
To save detector configuration changes:

1. On the Config Detector menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure Loop menu
   - NO Save to return to the Configure Loop menu without saving your changes

Adding and deleting intelligent addressable modules

Adding an intelligent addressable module



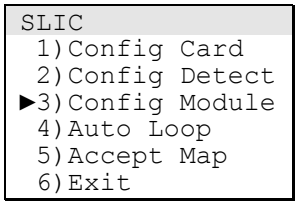


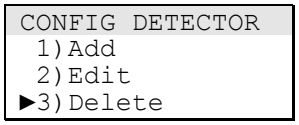
Use the Add command on the Config Module menu to add an intelligent addressable module to the project database. After you have added the module, you can edit its configuration settings. For more information, see the topic "Editing intelligent addressable module settings" later in this chapter.

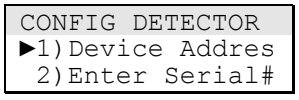
To add an intelligent addressable module:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Module.
5. On the Config Module menu, choose Add then do one of the following:
   - Choose Device Addres to add a module by assigning a device address then entering the module's serial number
   - Choose Enter Serial# to add a module by entering its serial number and letting the system assign the device address
6. Edit the module's configuration settings or Exit and accept the module's default settings.

Deleting an intelligent addressable module







Use the Delete command on the Config Detector menu to delete an intelligent addressable detector from the project database.

To delete an intelligent addressable module:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Module.
5. On the Config Module menu, choose Delete then do one of the following:

- Choose Device Addres to delete a module using its device address
- Choose Enter Serial# to delete a module using its serial number

6. On the Config Module menu, choose Exit.
7. On the Exit menu, choose one of the following:
   - Save to delete the module and return to the Config Module menu
   - NO Save to return to the Config Module menu without deleting the module

Editing intelligent addressable module settings

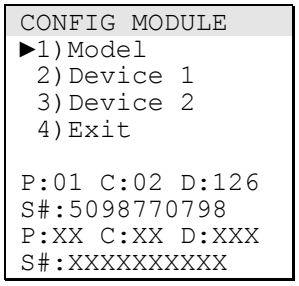
This topic describes how to edit an intelligent addressable module's configuration settings. To see a diagram of the process, refer to "SLIC card configuration menus" in Appendix C.

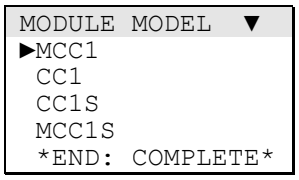
To edit a module's configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the SLIC card's address.
4. On the SLIC menu, choose Config Module.
5. On the Config Module menu, choose Edit then do one of the following:
   - Choose Device Addres then enter the module's device address
   - Choose Enter Serial# then enter the module's serial number
6. Follow the instructions provided below.

Viewing the module's model number

Use the Model command on the Config Module menu to view the selected module's model type.





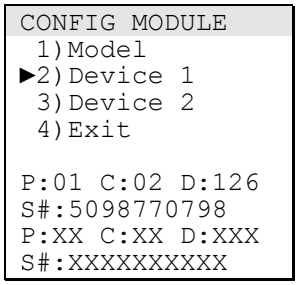
WARNING: Changing the model type may remove an important life safety feature from the fire alarm system. Never use the Model command to change a module's module type.

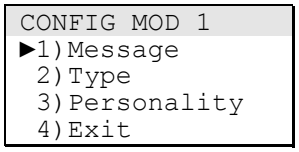
To view the module's model type:

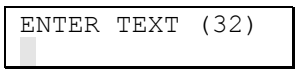
1. On the Config Module menu, choose Model.

   The arrow on the Module Model pick list indicates the selected module's model type.
2. Press Del to return to the Config Module menu.

Adding a location description to an event message







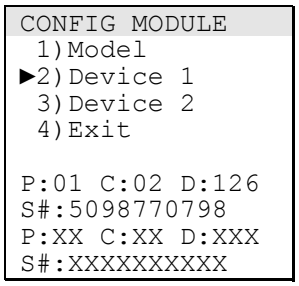
Use the Message command on the Config Mod menu to add a location description to a module's event message. The location description is displayed when the module is in an abnormal condition. If you do not add a location description, only the module's panel-card-device address is displayed.

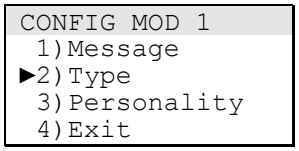
Note: Entering text from the front panel requires that you use a compatible bar code scanning device.

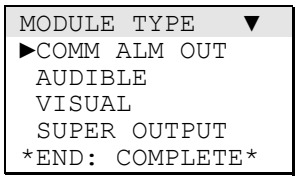
To add a location description to an event message:

1. On the Config Module menu, choose one of the following:
   - Device 1 to add a location description to a single-address module or to the first address of a dual-address module
   - Device 2 to add a location description to the second address of a dual-address module
2. On the Config Mod menu for the selected address, choose Message.
3. Using the bar code scanning device, scan in the location description text then press Enter.
4. Press Exit to return to the Config Module menu.

Changing the device type setting







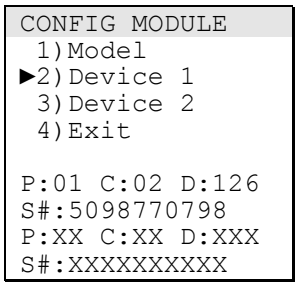
Use the Type command on the Config Mod menu to change the device type of an intelligent addressable module. The Module Type list only shows the device types that are valid for the selected module's model type.

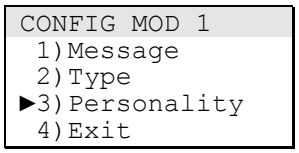
For a description of device types, see the topic "Before you begin" earlier in this chapter.

To change the device type setting:

1. On the Config Module menu, choose one of the following:
   - Device 1 to change the device type of a single-address module or of the first address of a dual-address module
   - Device 2 to change the device type of the second address of a dual-address module
2. On the Config Mod menu for the selected address, choose Type.
3. On the Module Type pick list, select the device type then press Enter.
4. Press Exit to return to the Config Module menu.

Changing the personality setting



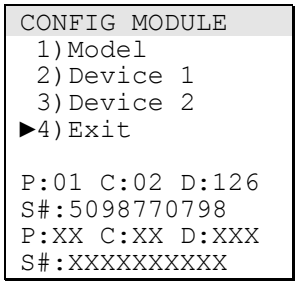


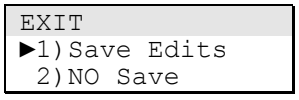
Use the Personality command on the Config Mod menu to change the personality of an intelligent addressable module.

To change the personality setting:

1. On the Config Module menu, choose one of the following:
   - Device 1 to change the personality of a single-address module or of the first address of a dual-address module
   - Device 2 to change the personality of the second address of a dual-address module
2. On the Config Mod menu for the selected address, choose Personality.
3. On the Mod Personalty pick list, select the personality then press Enter.
4. Press Exit to return to the Config Module menu.

Saving module configuration changes





Use the Exit command on the Config Module menu to save the module configuration changes and return to the Configure Loop menu. You also have the option to return to the Configure Loop menu without saving your changes.

To save module configuration changes:

1. On the Config Module menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Config Module menu
   - NO Save to return to the Config Module menu without saving your changes

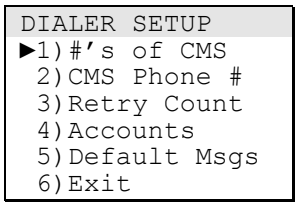
Editing DLD card configuration settings

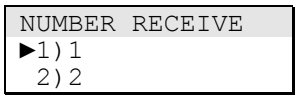
This topic describes how to edit a DLD card's configuration settings. To see a diagram of the process, refer to "DLD card configuration menus" in Appendix C.

To edit a DLD card's configuration setting

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit then enter the DLD card's address (14).
4. Edit the DLD card's configuration as described below.

Changing the number of receivers



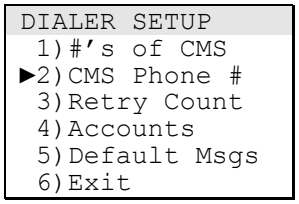


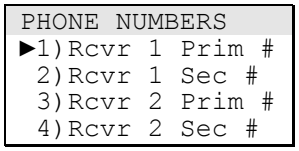
Use the #'s of CMS command on the Dialer Setup menu to change the number of receivers to which the DLD card can connect. The default setting is 1

To change the number of receivers:

1. On the Dialer Setup menu, choose #'s of CMS.
2. On the Number Receive menu, choose one of the following:
   - 1 to connect to one receiver
   - 2 to connect to two receivers

Entering receiver telephone numbers





Use the CMS Phone # command to enter telephone numbers for each receiver to which the DLD card can connect. For each receiver, the DLD card can dial out using two telephone numbers. If for any reason the DLD card can't connect to a receiver using one telephone number, it will abort the attempt and try to make connection using the other telephone number.

To enter receiver telephone numbers:

1. On the Dialer Setup menu, choose CMS Phone #.
2. On the Phone Numbers menu, choose one of the following:
   - Rcvr 1 Prim # to enter the first telephone number for Receiver 1
   - Rcvr 1 Sec # to enter the second telephone number for Receiver 1

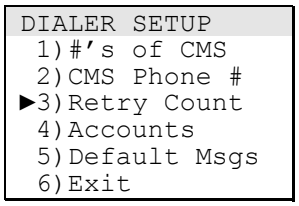
- Rcvr 2 Prim # to enter the first telephone number for Receiver 2
- Rcvr 2 Sec # to enter the second telephone number for Receiver 2

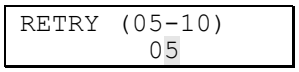
3. Enter the telephone number. The telephone number can consist of up to 23 numeric characters.

   Example: For 1-555-867-5309, enter 15558675309.

4. Repeat steps 2 and 3 for each telephone number. After you have entered all of the telephone numbers, choose Exit to return to the Dialer Setup menu.

Changing the number of retry attempts



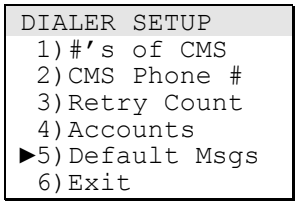


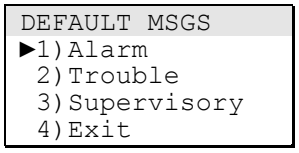
Use the Retry Count command on the Dialer Setup menu to change the number of times the DLD card will attempt to make contact with a receiver before signaling a trouble condition.

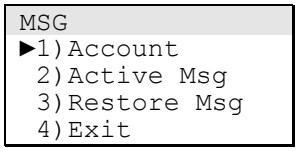
To change the number of retry attempts:

1. On the Dialer Setup menu, choose Retry Count.
2. Enter the new retry count number. You can enter a number between 05 and 10. The default setting is 05.

Changing default dialer messages







Use the Default Msgs command on the Dialer Setup menu to change the default activation and restoration dialer strings for alarm, supervisory, and trouble messages. The DLD card automatically sends the default dialer strings for points that are not programmed to initiate a custom dialer response.

Note: If you want the DLD card to use the predefined Contact ID strings when sending status changes to the default subscriber account, leave the default dialer activation and restoration messages as XXXXXXXXX.

To change the default dialer messages:

1. On the Dialer Setup menu, choose Default Msgs.
2. On the Default Msgs menu, choose one of the following:
   - Alarm to change the default alarm activation and restoration dialer string
   - Trouble to change the default trouble activation and restoration dialer string
   - Supervisory to change the default supervisory activation and restoration dialer string

3. For each message type, on the MSG menu:

   Choose Account, select the subscriber account from the pick list, and then press Enter.

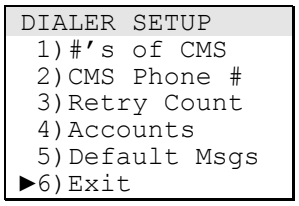
   Choose Active Msg then enter the required activation dialer string

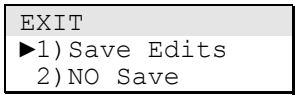
   Choose Restore Msg then enter the required restoration dialer string

   Choose Exit to return to the Default Msgs menu.

4. After a default message has been entered for each message type, choose Exit on the Default Msgs menu to return to the Dialer Setup menu.

Saving DLD card configuration changes





Use the Exit command on the Dialer Setup menu to return to the Configure menu. Upon exiting the Dialer Setup menu, you can save your changes or return to the Configure menu without saving your changes.

To save DLD card configuration changes:

1. On the Dialer Setup menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Adding and deleting subscriber accounts

Use the Accounts command on the Dialer Setup menu to add and delete subscriber account as described below.

Adding subscriber accounts

Use the <NEW> command on the Accounts pick list to add a subscriber account to the project database. The DLD card can send status changes to up to eight subscriber accounts.

To add a subscriber account:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit, and then enter 14.
4. On the Dialer Setup menu, choose Accounts.
5. On the Accounts pick list, choose <NEW>.
6. Edit the account's configuration settings or choose Exit on the Accounts menu to add the subscriber account and return to the Dialer Setup menu.

Deleting subscriber accounts

Use the Delete command on the Accounts menu to delete a subscriber account from the project database.

To delete a subscriber account:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Cards.
3. On the Edit Card menu, choose Edit, and then enter 14.
4. On the Dialer Setup menu, choose Accounts.
5. On the Accounts pick list, select the account number you want to delete then press enter.
6. On the Exit menu, choose one of the following:
   - Save Edits to delete the account and return to the Dialer Setup menu
   - NO Save to return to the Dialer Setup menu without deleting the account

Editing subscriber account configuration settings

Use the commands on the Accounts menu to edit a subscriber account's configuration settings as described below. To display the Accounts menu, choose Accounts on the Dialer Setup menu then select an account from the Accounts pick list or choose <NEW> to create a new account.

Entering an account number

```
ACCOUNTS
►1)Account #
 2)Formats
 3)Test-Normal
 4)Test-Abnormal
 5)Test Time
 6)CMS
 7)Delete
 8)Exit
```

```
ENTER ACCOUNT
     0000
```

Use the Account # command on the Accounts menu to enter the identification number for a new subscriber account or to change the account number of an existing account.

To enter an account number:

1. On the Accounts menu, choose Account #.
2. Type the subscriber account's 4-digit identification number then press Enter.

Selecting the transmission format

```
ACCOUNTS
 1)Account #
►2)Formats
 3)Test-Normal
 4)Test-Abnormal
 5)Test Time
 6)CMS
 7)Delete
 8)Exit
```

```
DIALER FORMAT ▼
►1)4/2
 2)Contact ID
```

Use the Formats command on the Accounts menu to select the format that the DLD card uses to send status changes to the selected account. The DLD card can send status changes in 4/2 (SIA Pulse Format P3) and Contact ID formats. The transmission format you select must match the format that the selected subscriber account is set up to receive.

To select the transmission format:

1. On the Accounts menu, choose Formats.
2. On the Dialer Format menu, choose one of the following:
   - 4/2 if the account is set up to receive 4/2 (SIA Pulse Format P3)
   - Contact ID if the account is set up to receive Contact ID

Changing the normal test dialer string

```
ACCOUNTS
 1)Account #
 2)Formats
►3)Test-Normal
 4)Test-Abnormal
 5)Test Time
 6)CMS
 7)Delete
 8)Exit
```

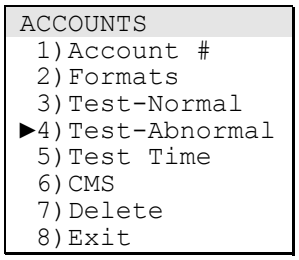
```
ENTER TST STNG
       XX
```

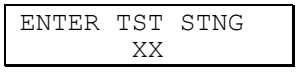
Use the Test-Normal command on the Accounts menu to change the dialer string that the DLD card sends to the selected subscriber account when it performs its 24-hour periodic test and the control panel is in the normal state.

To change the normal test dialer string:

1. On the Accounts menu, choose Test-Normal.
2. Enter the 2- or 9-digit dialer string.

Changing the abnormal test dialer string





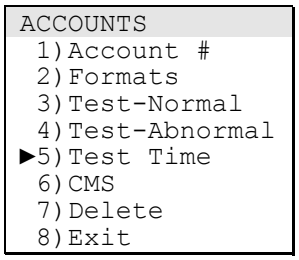
Use the Test-Abnormal command on the Accounts menu to change the dialer string that the DLD card sends when it performs its 24-hour periodic test and the control panel is *not* in the normal state.

Note: The abnormal test dialer string must be distinctively different from the normal test dialer string.

To change the abnormal test dialer string:

1. On the Accounts menu, choose Test-Abnormal.
2. Enter the 2- or 9-digit dialer string.

Changing the periodic test time



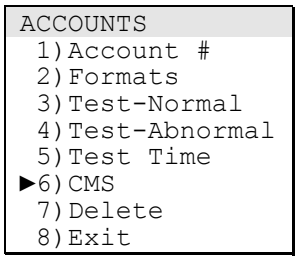
Use the Test Time command on the Accounts menu to change when the DLD card sends its test signal to the selected account. The time is entered in 24-hour format, where HH is the hour and MM is the minutes.

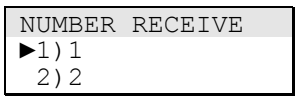
To change the periodic test time:

1. On the Accounts menu, choose Test Time.
2. Enter the time in 24-hour format.

   Example: For midnight, enter 0000. For 1:00 p.m., enter 1300.

Selecting a receiver

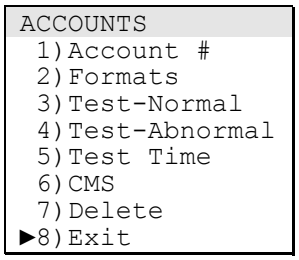




Use the CMS command on the Accounts menu to select which receiver holds the subscriber account.

To select a receiver:

1. On the Accounts menu, choose CMS.
2. On the Number Receive menu, choose one of the following:
   - 1 for Receiver 1
   - 2 for Receiver 2



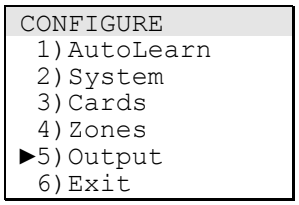
Saving subscriber account configuration changes

Use the Exit command on the Accounts menu to return to the Dialer Setup menu. From the Dialer Setup menu you can exit and save the subscriber account configuration changes.

To save subscriber account configuration changes:

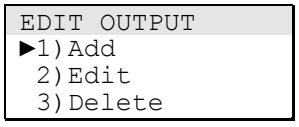
1. On the Accounts menu, choose Exit.
2. On the Dialer Setup menu, choose Exit.
3. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Adding and deleting output groups

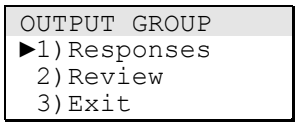


Use the Output command on the Configure menu to add and delete output groups as described below. For more information about output groups, see the topic "Before you begin" earlier in this chapter.

Adding an output group



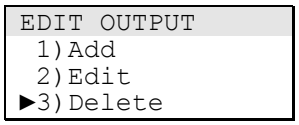
Use the Add command on the Edit Output menu to add an output group to the project database. After you have added the output group, you must add at least one response before the output group can be saved. For more information, see the topic "Editing an output group" later in this chapter.



To add an output group:

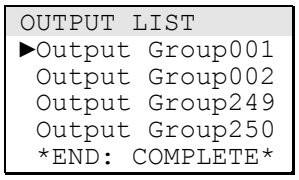
1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Output.
3. On the Edit Output menu, choose Add.
4. On the Output Group menu, choose Responses to continue editing the output group.

Deleting an output group



Use the Delete command on the Edit Output menu to delete an output group from the project database.

If you delete Output Group 249, you remove the active test response that Service Group 129 uses to briefly turn on notification appliances when performing a periodic system test. To reprogram the active test response you must use the software configuration utility.



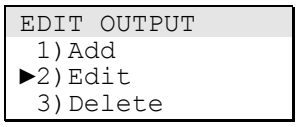
If you delete Output Group 250, when the control panel enters the alarm state, the Visible device types detected when the default project database was created *will not* turn on. You will have to add these devices to another output group manually or use the software configuration utility.

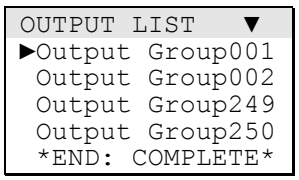
To delete an output group:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Output.
3. On the Edit Output menu, choose Delete.
4. Select the output group from the list, then press Enter.

5. On the Exit menu, choose one of the following:
   - Save Edits to permanently delete the output group
   - NO Save to return to the Configure menu without deleting the output group

Editing an output group





Use the Edit command on the Edit Output menu to add responses to an output group, and to remove responses from an output group. You can only add 10 responses at a time before you must save your edits by exiting until you reach to the Configure menu.

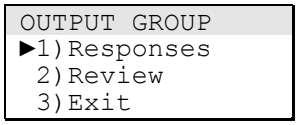
Front panel programming only lets you add or remove active and trouble responses, for other response types you must use the configuration utility. For more information about response types, see "Before you begin" at the beginning of this chapter.

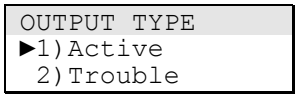
Tip: When using front panel programming to edit an output group, add all of the active responses first then all of the trouble responses. The order in which you add responses doesn't matter except when delay responses are included.

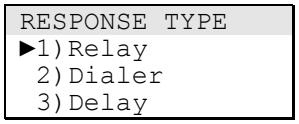
To edit an output group:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Output.
3. On the Edit Output menu, choose Edit then select the output group from the list and press Enter.
4. Follow the instructions provided below.

Adding a relay response







Use the Relay command on the Response Type menu to add a relay response. A relay response is used to activate (turn on) relay outputs, NAC outputs, and outputs used to operate controls for ancillary equipment.

Note: Front panel programming does not let you add a response that restores (turns off) an output.

To add a relay response:

1. On the Output Group menu, choose Responses then on the Output Type menu choose one of the following:
   - Active to add a response from the list of active responses
   - Trouble to add a response from the list of trouble responses
2. On the Output Responses menu, choose Add.
3. On the Response Type menu, choose Relay then enter the address of the output you want activated, where CC is the card address and DDD is the device address.

```
RESPONSE RELAY
►1)ON
 2)20 BPM
 3)120 BPM
 4)Temporal
```

```
EXIT
►1)Save Edits
 2)NO Save
```

4. If the address you entered is for an intelligent addressable device, the command to activate it is automatically entered for you. Skip to the next step.

   If the device address you entered is for a conventional output circuit, you must choose how you want it activated. On the Response Relay menu, choose one of the following commands:

   - ON to activate the output
   - 20 BPM to activate the output and have it turn on and off 20 times per minute
   - 120 BPM to activate the output and have it turn on and off 120 times per minute
   - Temporal to activate the output and have it turn on and off in a 3-3-3 pattern

5. On the Exit menu, choose one of the following:

   - Save Edits to save the response and return to the Output Group menu
   - NO Save to return to the Output Group menu without saving the response

Adding a delay response

Use the Delay command on the Response Type menu to add a delay between one or more responses. A delay response consists of when to initiate the delay and for how long

```
OUTPUT GROUP
►1)Responses
 2)Review
 3)Exit
```

```
OUTPUT TYPE
►1)Active
 2)Trouble
```

```
OUTPUT RESPONSES
►1)Add
 2)Remove
```

```
RESPONSE TYPE
 1)Relay
 2)Dialer
►3)Delay
```

```
RESPONSE DELAY
►1)Delay Type
 2)Delay Time
 3)Exit
```

```
EXIT
►1)Save Edits
 2)NO Save
```

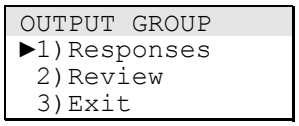
To add a delay response:

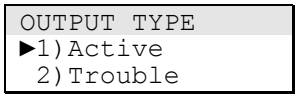
1. On the Output Group menu, choose Responses then on the Output Type menu choose one of the following:
   - Active to add a response from the list of active responses
   - Trouble to add a response from the list of trouble responses
2. On the Output Responses menu, choose Add.
3. On the Response Type menu, choose Delay.
4. On the Response Delay menu, choose Delay Type then on the Delay Type menu choose one of the following:
   - Act & Restore to execute the delay when the input activating the output group is activated and restored
   - Activation to execute the delay only when the input activating the output group is activated

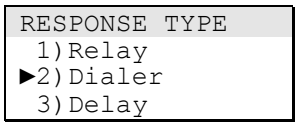
- Restoration to execute the delay only when the input activating the output group is restored

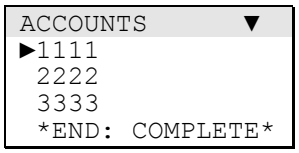
5. On the Response Delay menu, choose Delay Time then enter the amount of delay in seconds.
6. Choose Exit, then on the Exit menu, choose one of the following:
   - Save Edits to save the response and return to the Output Group menu
   - NO Save to return to the Output Group menu without saving the response

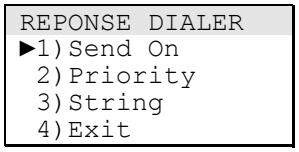
Adding a dialer response

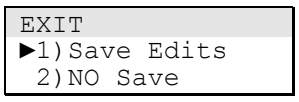












Use the Dialer command on the Response Type menu to add a dialer response. A dialer response consists of when to send the dialer string, the response priority, and the dialer string.

Front panel programming only lets you program zonal response.

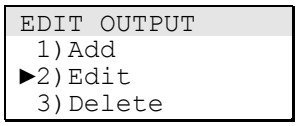
To add a dialer response:

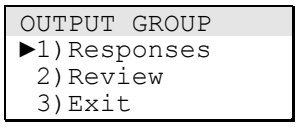
1. On the Output Group menu, choose Responses then on the Output Type menu choose one of the following:
   - Active to add a response from the list of active responses
   - Trouble to add a response from the list of trouble responses
2. On the Output Responses menu, choose Add.
3. On the Response Type menu, choose Dialer.
4. Select a subscriber account from the Accounts list then press Enter. Pressing Del returns you to the Output Group menu.
5. On the Reponse Dialer menu, choose Send On then choose one of the following:
   - Activation if the dialer string is transmitted when a device is activated
   - Restoration if the dialer string is transmitted when a device is restored
6. On the Reponse Dialer menu, choose Priority then choose one of the following:
   - Life Safety (highest priority, transmitted first)
   - Property
   - System Integr (lowest priority, transmitted last)
7. On the Reponse Dialer menu, choose String then enter the dialer string.

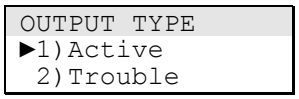
8. On the Reponse Dialer menu, choose Exit then on the Exit menu, choose one of the following:
   - Save Edits to save the response and return to the Output Group menu
   - NO Save to return to the Output Group menu without saving the response

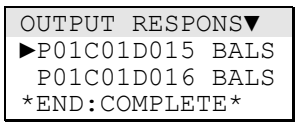
Removing a response from an output group

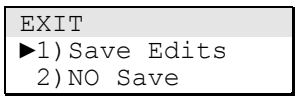
Use the Remove command on the Output Responses menu to remove a response from a set of active or fault responses.







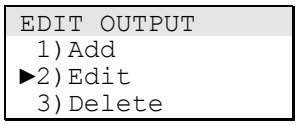


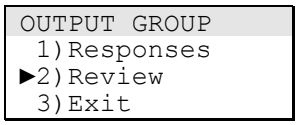


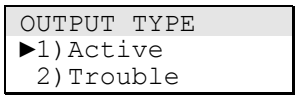
To remove a response:

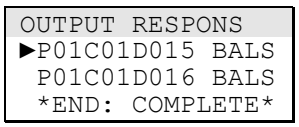
1. On the Output Group menu, choose Responses then on the Output Type menu choose one of the following:
   - Active to add a response from the list of active responses
   - Trouble to add a response from the list of trouble responses
2. On the Output Responses menu, choose Remove.
3. Select the response from the list then press Enter to delete the response and return to the Output Group menu.
4. When you are finished removing responses, choose Exit, then on the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Output Group menu
   - NO Save to return to the Output Group menu without saving your changes

Reviewing responses in an output group









Use the Review command on the Output Group menu to review a set of active or fault responses in an output group. Refer to Table 7-7 for a description of the response codes.

To review a set of responses:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Output.
3. On the Edit Output menu, choose Edit, then select the output group from the list and press Enter.
4. On the Output Group menu, choose Review.
5. On the Output Type menu, choose one of the following:
   - Active to review the set of active responses
   - Trouble to review the set of fault responses
6. Press Enter to return to the Output Group menu.

Table 7-7: Response code descriptions

Response code	Description
P[pp]C[cc]D[ddd][1][2][3][4]	Response code for an output circuit, where: P[pp]C[cc]D[ddd] = the device address, where: pp = the panel number (01), cc = the card number (01–13), and ddd = the device number (001–999) 1= the command direction, where: B = Both activation and restoration, A = Activation only, and R = Restoration only 2 = the response command, where: N = no operation, A = Activate, E = Enable, R = Restore, I = Disable, and D = Delay 3 = the response priority, where: S = Set, A = Latch, L = Low, M = Medium, and H = High 4 = the output state, where: S = Steady, R = Restore, W = 20 bpm, F = 120 bpm, and T = Temporal

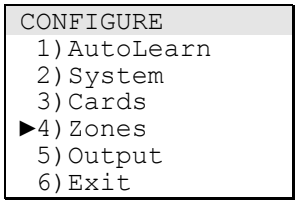
Table 7-7: Response code descriptions

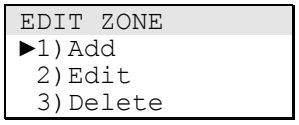
Response code	Description
P[00]C16D[ddd][1][2][3][4]	Response code for an LED, where: P[00]C16D[ddd] = the device address, where: ddd = the device number of the LED (001–999) **Note:** A *** represents a device number greater than 999 1= the command direction, where: B = Both activation and restoration, A = Activation only, and R = Restoration only 2 = the response command, where: N = no operation, A = Activate, E = Enable, R = Restore, I = Disable, and D = Delay 3 = the response priority, where: S = Set, A = Latch, L = Low, M = Medium, and H = High 4 = the output state, where: S = Steady, R = Restore, W = Slow Blink, and F = Fast Blink
Delay: [ssss][1]	Response code for a delay, where: ssss = the amount of delay in seconds (0001 – 9999) 1 = the command direction, where: B = Both activation and restoration, A = Activation only, and R = Restoration only
[ACCT][1][2][Q][EEE][GG][PPP] — or — [ACCT][1][2][PP]	This is what the panel display looks like when you review a response for dialer string. ACCT is the 4-digit subscriber account number (0000 to 9999) 1 is the priority attribute (L = Life Safety, P = Property, S = System Integrity) 2 is the command direction (B = Both activation and restoration, A = Activation only, R = Restoration only) For Contact ID dialer strings: Q is the event qualifier (1 = activation event, 3 = restoration event) EEE is the event code. See Appendix E for a list of Contact ID event codes. GGPPP is the point being reported For 4/2 dialer strings: PP is the point being reported (00–99)
UNKNOWN	Response code for a valid response that cannot be edited from the control panel CPU/Display Unit. Example: a response that disables an output circuit.

Adding and deleting zones

Use the Zone command on the Configure menu to add and delete zones as described below. For more information about zones, see the topic “Before you begin” earlier in this chapter.

Adding a zone





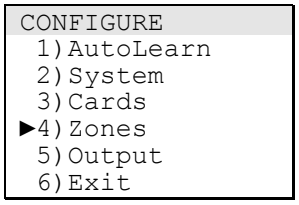
Use the Add command on the Edit Zone menu to add a zone to the project database. After you have added the zone, you can edit the zone’s configuration settings. For more information, see the topic “Editing zone configuration settings” later in this chapter.

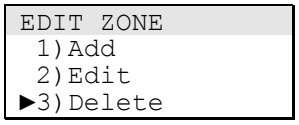
Note: Zones added from the front panel are automatically labeled “ZONE Groupnnn” where “nnn” is the next available zone number.

To add a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Add.
4. On the Zone Type menu, choose one of the following:
   - Alarm Zone to add a zone consisting of fire alarm inputs
   - Supervisory Z to add a zone consisting of supervisory inputs
   - Monitor Zone to add a zone consisting of monitor inputs
5. Edit the zone configuration settings or choose Exit to save your changes and return to the Configure menu.

Deleting a zone





Use the Delete command on the Edit Zone to delete a zone from the project database. Deleting a zone makes its members available to other zones.

To delete a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Delete.
4. Select the zone from the list, then press Enter.
5. On the Exit menu, choose one of the following:

- Save Edits to delete the zone from the project database and return to the Configure menu
- NO Save to return to the Configure menu without deleting the zone from the project database

Editing zone configuration settings

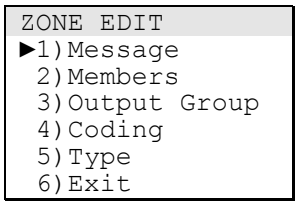
This topic describes how to edit zone configuration settings. To see a diagram of the process, refer to "Zone configuration menus" in Appendix C.

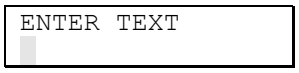
Note: By default, zones are configured to allow zone troubles. To change this setting you must use the software configuration utility.

To edit zone configuration settings:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zones menu, choose Edit then follow the instructions provided below.

Adding a location description to the event message



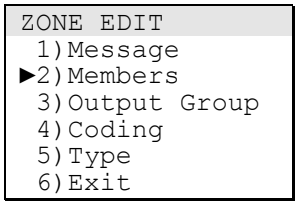


Use the Message command on the Zone Edit menu to add a location description to the zone's event message. The location description is displayed when the zone is in an abnormal condition. If you do not add a location description, only the zone's panel-card-device address is displayed.

Note: Entering text from the front panel requires that you use a compatible bar code scanning device.

To add a location description:

1. On the Zone Edit menu, choose Message.
2. Using the bar code scanning device, scan in the location description text.
3. Press Enter to accept the text and return to the Zone Edit menu.



Adding, deleting, and reviewing zone members

Use the Members command on the Zone Edit menu to add members to a zone, delete members from a zone, and review a list of zone members.

```
ZONE MEMBERS
►1)Device Addres
 2)Delete
 3)Review
```

```
ENTER DEVICE
     CCDDD
```

Adding members to a zone

Use the Device Addres command on the Zone Members menu to add members to the zone. Zone members are the inputs used to activate the zone response. A zone can have up to thirty-two members.

To add members to a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Members.
5. On the Zone Members menu, choose Device Addres, then type the member's device address, where CC is the card number and DDD is the device number.
6. Press Enter to accept the address and return to the Zone Members menu.

   If you type in an invalid address, nothing happens when you press Enter.
7. When you are finished adding members to the zone press Del to return to the Zone Edit menu.

```
ZONE MEMBERS
 1)Device Addres
►2)Delete
 3)Review
```

```
ZONE LIST
►P:01 C:01 D:001
 P:01 C:01 D:002
 P:01 C:01 D:003
 P:01 C:01 D:004
 *END: COMPLETE*
```

Deleting members from a zone

Use the Delete command on the Zone Members menu to delete members from a zone.

To delete members from a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Members.
5. On the Zone Members menu, choose Delete.
6. Select the address of the member you want deleted then press Enter to return to the Zone Members menu.
7. When you are finished deleting members from the zone press Del to return to the Zone Edit menu.

Reviewing a list of zone members

```
ZONE MEMBERS
 1)Device Addres
 2)Delete
►3)Review
```

Use the Review command on the Zone Members menu to see a list of zone members. The zone members list includes all of the points that have been added to a zone in order to activate the zone's output group responses

```
ZONE LIST
 P:01 C:01 D:001
 P:01 C:01 D:002
 P:01 C:01 D:003
 P:01 C:01 D:004
 *END:COMPLETE*
```

To review a list of zone members:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Members.
5. On the Zone Members menu, choose Review to display the zone list.
6. After reviewing the zone members list, press Del to return to the Zone Edit menu.

Adding, removing, and reviewing zone output group assignments

```
ZONE EDIT
 1)Message
 2)Members
►3)Output Group
 4)Coding
 5)Type
 6)Exit
```

Use the Output Group command on the Zone Edit menu to add output groups to a zone, remove output groups from a zone, and review a list of output groups that have been assigned to a zone.

Adding an output group to a zone

```
OUTPUT GROUP
►1)Add
 2)Remove
 3)Review
```

Use the Add command on the Output Group menu to assign an output group to a zone. Adding an output group to the zone establishes the correlation between the zone and the responses included in the output group. You can add up to six output groups to one zone.

```
OUTPUT LIST
►Output 1
 Output 2
 Output 3
 *END: COMPLETE*
```

To add an output group to a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Output Group.
5. On the Output Group menu, choose Add.
6. Select an output group from the list and press Enter to return to the Output Group menu.

7. When you are finished adding output groups to the zone press Del to return to the Zone Edit menu.

Removing an output group from a zone

```
OUTPUT GROUP
 1)Add
►2)Remove
 3)Review
```

Use the Remove command on the Output Group menu to remove an output group from a zone. Removing an output group from a zone eliminates the correlation between the zone and the responses included in the output group.

```
OUTPUT LIST
►Output 1
 Output 2
 *END: COMPLETE*
```

To remove an output group from a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Output Group.
5. On the Output Group menu, choose Remove.
6. Select an output group from the list and press Enter to return to the Output Group menu.
7. When you are finished removing output groups from the zone press Del to return to the Zone Edit menu.

Reviewing a list of output groups assigned to a zone

```
OUTPUT GROUP
 1)Add
 2)Remove
►3)Review
```

Use the Review command on the Output Group menu to see a list of output groups assigned to a zone.

```
OUTPUT LIST
 Output 1
 Output 2
 *END:COMPLETE*
```

To review a list of output groups assigned to a zone:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Output Group.
5. On the Output Group menu, choose Review.
6. After reviewing the output group list, press Del to return to the Zone Edit menu.

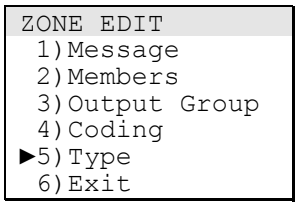
Entering a zone code

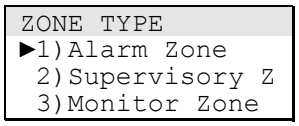
Use the Coding command on Zone Edit menu to enter a zone code. The zone code uniquely identifies the zone for coded fire alarm systems.

To enter a zone code.

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Coding then enter the 4-digit code.

Changing the zone type



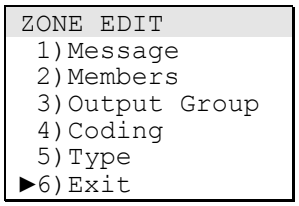


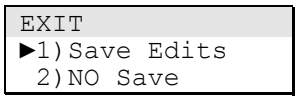
Use the Type command on the Zone Edit menu to change the zone's type. The zone's type determines which devices you can add as zone members and which event is generated when the zone is activated.

Caution: If you have already added members to the zone, changing the zone's type automatically removes the members from the zone.

To change the zone type:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Configure, and then Zones.
3. On the Edit Zone menu, choose Edit, then select a zone from the list and press Enter.
4. On the Zone Edit menu, choose Type.
5. On the Zone Type menu, choose one of the following:
   - Alarm Zone to change the selected zone to a fire alarm zone
   - Supervisory Z to change the selected zone to a supervisory zone
   - Monitor Zone to change the selected zone to a monitor zone





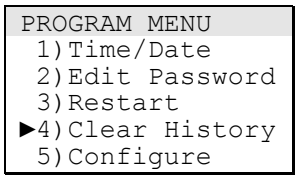
Saving zone configuration changes

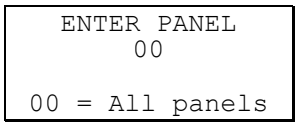
Use the Exit command on the Zone Edit menu to save the zone configuration changes and return to the Configure menu. You also have the option to return to the Configure menu without saving your changes.

To save module configuration changes:

1. On the Zone Edit menu, choose Exit.
2. On the Exit menu, choose one of the following:
   - Save Edits to save your changes and return to the Configure menu
   - NO Save to return to the Configure menu without saving your changes

Clearing the history log



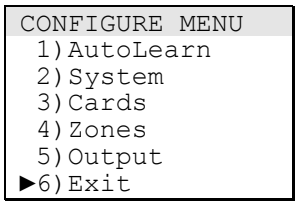


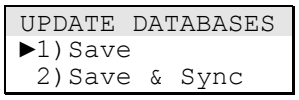
Use the Clear History command on the Program menu to clear the history log and reset the alarm history counter to zero (0000). The alarm history counter keeps track of how many times the control panel has entered the alarm condition.

To clear the history log:

1. Log on using the level 4 password.
2. From the main menu, choose Program, then Clear History.
3. Enter the panel number of the control panel whose history log you want cleared.

Saving the project database





After you finish making all of your programming changes, exit the Configure menu to save your changes and update the project database. Use the Save command on the Update Databases menu to save the project database only in the control panel. Use the Save & Sync command to save the project database in the control panel and automatically update the project database in all of the remote annunciators.

You must also save the project database after adding eight responses to an output group.

Tip: Depending on the size of the system, updating the project database across remote annunciators may take several minutes. Use the Save & Sync command only after the system has been completely tested.

To save the project database:

1. On the Configure menu, choose Exit.
2. On the Update Database menu, choose one of the following:
   - Save to save the control panel database
   - Save & Sync to save the control panel database and update all of the remote annunciators

Chapter 8

Service and troubleshooting

Summary

This chapter provides instructions for servicing and troubleshooting the fire alarm system. It is intended for those trained and authorized to maintain the fire alarm system.

Content

Display or print a revision report

```
REPORTS
 1)Maintenance
 2)History
►3)Revisions
 4)Alarm History
```

```
 ENTER PANEL
      01
```

```
REPORT OUTPUT
►1)Display
 2)Printer
```

Use the Revisions command on the Reports menu to display or print a revision report. The revision report lists the firmware revision levels of all the hardware and software components installed in the control panel.

Figure 8-1 shows an example of a printed revision report.

Note: To print a report you must have a printer connected to the panel you are operating.

To display or print a revision report:

1. Log on using the level 3 password.
2. From the main menu, choose Reports, then Revisions.
3. Enter the panel number of the control panel.
4. On the Report Output menu, choose one of the following:
   - Display to view the list on the alphanumeric display
   - Printer to print the list

```
------------------------------------------------------------
REVISION REPORT
PANEL:  01                              13:27:38  08/24/04
------------------------------------------------------------
ALARM COUNT:    0000
MARKET   :  NFPA72
CPU      : V01.60.00
QS-CU    : V00.00.00
QS-CU PRJ: V00.00.00
DB S/N   :  00105751
DB DATE  :  08/24/04
CARD TYPE: CPU-4L
ANN TYPE :
(1)SL30
CARD: 01
  CARD TYPE: SLIC
  FIRMWARE : V01.00.00
             06/24/01
CARD: 14
  CARD TYPE: DLD
  FIRMWARE: V01.20.00
            04/11/02
CARD: 15
  CARD TYPE: PS6
  FIRMWARE : V01.00.00
             05/30/01
*END: COMPLETE*
```

Figure 8-1: Example revision report

Starting and canceling a service group test

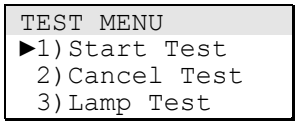
You can start and cancel a service group test from the control panel using the Start Test and Cancel Test commands. A service group test must be performed at regular intervals to verify the system operation.

WARNING: If a fire starts in a zone that is being tested, the zone will not report the fire alarm condition. To ensure occupant safety, always post a fire watch while a zone is being tested.

When a device in a service group under test is activated, the system initiates the programmed active test response. When a device in a service group under test is placed in a trouble state (a detector is pulled from its base), the system initiates the programmed trouble test response. If a trouble test response is not programmed, the system defaults to the active test response.

Note: The proper testing sequence is to perform the trouble test first and then the activation test. If the activation test is performed first, the trouble test will not activate any outputs.

Starting a service group test

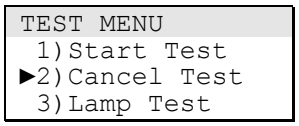


Use the Start Test command on the Test menu to start a service group test.

To start a service group test:

1. Log on using the level 3 password.
2. Choose Test, then Start Test.
3. Select the service group from the pick list for the zone you want tested then press Enter.

Canceling a service group test



Use the Cancel Test command to end a service group test. If a point is in the active condition (a pull station is left engaged) the control panel warns you of the condition before canceling the test.

Note: The system automatically resets after all service group tests are cancelled.

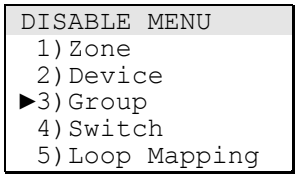
To cancel a service group test:

1. Log on using the level 3 password.
2. Choose Test, then Cancel Test.
3. Select a service group from the pick list then press Enter.

Disabling and enabling an AND group

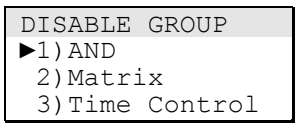
You can disable and enable AND groups from the control panel using the AND command on the Disable Group menu and Enable Group menu, respectively. AND groups are an advanced programming feature and are typically used in applications that require a specific number of active fire alarm points before the system activates a response.

Disabling an AND group



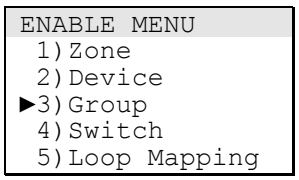
Use the AND command on the Disable Group menu to disable an AND group and prevent it from activating a response.

To disable an AND group:



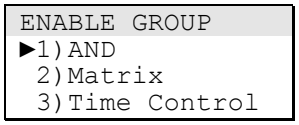
1. Log on using the level 3 password.
2. From the main menu, choose Disable, then Group, and then AND.
3. Select an AND group from the pick list, then press Enter.

Enabling an AND group



Use the Enable AND command on the Enable Group menu to return a disabled AND group to service. If you enable an AND group that was activated while it was disabled, any active responses programmed for the AND group are automatically activated.

To enable an AND group:



1. Log on using the level 3 password.
2. From the main menu, choose Enable, then Group, and then AND.
3. Select an AND group from the pick list, then press Enter.

Disabling and enabling a matrix group

The fire alarm system can comprise one or more matrix groups. Matrix groups initiate a set of responses when a specific number of fire detectors are activated or when two fire detectors within a defined search radius are activated. You can disable and enable matrix groups from the control panel using the Matrix command on the Disable Group and Enable Group menus.

Disabling a matrix group

```
DISABLE MENU
 1)Zone
 2)Device
 3)Card
►4)Group
 5)Switch
```

Use the Matrix command on the Disable Group menu to temporarily take a matrix group out of service and prevent it from initiating a set of responses.

To disable a matrix group:

```
DISABLE GROUP
►1)Matrix
 2)Time Control
```

1. Log on using the level 3 password.
2. Choose Disable, then Group, and then Matrix.
3. Select a matrix group from the pick list, then press Enter.

Enabling a matrix group

```
ENABLE MENU
 1)Zone
 2)Device
 3)Card
►4)Group
 5)Switch
```

Use the Matrix command on the Enable Group menu to return a disabled matrix group to service and allow it to initiate a set of responses.

To enable a matrix group:

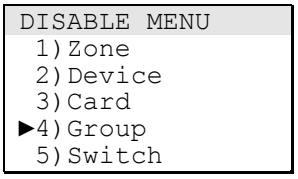
```
ENABLE GROUP
►1)Matrix
 2)Time Control
```

1. Log on using the level 3 password.
2. Choose Enable, then Group, and then Matrix.
3. Select a matrix group from the pick list, then press Enter.

Disabling and enabling a time control

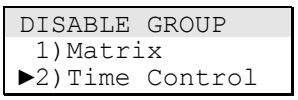
The fire alarm system can be programmed with one or more time controls. Time controls initiate a set of responses at a specific time and date as determined by the system clock. You can disable and enable time controls from the control panel using the Time Control command on the Disable Group and Enable Group menus.

Disabling a time control



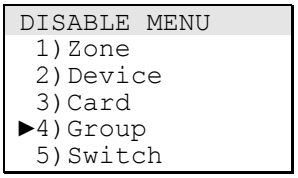
Use the Time Control command on the Disable Group menu to temporarily take a time control out of service and prevent it from initiating a set of responses.

To disable a time control:



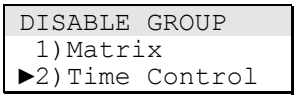
1. Log on using the level 3 password.
2. Choose Disable, then Group, and then Time Control.
3. Select a time control from the pick list, then press Enter.

Enabling a time control



Use the Time Control command on the Enable Group to return a disabled time control to service and allow it to initiate a set of responses.

To enable a time control:



1. Log on using the level 3 password.
2. Choose Enable, then Group, and then Time Control.
3. Select a time control from the pick list, then press Enter.

Disabling and enabling a switch

You can disable and enable a switch on an LED/switch card from the control panel using the Switch command on the Disable menu and the Enable menu, respectively. To disable or enable a switch you must know the switch's address. To determine a switch's address, see the topic "LED/switch card addresses" in Appendix D.

Disabling a switch

```
DISABLE MENU
 1)Zone
 2)Device
 3)Group
►4)Switch
 5)Loop Mapping
```

Use the Switch command on the Disable menu to disable a switch on an LED/switch card and prevent it from activating a response. When you press a switch that is disabled, the control panel recognizes that the switch was pressed, but does not activate any responses programmed for the switch.

```
ENTER SWITCH GRP
      GGSS
```

To disable a switch:

1. Log on using the level 3 password.
2. From the main menu, choose Disable, then Switch.
3. Enter the switch address, where GG = the group number of the LED/switch card, and SS is the switch number.

Enabling a switch

```
ENABLE MENU
 1)Zone
 2)Device
 3)Group
►4)Switch
 5)Loop Mapping
```

Use the Switch command on the Enable menu to return a disabled switch on an LED/switch card to service. If you enable a switch that was pressed while it was disabled, the control panel activates any responses programmed for the switch.

```
ENTER SWITCH GRP
      GGSS
```

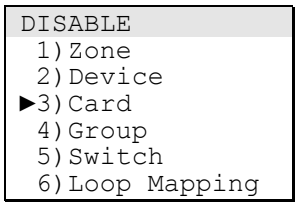
To enable a switch:

1. Log on using the level 3 password.
2. From the main menu, choose Enable, then Switch.
3. Enter the switch address, where GG = the group number of the LED/switch card, and SS is the switch number.

Disabling and enabling an option card

You can disable and enable option cards from the control panel using the Card command on the Disable menu and Enable menu, respectively. To disable or enable an option card you must know the card's address as determined by its card address switch.

Disabling an option card

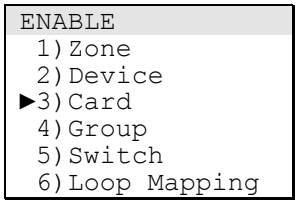


Use the Card command on the Disable menu to disable an option card and prevent it from activating any responses.

To disable an option card:

1. Log on using the level 4 password.
2. From the main menu, choose Disable, then Card.
3. Enter the card number, where: PP = 01, and CC = the card number.

Enabling an option card



Use the Card command on the Enable menu to return a disabled option card to service.

To enable an option card:

1. Log on using the level 4 password.
2. From the main menu, choose Enable, then Card.
3. Enter the card number, where: PP = 01, and CC = the card number.

Turning an output on and off

You can turn an output on and off from the control panel using the Output command on the Activate and Restore menus, respectively.

Turning an output on or off from the control panel requires that you specify a priority. Typically, fire alarm systems use low priority commands to activate or restore outputs. In some cases, fire alarm systems may use low priority and medium priority commands. High priority commands are always reserved for manual override operations.

WARNING: Turning an output on or off from the control panel, if done incorrectly, may override a critical life safety feature of the fire alarm system. Correct operation requires that you activate the output then restore it, or restore the output then activate it. Never activate or restore an output two or more times in a row without performing the opposite operation the same number of times.

Note: You cannot change the state of an active common alarm output.

```
ACTIVATE MENU
►1)Output
 2)Alt Sens
 3)Alt Msg Route
 4)LED
```

Turning an output on

Use the Output command on the Activate menu to turn an output on as described below.

Conventional audible outputs: Steady, 20 bpm, 120 bpm, and temporal

Conventional common alarm outputs: Steady, 20 bpm, 120 bpm, and temporal

Conventional visible outputs: On

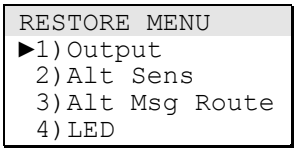
Relay outputs: Steady, 20 bpm, 120 bpm, and temporal

Intelligent addressable outputs (all device types): Steady

Note: It is possible to turn an output on more than once using different priority levels and different output states.

To turn an output on:

1. Log on using the level 3 password.
2. From the main menu, choose Activate, then Output.
3. Enter the output's address, where PP = 01, CC = the card number, and DDD = the device number.
4. On the Output menu, choose the desired output state, and then choose High Priority.



Turning an output off

Use the Output command on the Restore menu to turn an output off.

Note: It is possible to turn an output off more than once using different priority levels.

To turn an output off:

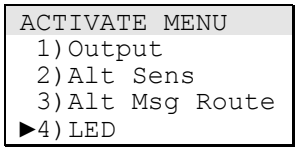
1. Log on using the level 3 password.
2. From the main menu, choose Restore, then Output.
3. Enter the output's address, where PP = 01, CC = the card number, and DDD = the device number.
4. On the Output menu, choose Off, then choose High Priority.

Turning an LED on and off

You can turn an LED on an LED/switch card on and off from the control panel using the LED command on the Activate menu and Restore menu, respectively. Turning an LED on or off requires that you know the LED's address. To determine the LED's address, see the topic "LED/switch card addresses" in Appendix D.

WARNING: Turning an LED on or off from the control panel, if done incorrectly, may override a critical life safety feature of the fire alarm system. Correct operation requires that you activate the LED then restore it, or restore the LED then activate it. Never activate or restore an LED two or more times in a row without performing the opposite operation the same number of times.

Turning an LED on



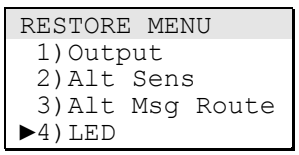
Use the Activate LED command to turn an LED on. LEDs can be turned on in one of three states: steady, fast blink, and slow blink. It is possible to turn an LED on more than once using different priority levels and different output states.

To turn an LED on:

1. Log on using the level 3 password.
2. From the main menu, choose Activate.
3. On the Activate menu, choose LED.
4. On the LED menu, choose the desired output state, then enter the LED's address, where GG = the group number, SS = the switch number, and L = is the LED number.

   Example: Enter 01011 to activate the red LED in the first LED/switch group on the LED/switch card assigned to group number 1.

Turning an LED off



Use the LED command on the Restore menu to turn an LED off.

To turn an LED off:

1. Log on using the level 3 password.
2. From the main menu, choose Restore.
3. On the Restore menu, choose LED.

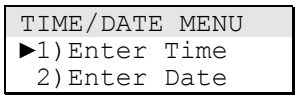
4. On the LED menu, choose Off, then enter the LED's address, where GG = the group number, SS = the switch number, and L = is the LED number.

   Example: Enter 01011 to restore the red LED in the first LED/switch group on the LED/switch card assigned to group number 1.

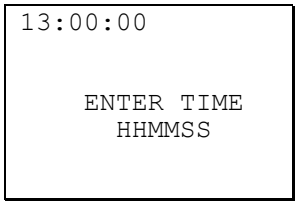
Setting the system time and date

The control panel includes a system clock that it uses to time stamp events and to activate time controls. The time is presented in 24-hour format. The date is presented in day-month-year format.

Setting the time



Use the Enter Time command on the Time/Date menu to set the system clock for the current time. The time is entered in 24-hour format, for example:



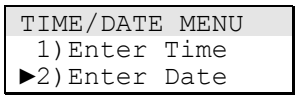
000000 = midnight
010000 = 1:00 a.m.
120000 = noon
130000 = 1:00 p.m.
235900 = 11:59 p.m.

To set the system clock for the current time:

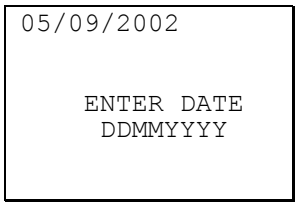
1. Log on using the level 3 password (UL systems) or level 2 password (ULC systems).
2. From the main menu, choose Program, then Time/Date, and then Enter Time.
3. Press DEL until the display shows HHMMSS.
4. Enter the time in 24-hour format, where HH = hours, MM = minutes, and SS = seconds.

   Example: To set the time for 7:27:00 p.m., enter 192700.

Setting the date



Use the Enter Date command on the Time/Date menu to set the system clock to the current date.



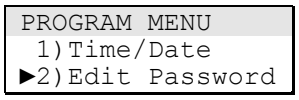
To set the system clock for the current date:

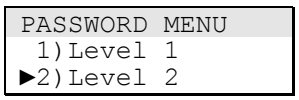
1. Log on using the level 3 password.
2. From the main menu, choose Program, then Time/Date, and then Enter Time.
3. Press DEL until the display shows DDMMYYYY.

   Enter the date, where DD = the number of the day, MM = the number of the month, and YYYY = the year.

   Example: To set the date for July 31, 2002, enter 07312002.

Changing the level 2 password





Use the Edit Password command on the Program menu to change the password setting for using level 2 command menus. To change the level 2 password you must log on using the level 3 or level 4 password.

The default level 2 password is 2222.

To change the level 2 password:

1. Log on using the level 3 password.
2. From the main menu, choose Program, then Edit Password.
3. On the Password menu, choose Level 2.
4. Enter the new password.

Clearing trouble messages

Table 8-1 lists the trouble messages that can appear on the CPU/Display Unit and their possible causes. Locate the trouble message in the table then follow the instructions to correct the fault indicated by the message. The trouble messages are listed alphabetically.

Table 8-1: Trouble messages

Message	Description
GROUND FAULT: Check System Wiring	There is an earth ground fault in the system. Possible causes for this fault are: • A computer that is not electrically isolated is connected to the RS-232 port • A wire shorted to earth ground Locate the source of the fault by disconnecting the field wires inside the panel one at a time until the fault message clears. Once located, verify the field wiring to clear the short.
TROUBLE	Intelligent addressable device trouble. Press Help to identify the specific trouble message. COMMN FAULT – An intelligent addressable device is not communicating with the panel. Possible causes for this fault are: • The device is not installed • The device is installed but is defective • The loop is wired incorrectly, or the loop wiring is open or shorted Identify the point that reported the fault by pressing Help. Make corrections as required.
TROUBLE OPEN	An open circuit was detected. Possible causes for this fault are: • Missing or incorrect end of line resistor • Loose terminal connection or missing device • Missing or broken wire Identify the point that reported the fault by pressing Help. Verify the correct end of line resistor is installed on the last device on the circuit. Verify the field wiring is correct and the connections are secure.
TROUBLE SHRT	A short circuit was detected. Possible causes for this fault are: • A wire-to-wire short • Wires reversed between two devices Identify the point that reported the fault by pressing Help. Clear the short.

Table 8-1: Trouble messages

Message	Description
LCL TROUBLE	There is a fault with an intelligent addressable device. Press Help to identify the device and the fault.
LCL TROUBLE: Aux Power 1/2 Shorted	The AUX 1 or AUX2 power output is shorted
LCL TROUBLE: Aux Power 3 Shorted	The AUX 3 power output is shorted
LCL TROUBLE: Battery Charger Fault	The power supply card is having trouble charging the standby batteries. Possible causes for this fault are: • The standby batteries are wired backwards • The standby batteries are defective • The power supply card is defective De-energize the panel then verify the standby batteries are not wired backwards. If they are, you may have blown a fuse and must also replace the power supply card. If the problem persists, replace the standby batteries.
LCL TROUBLE: Battery Wiring or Battery Fault	Battery voltage is below 20.4 Vdc. Verify the battery is properly installed. If the problem persists, replace the batteries.
LCL TROUBLE: Call For Service	The panel detected an internal CPU processing fault. Get a History report before contacting technical support.
LCL TROUBLE: Card XX	Card XX in the project database, where XX is the card's address, was not detected in the control panel. The possible causes for this fault are: • Card XX is not installed • Card XX is installed but its card address switch setting does not match its address in the project database
LCL TROUBLE: Card XX Communications	Card XX, where XX is the card's address, is not communicating. Possible causes for this fault are: • Card XX is defective • Card XX was not installed prior to the initial download
LCL TROUBLE: Card XX Setup Mismatch	Card XX installed in the panel and the card at address XX in the project database are not the same. Verify all card address switch settings and make the necessary changes.
LCL TROUBLE: CH1 Communications	There is a wiring fault with the primary RS-485 transmission path (channnel 1). Check the wiring from the control panel to each repeater panel. Verify the wire connections are secure and that the wires are not missing or crossed (plus-to-minus and minus-to-plus). Make corrections if necessary.

Table 8-1: Trouble messages

Message	Description
LCL TROUBLE: CH2 Communications	There is a wiring fault with the secondary RS-485 transmission path (channnel 2). Check the wiring from the control panel to each repeater panel. Verify the wire connections are secure and that the wires are not missing or crossed (plus-to-minus and minus-to-plus). Make corrections if necessary.
LCL TROUBLE: Code Supervision	Internal CPU memory failure
LCL TROUBLE: Database Incompatible	Changes made to the system programming on the control panel were not updated in this unit. Update the project database on all the remote annunciator panels.
LCL TROUBLE: Database Supervision	Internal CPU memory failure
LCL TROUBLE: Excessive Battery Current	The standby batteries are weak. Replace the batteries.
LCL TROUBLE: LED/switch Display	There is a problem with an LED/switch card. The possible causes are: • A ribbon cable connection is loose or missing • An LED/switch card is defined in the project database but is not installed on the panel • An LED/switch card is not defined in the project database but is installed on the panel Identify the panel that reported the fault by pressing Help. Install the required LED/switch card if it is missing. If the ribbon cable connection is loose or missing, de-energize the panel, connect the ribbon cables, and then restart the system. If the LED/switch card is properly installed, update the project database to include the LED/switch card. **Caution:** Connecting ribbon cables while the panel is energized may damage the LED/switch card. Always de-energize the panel before connecting ribbon cables to the LED/switch card.
LCL TROUBLE: Line Failure	An error has been detected on an intelligent addressable loop that prevented the line from initializing. Identify which SLIC card reported the fault by pressing Help. Correct any wiring issues and then reset the system.

Table 8-1: Trouble messages

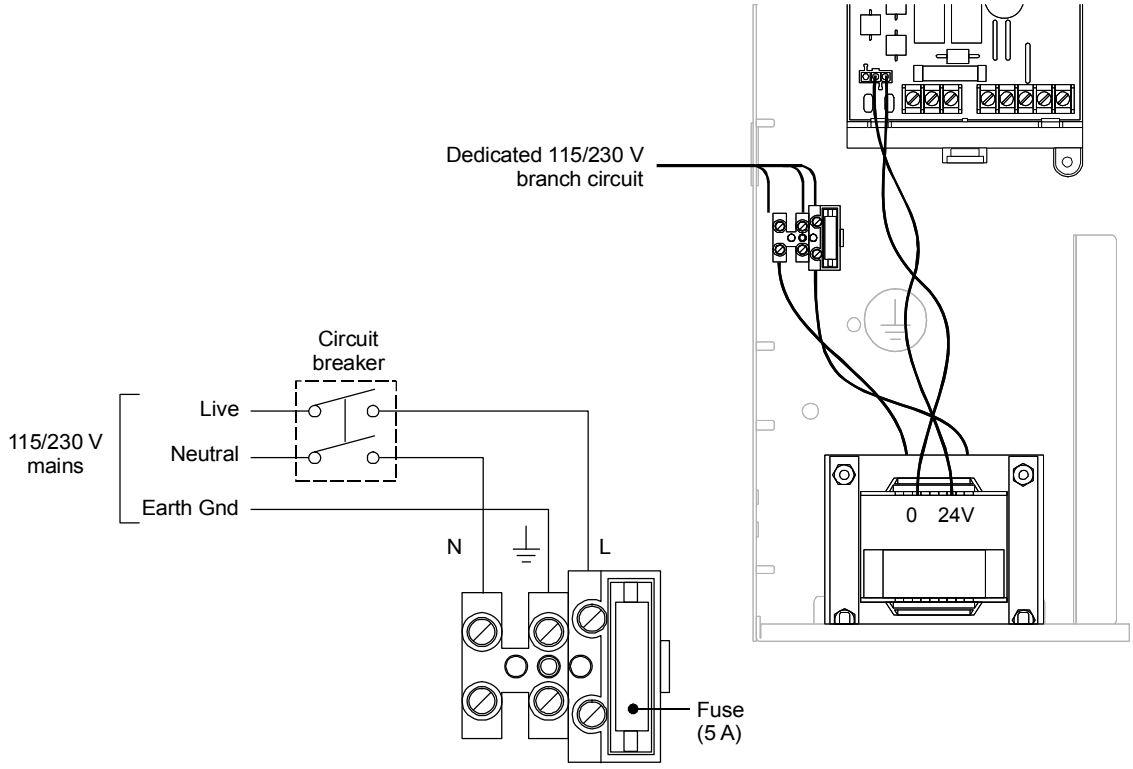
Message	Description
LCL TROUBLE: Unconfig. Device	A device is installed on an intelligent addressable loop but is not defined in the project database. The possible causes for this fault are: • The device is defined in the project database but is configured with the wrong device address • The device is not defined in the project database Identify the SLIC card that reported the fault by pressing Help. Verify each device on the loop and their address switch settings. If a device is found with an incorrect address, make the necessary corrections, and then restart the system. If a device is found that is not in the project database, update the project database to include the missing device.
LCL TROUBLE: Panel Switched Latched	A switch is stuck in the pressed position. Identify the card that reported the fault. Locate the switch and clear the obstruction. If the problem persists, replace the card.
LCL TROUBLE: Panel Unexpected Card	An option card is installed in the cabinet but is not defined in the project database. The possible causes for this fault are: • The option card is defined in the project database but is configured with the wrong card address • The option card is not defined in the project database Obtain a Cabinet report from the software configuration utility. Verify the address switch setting of each option card installed in the panel matches their address in the project database. If an address mismatch is found, change the address switch setting on the option card to match the address in the project database then restart the system. If a option card is found that is not in the project database, remove the option card or update the project database to include the missing card then download the new project database.
LCL TROUBLE: Power supply card EEPROM fault	There is a problem with the internal memory on the power supply card. Restart the panel. If the problem persists, replace power supply card.
LCL TROUBLE: Power supply card RAM fault	There is a problem with the internal memory on the power supply card. Restart the panel. If the problem persists, replace power supply card.
LCL TROUBLE: Power supply card ROM fault	There is a problem with the internal memory on the power supply card. Restart the panel. If the problem persists, replace power supply card.
LCL TROUBLE: Power Supply Setup Mismatch	The CPU encountered a problem configuring the power supply card

Table 8-1: Trouble messages

Message	Description
LCL TROUBLE: Primary AC Power Failure	The mains input voltage is below 85% of its nominal value. The possible causes for this fault are: • The disconnect device installed between the main distribution panel the control panel is switched off • The control panel fuse is blown or missing • The control panel transformer is not connected Check the disconnect device. If it is ON, switch the disconnect device OFF, then open the control panel and verify that the transformer is plugged into the power supply card. Next, check if the fuse is blown or missing. Replace the fuse if necessary.
LCL TROUBLE: Reboot Fault	The system performed an unexpected reboot. View or print a History report to determine why the panel rebooted. Press Reset to clear.
LCL TROUBLE: ROM Supervision	Internal CPU memory failure. Restart the panel. If the problem still persists, replace the card.
LCL TROUBLE: Service Active Trouble	A service group test was canceled with a device still in the active state. Check the service group's status (Status > Test) to see which point is still active. Restore the point then reset the system.
LCL TROUBLE: Smoke Power Shorted	Smoke/Accessory power output is shorted
LCL TROUBLE: Switch Latched	A switch is stuck in the pressed position. Identify the card that reported the fault. Locate the switch and clear the obstruction. If the problem persists, replace the card.
LCL TROUBLE: Task Failure	Internal processing fault

Replacing the control panel fuse

The control panel is protected with a 5 A fuse as shown in the figure below.



To replace the fuse:

1. Switch off the circuit breaker that supplies mains AC power to the control panel.
2. Open the cabinet door, then remove the terminal block cover from its slot to expose the AC terminal block.
3. Unplug the fuse holder and replace the existing fuse with a new fuse of the same type and size.
4. Plug the fuse holder into the AC terminal block and insert the terminal block cover into its slot.
5. Switch on the circuit breaker that supplies mains AC power to the control panel.

Using HyperTerminal

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 > Programs > Accessories > Hyperterminal).

Note: HyperTerminal Professional Edition is available free of charge for personal use. You can download HyperTerminal Professional Edition from the Internet at http://www.hilgraeve.com.

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 and the revisions report provide 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 to somewhere other than the default location, click the Browse button, navigate to the desired location, then name the file.
3. Click Start.
4. From the Control/Display Unit, log on using the level 3 password.
5. From the main menu, choose Reports, then choose the report you want captured.
6. On the Print Output menu, choose Printer to send the report to HyperTerminal.
7. Wait until the report transfer is complete.
8. On the Transfer menu, click Capture Text, and then Stop.

Appendix A

System calculations

Summary

This appendix provides worksheets for sizing standby batteries, and for calculating the maximum wire lengths for notification appliance circuits and intelligent addressable loops.

Content

Notification appliance circuit maximum wire length

Use the worksheet below to determine the maximum wire length of a notification appliance circuit.

Maximum line loss [1]		1.5	V
	×	1,000	
		1,500	
Wire resistance per 1000 ft/pair [2]	÷		Ω
Total operating current required [3]	÷		A
Maximum wire length			ft

Notes

[1] For worst case estimates, use a maximum line loss of 1.5 volts and assume all appliances are clustered at the end of the circuit

[2] Use 3.5 for 12 AWG and 2.5 sq mm wire, 5.2 for 14 AWG and 1.5 sq mm wire, 8.0 for 16 AWG and 1.0 sq mm wire, and 13.0 for 18 AWG and 0.75 sq mm wire

[3] Use the filtered 20 Vdc Average Operating Current ratings found on the installation or catalog sheet for each device

Intelligent addressable loop maximum wire length

Use the instructions provided below to calculate the maximum wire length of an intelligent addressable 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 an intelligent addressable 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 A-1.

		500,000	pF
Cable capacitance	÷		pF/ft
Total wire			ft

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

Wire type	18 AWG or 0.75 mm^2	16 AWG or 1.0 mm^2	14 AWG or 1.5 mm^2
Twisted pair, nonshielded 25 pF/36 pF/38 pF	20,000 ft (6096 m)	13,888 ft (4233 m)	13,157 ft (4010 m)
Twisted pair, shielded 58 pF/82 pF/84 pF	8,621 ft (2628 m)	6,098 ft (1859 m)	5,952 ft (1814 m)
Nontwisted pair, nonshielded 20 pF/20 pF/20 pF	20,000 ft (6096 m)	20,000 ft (6096 m)	20,000 ft (6096 m)

Step 2: Longest path

Use Table A-2 through Table A-5 to determine the intelligent addressable loop's longest circuit path. The longest circuit path is based on wire size and type, and the number of detectors, modules, GSA–UMs or GSA–MABs installed on the loop.

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)

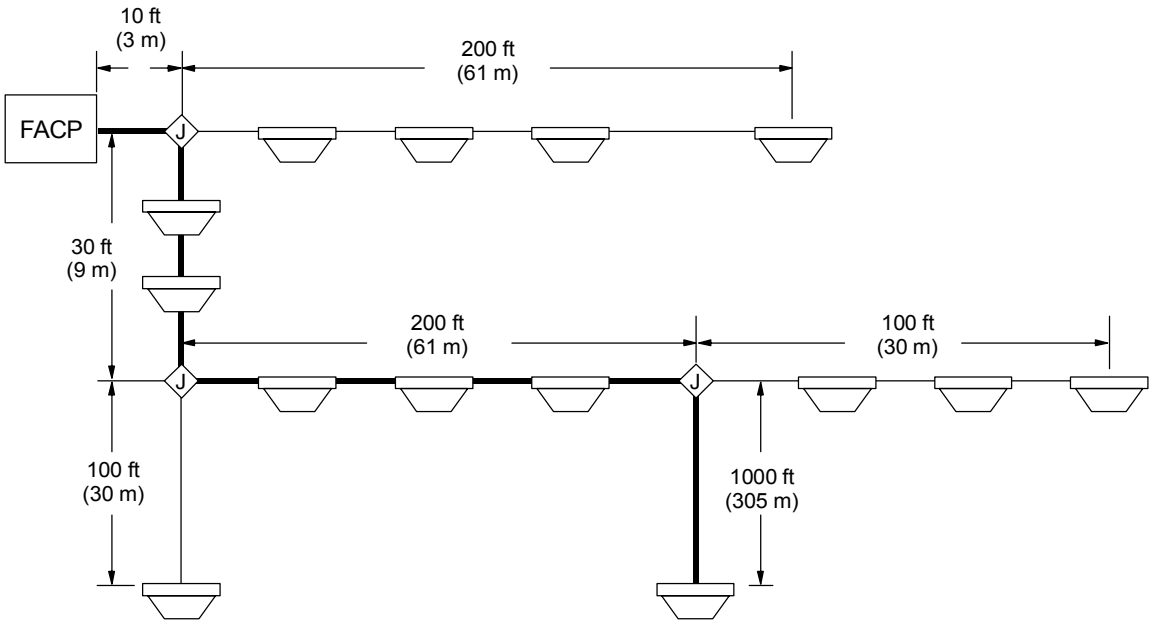

10 ft
(3 m)
200 ft
(61 m)
FACP
J
30 ft
(9 m)
200 ft
(61 m)
100 ft
(30 m)
J
J
100 ft
(30 m)
1000 ft
(305 m)

Table A-2: Longest allowable circuit path with 0 GSA-UMs or GSA-MABs configured for 2-wire smoke detectors

Detector addresses	Module addresses	Maximum allowable wire distance using nontwisted, nonshielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft	m	ft	m	ft	m
1 to 25	0	7437	2267	11815	3601	18792	5728
26 to 50	0	7038	2145	11180	3408	17782	5420
51 to 75	0	6638	2023	10545	3214	16772	5112
76 to 100	0	6238	1901	9910	3021	15762	4804
101 to 125	0	5839	1780	9275	2827	14752	4497
0	1 to 25	7267	2215	11544	3519	18361	5597
1 to 25	1 to 25	6867	2093	10909	3325	17351	5289
26 to 50	1 to 25	6467	1971	10275	3132	16342	4981
51 to 75	1 to 25	6068	1849	9640	2938	15332	4673
76 to 100	1 to 25	5668	1728	9005	2745	14322	4365
101 to 125	1 to 25	5268	1606	8370	2551	13312	4057
0	26 to 50	6697	2041	10639	3243	16921	5157
1 to 25	26 to 50	6297	1919	10004	3049	15911	4850
26 to 50	26 to 50	5897	1798	9369	2856	14901	4542
51 to 75	26 to 50	5498	1676	8734	2662	13891	4234
76 to 100	26 to 50	5098	1554	8099	2469	12881	3926
101 to 125	26 to 50	4698	1432	7464	2275	11871	3618
0	51 to 75	5906	1800	9383	2860	14923	4549
1 to 25	51 to 75	5250	1600	8340	2542	13265	4043
26 to 50	51 to 75	4633	1412	7360	2243	11707	3568
51 to 75	51 to 75	4051	1235	6435	1961	10235	3120
76 to 100	51 to 75	3498	1066	5558	1694	8839	2694
101 to 125	51 to 75	2973	906	4723	1440	7512	2290
0	76 to 100	3931	1198	6245	1903	9932	3027
1 to 25	76 to 100	3404	1037	5407	1648	8601	2621
26 to 50	76 to 100	2899	883	4605	1404	7324	2232
51 to 75	76 to 100	2413	735	3833	1168	6096	1858
76 to 100	76 to 100	1945	593	3089	942	4913	1498
101 to 125	76 to 100	1493	455	2371	723	3771	1149
0	101 to 125	2631	802	4180	1274	6649	2027
1 to 25	101 to 125	2165	660	3439	1048	5470	1667
26 to 50	101 to 125	1713	522	2721	829	4328	1319
51 to 75	101 to 125	1274	388	2023	617	3218	981
76 to 100	101 to 125	847	258	1345	410	2140	652
101 to 125	101 to 125	431	131	685	209	1089	332

Table A-3: Longest allowable circuit path with 1 to 5 GSA-UMs or GSA-MABs configured for 2-wire smoke detectors

Detector addresses	Module addresses	Maximum allowable wire distance using nontwisted, nonshielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft	m	ft	m	ft	m
1 to 25	0	6778	2066	10768	3282	17126	5220
26 to 50	0	6131	1869	9741	2969	15492	4722
51 to 75	0	5501	1677	8739	2664	13899	4236
76 to 100	0	4885	1489	7760	2365	12342	3762
101 to 125	0	4282	1305	6802	2073	10819	3298
0	1 to 25	5353	1632	8504	2592	13525	4122
1 to 25	1 to 25	4720	1439	7498	2286	11926	3635
26 to 50	1 to 25	4100	1250	6513	1985	10359	3157
51 to 75	1 to 25	3491	1064	5546	1691	8821	2689
76 to 100	1 to 25	2893	882	4597	1401	7311	2228
101 to 125	1 to 25	2306	703	3663	1116	5826	1776
0	26 to 50	3776	1151	5999	1829	9542	2908
1 to 25	26 to 50	3153	961	5009	1527	7966	2428
26 to 50	26 to 50	2539	774	4034	1230	6416	1956
51 to 75	26 to 50	1935	590	3075	937	4890	1491
76 to 100	26 to 50	1340	409	2130	649	3387	1032
101 to 125	26 to 50	754	230	1197	365	1905	581
0	51 to 75	2491	759	3957	1206	6293	1918
1 to 25	51 to 75	1868	569	2967	904	4720	1439
26 to 50	51 to 75	1254	382	1992	607	3168	966
51 to 75	51 to 75	648	198	1030	314	1638	499
76 to 100	51 to 75	50	15	80	24	126	39
101 to 125	51 to 75						
0	76 to 100	1386	422	2201	671	3501	1067
1 to 25	76 to 100	760	232	1208	368	1921	586
26 to 50	76 to 100	143	44	227	69	361	110
51 to 75	76 to 100						
76 to 100	76 to 100						
101 to 125	76 to 100						
0	101 to 125						
1 to 25	101 to 125						
26 to 50	101 to 125						
51 to 75	101 to 125						
76 to 100	101 to 125						
101 to 125	101 to 125						

Table A-4: Longest allowable circuit path with 6 to 10 GSA-UMs or GSA-MABs configured for 2-wire smoke detectors

Detector addresses	Module addresses	Maximum allowable wire distance using nontwisted, nonshielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft	m	ft	m	ft	m
1 to 25	0	5045	1538	8015	2443	12748	3886
26 to 50	0	4494	1370	7139	2176	11355	3461
51 to 75	0	3950	1204	6275	1913	9981	3042
76 to 100	0	3414	1040	5423	1653	8625	2629
101 to 125	0	2884	879	4581	1396	7286	2221
0	1 to 25	4106	1252	6523	1988	10375	3162
1 to 25	1 to 25	3542	1080	5627	1715	8950	2728
26 to 50	1 to 25	2985	910	4742	1445	7542	2299
51 to 75	1 to 25	2435	742	3868	1179	6152	1875
76 to 100	1 to 25	1891	576	3004	916	4778	1456
101 to 125	1 to 25	1353	412	2150	655	3419	1042
0	26 to 50	2869	874	4557	1389	7248	2209
1 to 25	26 to 50	2296	700	3648	1112	5802	1768
26 to 50	26 to 50	1730	527	2749	838	4372	1332
51 to 75	26 to 50	1170	357	1859	567	2957	901
76 to 100	26 to 50	617	188	979	299	1558	475
101 to 125	26 to 50	68	21	108	33	172	53
0	51 to 75	1796	547	2853	869	4537	1383
1 to 25	51 to 75	1214	370	1929	588	3067	935
26 to 50	51 to 75	638	195	1014	309	1613	492
51 to 75	51 to 75	69	21	109	33	173	53
76 to 100	51 to 75						
101 to 125	51 to 75						
0	76 to 100	833	254	1323	403	2105	642
1 to 25	76 to 100	242	74	385	117	613	187
26 to 50	76 to 100						
51 to 75	76 to 100						
76 to 100	76 to 100						
101 to 125	76 to 100						
0	101 to 125						
1 to 25	101 to 125						
26 to 50	101 to 125						
51 to 75	101 to 125						
76 to 100	101 to 125						
101 to 125	101 to 125						

Table A-5: Longest allowable circuit path with 11 to 15 GSA-UMs or GSA-MABs configured for 2-wire smoke detectors

Detector addresses	Module addresses	Maximum allowable wire distance using nontwisted, nonshielded wire pairs					
		18 AWG		16 AWG		14 AWG	
		ft	m	ft	m	ft	m
1 to 25	0	3931	1198	6245	1903	9932	3027
26 to 50	0	3427	1045	5444	1659	8659	2639
51 to 75	0	2928	892	4651	1418	7397	2255
76 to 100	0	2432	741	3864	1178	6145	1873
101 to 125	0	1941	592	3083	940	4903	1495
0	1 to 25	3247	990	5158	1572	8204	2501
1 to 25	1 to 25	2722	830	4324	1318	6878	2096
26 to 50	1 to 25	2202	671	3498	1066	5563	1696
51 to 75	1 to 25	1686	514	2678	816	4259	1298
76 to 100	1 to 25	1174	358	1865	568	2966	904
101 to 125	1 to 25	666	203	1058	323	1683	513
0	26 to 50	2204	672	3502	1067	5570	1698
1 to 25	26 to 50	1664	507	2644	806	4205	1282
26 to 50	26 to 50	1129	344	1793	547	2852	869
51 to 75	26 to 50	598	182	950	289	1511	460
76 to 100	26 to 50	71	22	113	34	179	55
101 to 125	26 to 50						
0	51 to 75	1263	385	2007	612	3192	973
1 to 25	51 to 75	710	216	1128	344	1794	547
26 to 50	51 to 75	161	49	256	78	407	124
51 to 75	51 to 75						
76 to 100	51 to 75						
101 to 125	51 to 75						
0	76 to 100						
1 to 25	76 to 100						
26 to 50	76 to 100						
51 to 75	76 to 100						
76 to 100	76 to 100						
101 to 125	76 to 100						
0	101 to 125						
1 to 25	101 to 125						
26 to 50	101 to 125						
51 to 75	101 to 125						
76 to 100	101 to 125						
101 to 125	101 to 125						

Battery calculations

Use the worksheet below to determine the ampere-hour rating of the control panel's standby batteries.

	Standby current (mA)	Alarm current (mA)
Control panel (see Table A-6)		
Smoke/accessory power (see Table A-7)		
AUX 1 output [1]		
AUX 2 output		
AUX 3 output		
Loop 1 [2]		
Loop 2		
Loop 3		
Loop 4		
Total current [3]		
Operating time required	× hr	× min
		÷ 60
	+	= mAh
		× 1.2
		mAh
		÷ 1,000
Battery size [4]		**Ah**

Notes

[1] Maximum 1.5 A per AUX output

[2] For all intelligent addressable loops, obtain standby and alarm currents from loop current calculation worksheets

[3] If total standby or alarm current exceeds 6.0 A, switch part of the load to an auxiliary power supply. The auxiliary power supply must be UL/ULC listed for fire protective signaling systems.

[4] Battery size may not exceed 40 Ah for UL systems or 30 Ah for ULC systems. If the battery size is greater than 10 Ah you must use an external battery cabinet.

Table A-6: Control panel current load worksheet

Devices	Qty	Standby current (mA)	Alarm current (mA)		Qty x Standby current (mA)		Qty x Alarm current (mA)
Base panel [1]	1	199	235		199		235
LED/switch card [2]		1	1				
XGD card		1	1				
SLIC card		33	57				
ZB16-4 card		117	152				
ZA8-2 card		73	116				
DLD card		13	20				
RS-485 card		60	60				
ZR8 card [3]		11	18	+		+	
Totals (mA) [4]							

Notes

[1] Includes the PS6 card and a CPU/Display Unit and no annunciator cards

[2] Add 0.75 mA for each energized LED

[3] Add 18 mA for each energized relay

[4] Control panel current and smoke/accessory power current may not exceed 1.32 A

Table A-7: Smoke/accessory power current load worksheet

Devices	Qty	Standby current (mA)	Alarm current (mA)	Qty x Standby current (mA)	Qty x Alarm current (mA)
QSA [1]		154	166		
MIR-SRA		66	75		
LED/switch card [2]		1	1		
XGD card [3]		5	5		
CDR-3		60	100		
IOP3A		60	60		
RPM		20	20		
GSA-UM or -MAB [4]		2	17		
Totals (mA) [5]					

Notes

[1] Includes a CPU/Display Unit, an RAI card, and no annunciator cards

[2] Add 0.75 mA for each energized LED

[3] Add 6.25 mA for each energized LED if powered from the PS6 card's smoke/accessory power output

[4] Only the first GSA-UM or GSA-MAB in the alarm state draws current. The remaining ones do not.

[5] Totals may not exceed 250 mA

Appendix B

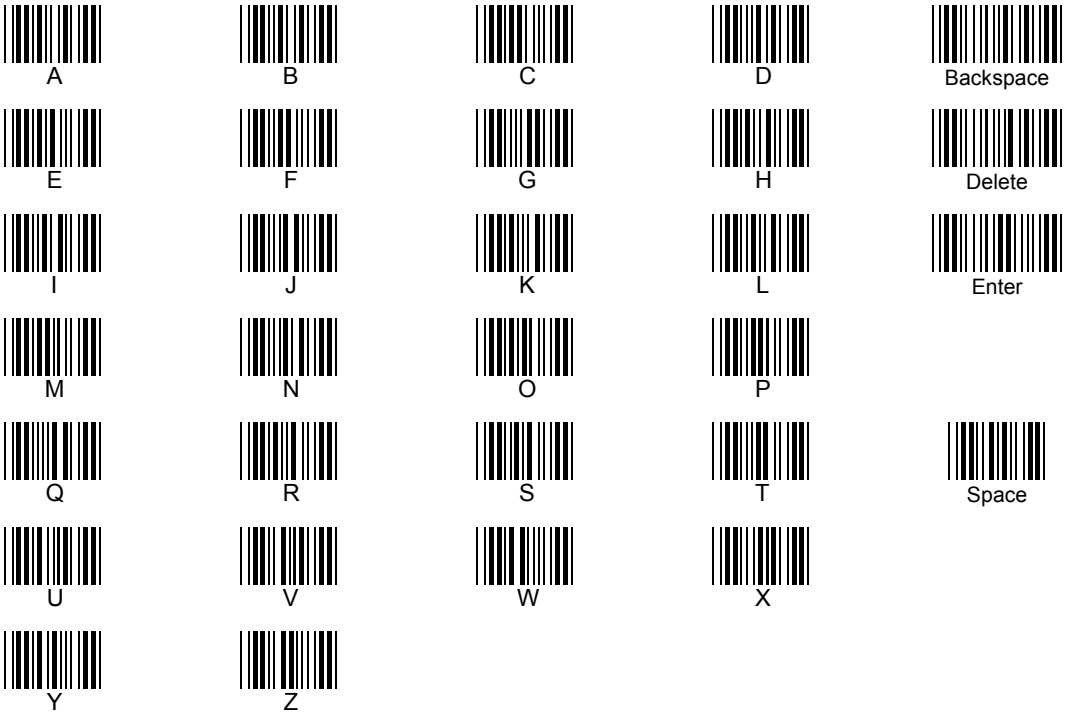
Barcode library

Summary

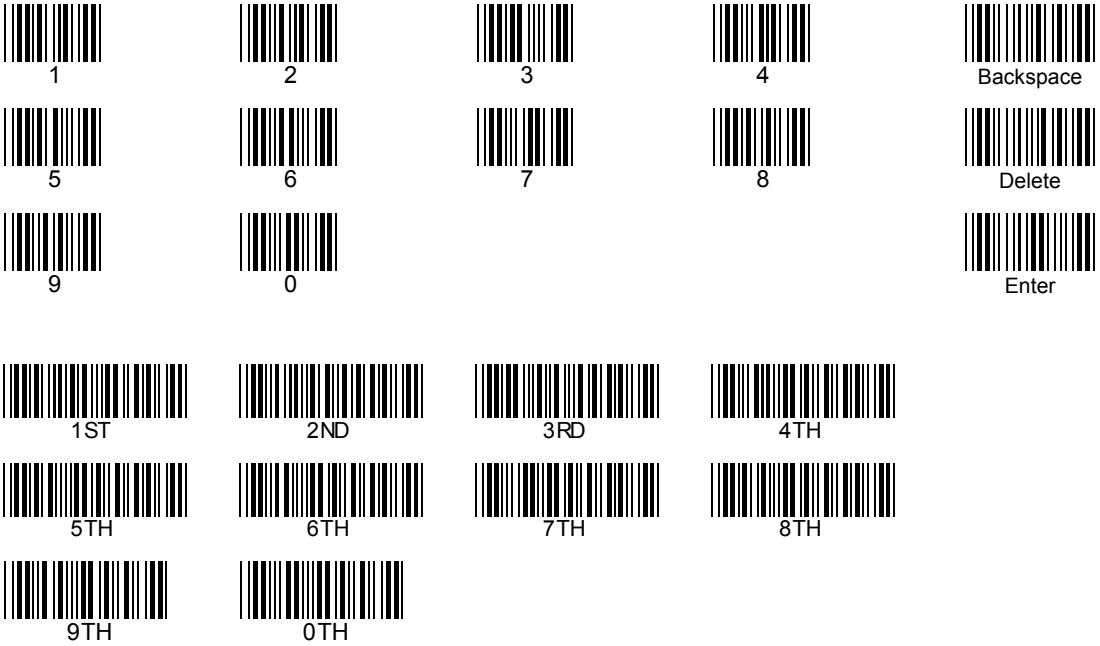
This appendix provides a set of barcodes that you can use to add location descriptions to event messages from the control panel CPU/Display Unit.

Content

Uppercase letters



Numbers and ordinals



Common words

ABORT

ABOVE

ALARM

APARTMENT

APT

AREA

ATRIUM

AUDITORIUM

BASEMENT

BELOW

CAFETERIA

CEILING

CLASSROOM

CLOSET

COMPUTER

CONFERENCE

CORRIDOR

DAMPER

DETECTOR

DOOR 

DUCT 

EAST 

ELECTRICAL 

ENTRANCE 

EXIT 

FAN 

FAULT 

FIRE 

FIRE PUMP 

FLAME 

FLOOR 

FOYER 

GARAGE 

GENERATOR 

GYM 

HALL 

HEAT 

HORN 

JANITOR 

KITCHEN 

LAB 

LEFT 

LEVEL 

LIBRARY 

LOBBY 

LOWER 

MACHINE 

MECHANICAL 

MENS 

MEZZANINE 

MONITOR 

NORTH 

OFFICE 

PARKING 

PENTHOUSE 

PULL 

RELAY 

RESTROOM 

RIGHT 

ROOM 

SECURITY 

SHAFT 

SMOKE 

SOUTH 

STAGE 

STAIRWELL 

STOCKROOM 

STORAGE 

STROBE 

SUITE 

SUPERVISORY 

TROUBLE 

UNDER 

UPPER 

UTILITY 

WAREHOUSE 

WATERFLOW 

WEST 

WOMENS 

ZONE 

Appendix C

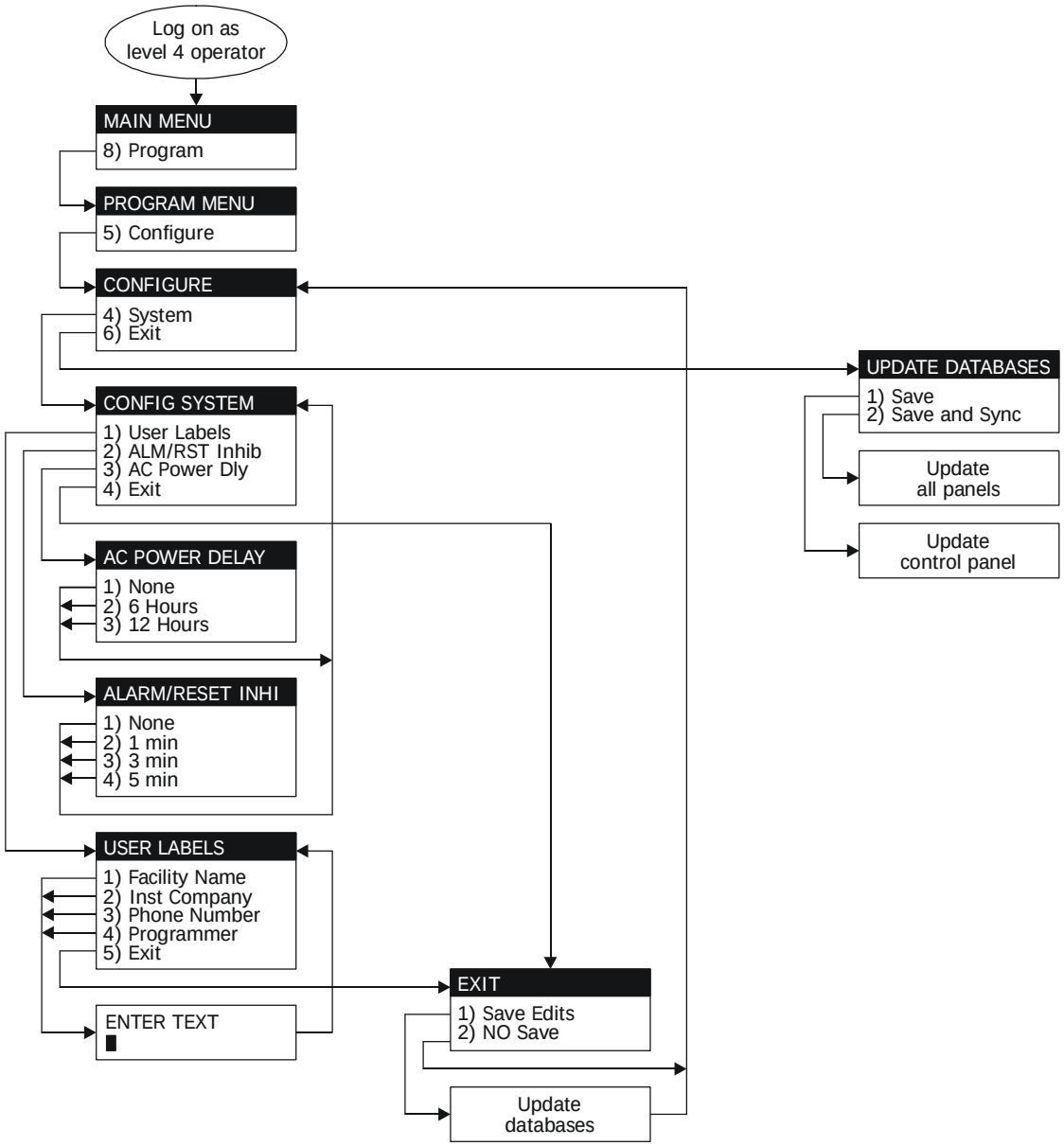
Menu flow diagrams

Summary

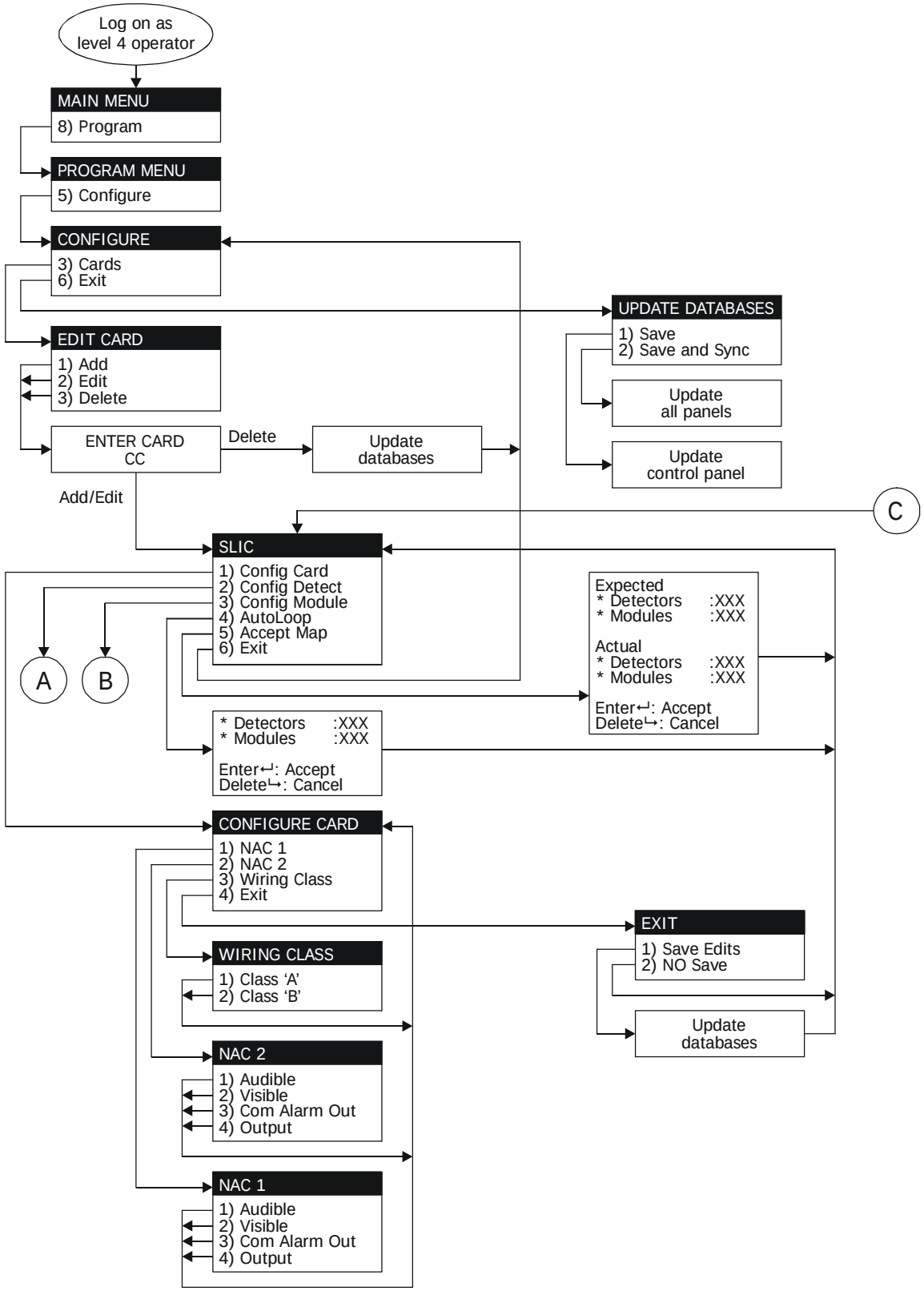
This appendix provides menu flow diagrams to use for general reference when programming the fire alarm system from the control panel CPU/Display Unit.

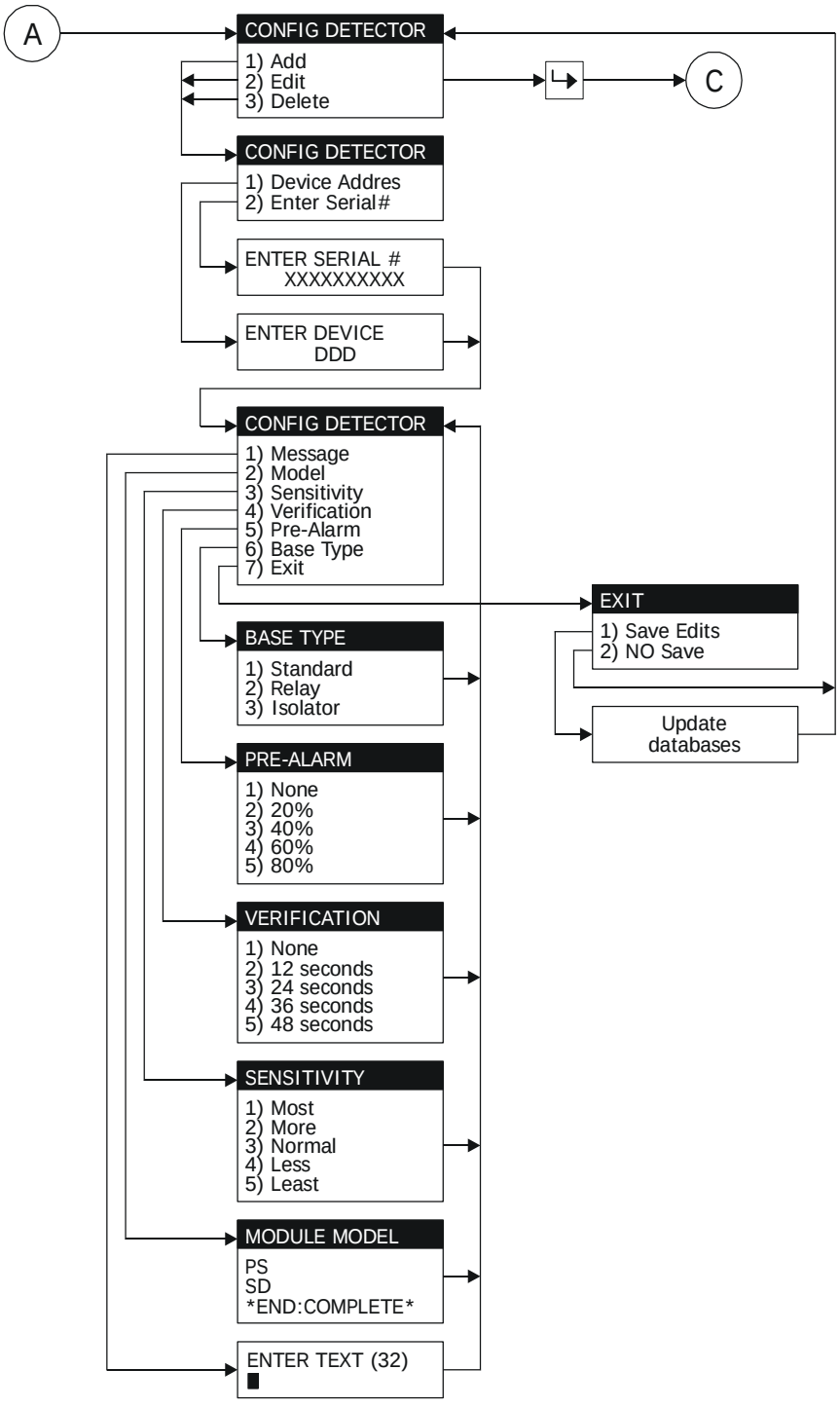
Content

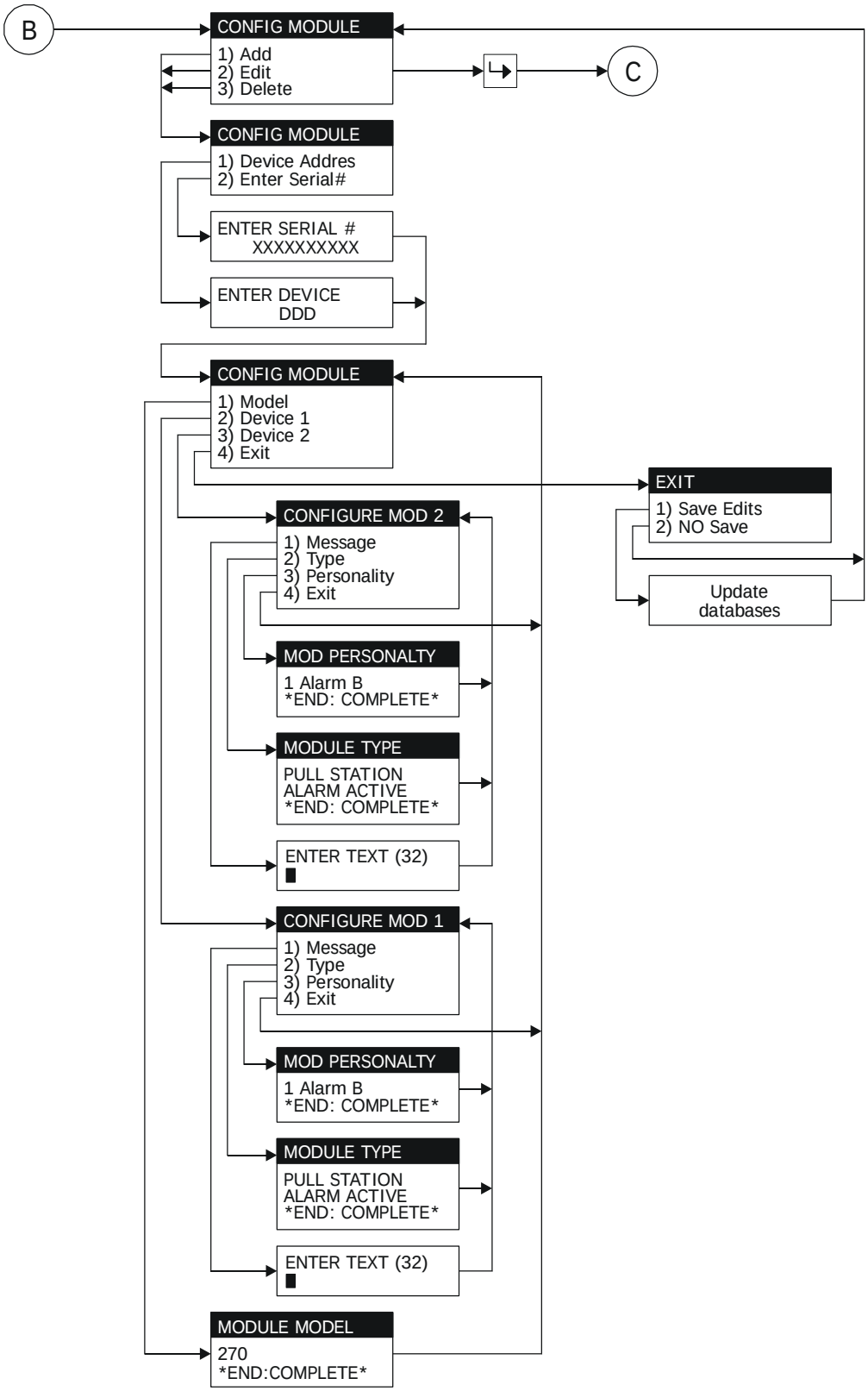
System configuration menus



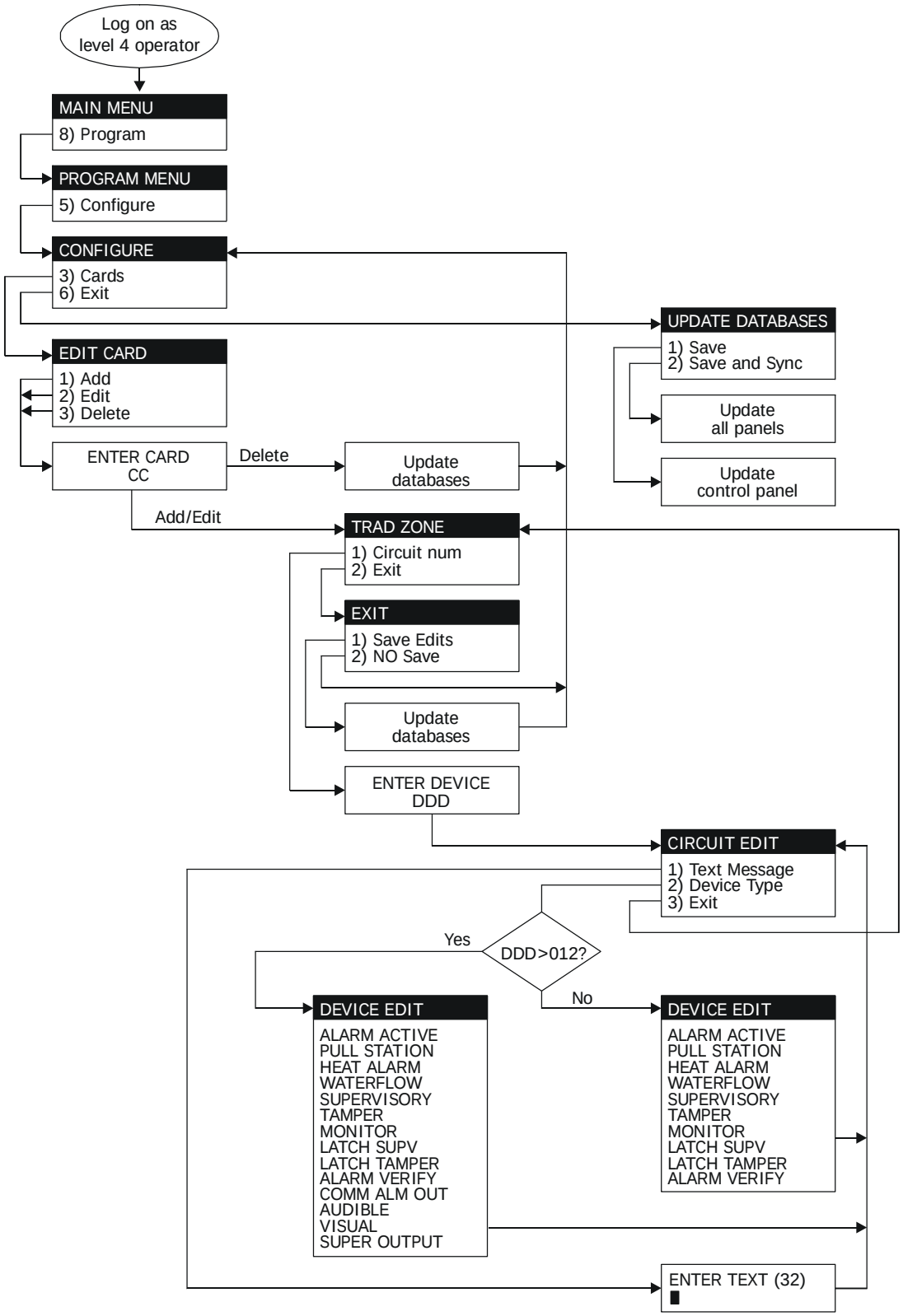
SLIC card configuration menus



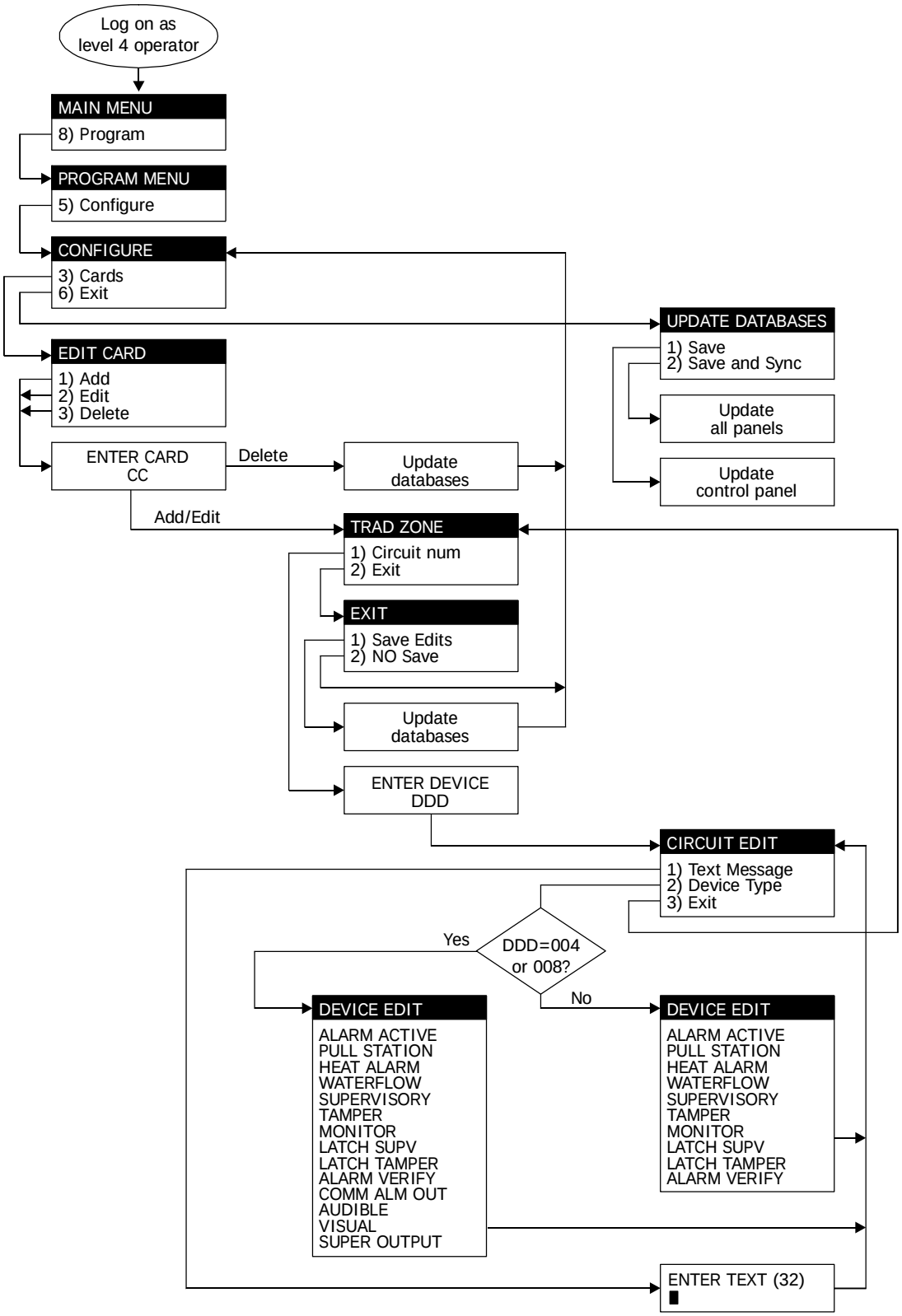

A
CONFIG DETECTOR
1) Add
2) Edit
3) Delete
C
CONFIG DETECTOR
1) Device Addres
2) Enter Serial#
ENTER SERIAL #
XXXXXXXXXX
ENTER DEVICE
DDD
CONFIG DETECTOR
1) Message
2) Model
3) Sensitivity
4) Verification
5) Pre-Alarm
6) Base Type
7) Exit
EXIT
1) Save Edits
2) NO Save
Update
databases
BASE TYPE
1) Standard
2) Relay
3) Isolator
PRE-ALARM
1) None
2) 20%
3) 40%
4) 60%
5) 80%
VERIFICATION
1) None
2) 12 seconds
3) 24 seconds
4) 36 seconds
5) 48 seconds
SENSITIVITY
1) Most
2) More
3) Normal
4) Less
5) Least
MODULE MODEL
PS
SD
END:COMPLETE
ENTER TEXT (32)


B
CONFIG MODULE
1) Add
2) Edit
3) Delete
C
CONFIG MODULE
1) Device Addres
2) Enter Serial#
ENTER SERIAL #
XXXXXXXXXX
ENTER DEVICE
DDD
CONFIG MODULE
1) Model
2) Device 1
3) Device 2
4) Exit
EXIT
1) Save Edits
2) NO Save
Update
databases
CONFIGURE MOD 2
1) Message
2) Type
3) Personality
4) Exit
MOD PERSONALTY
1 Alarm B
END: COMPLETE
MODULE TYPE
PULL STATION
ALARM ACTIVE
END: COMPLETE
ENTER TEXT (32)
CONFIGURE MOD 1
1) Message
2) Type
3) Personality
4) Exit
MOD PERSONALTY
1 Alarm B
END: COMPLETE
MODULE TYPE
PULL STATION
ALARM ACTIVE
END: COMPLETE
ENTER TEXT (32)
MODULE MODEL
270
END:COMPLETE

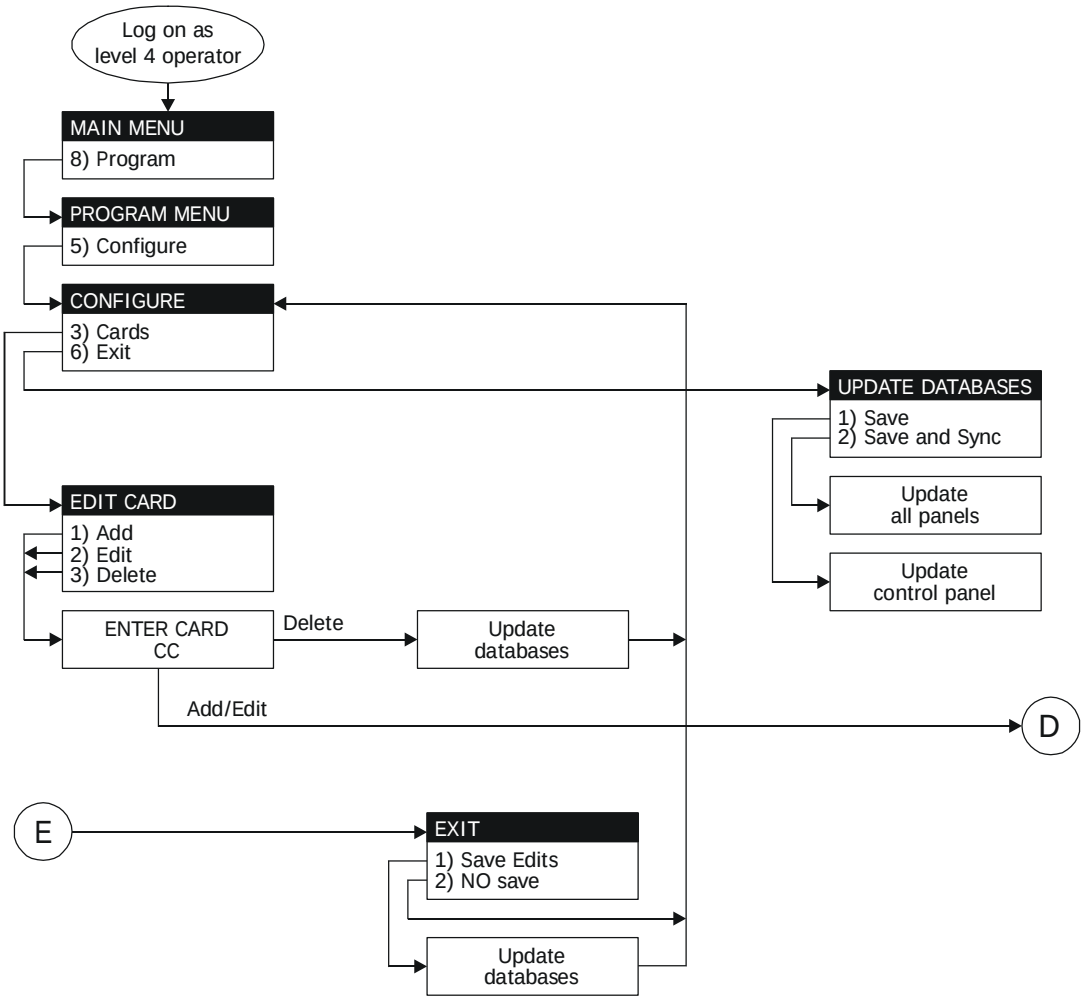
ZB16-4 card configuration menus

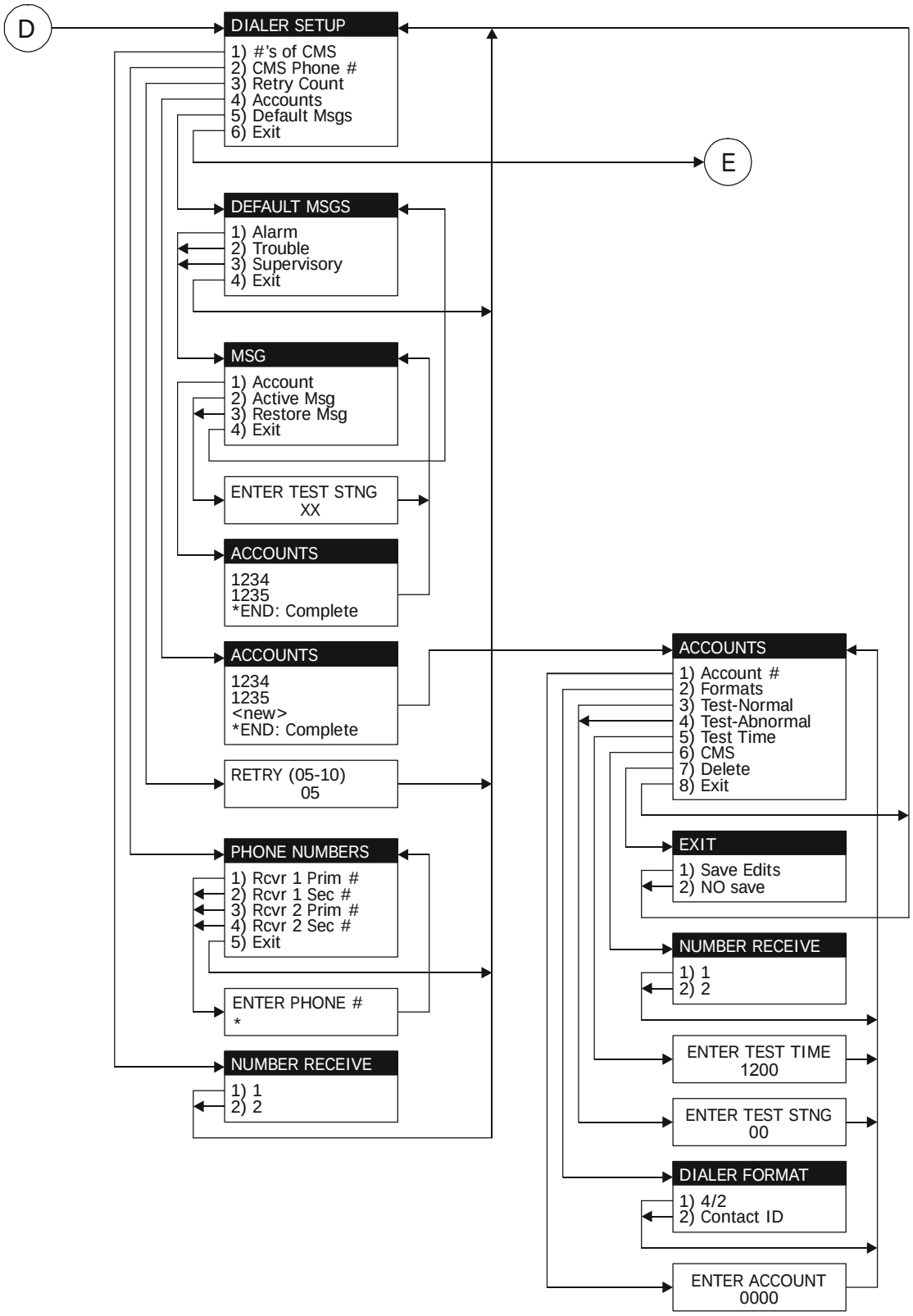


ZA8-2 card configuration menus

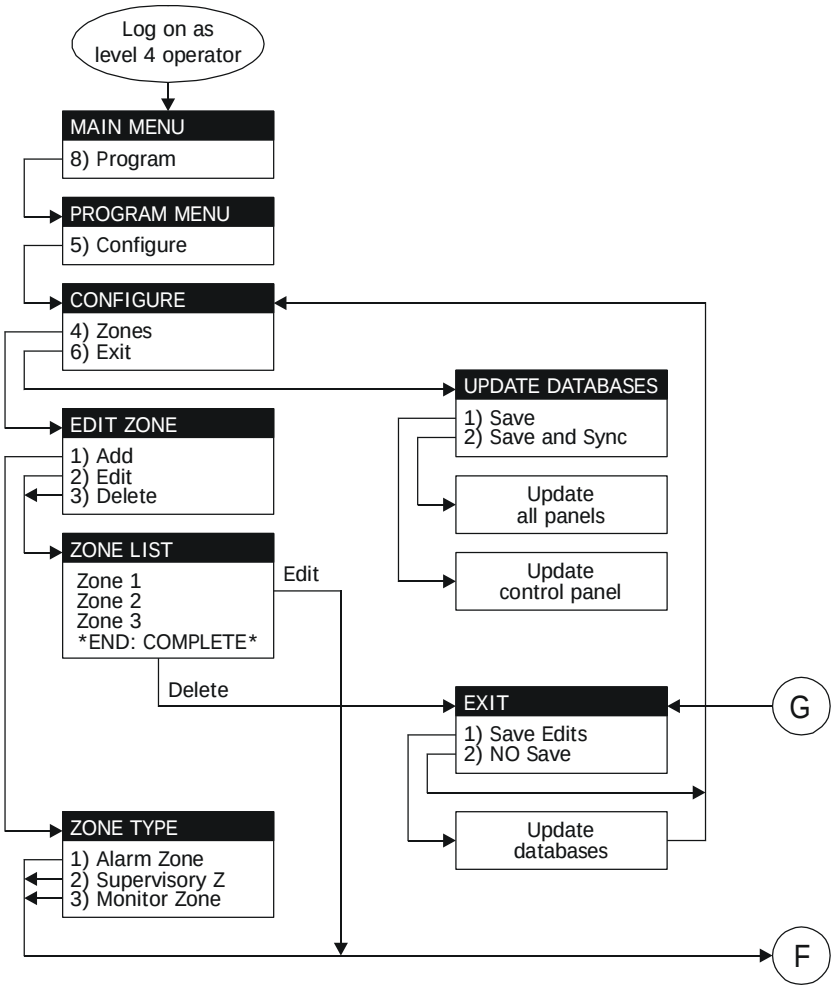


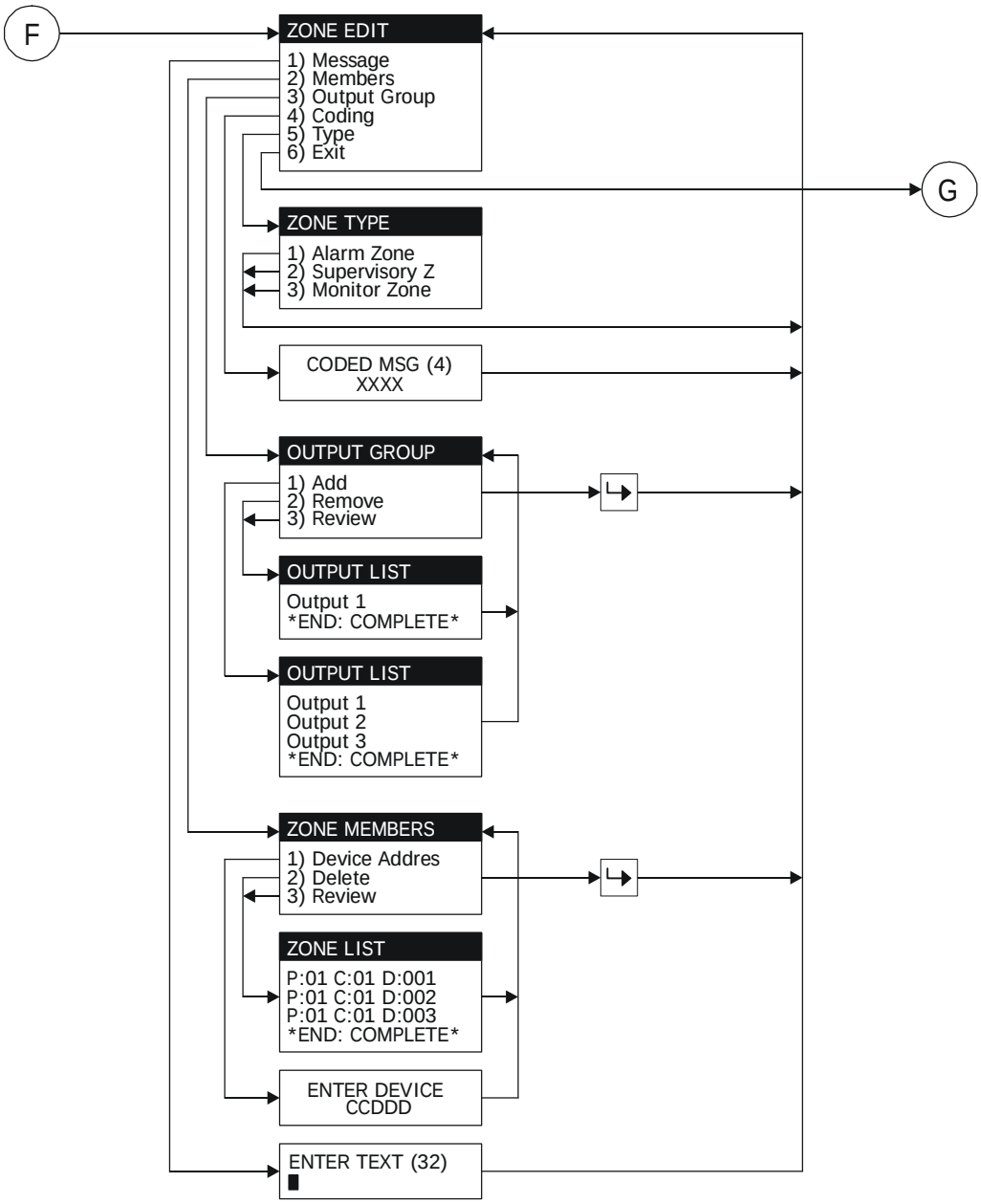
DLD card configuration menus



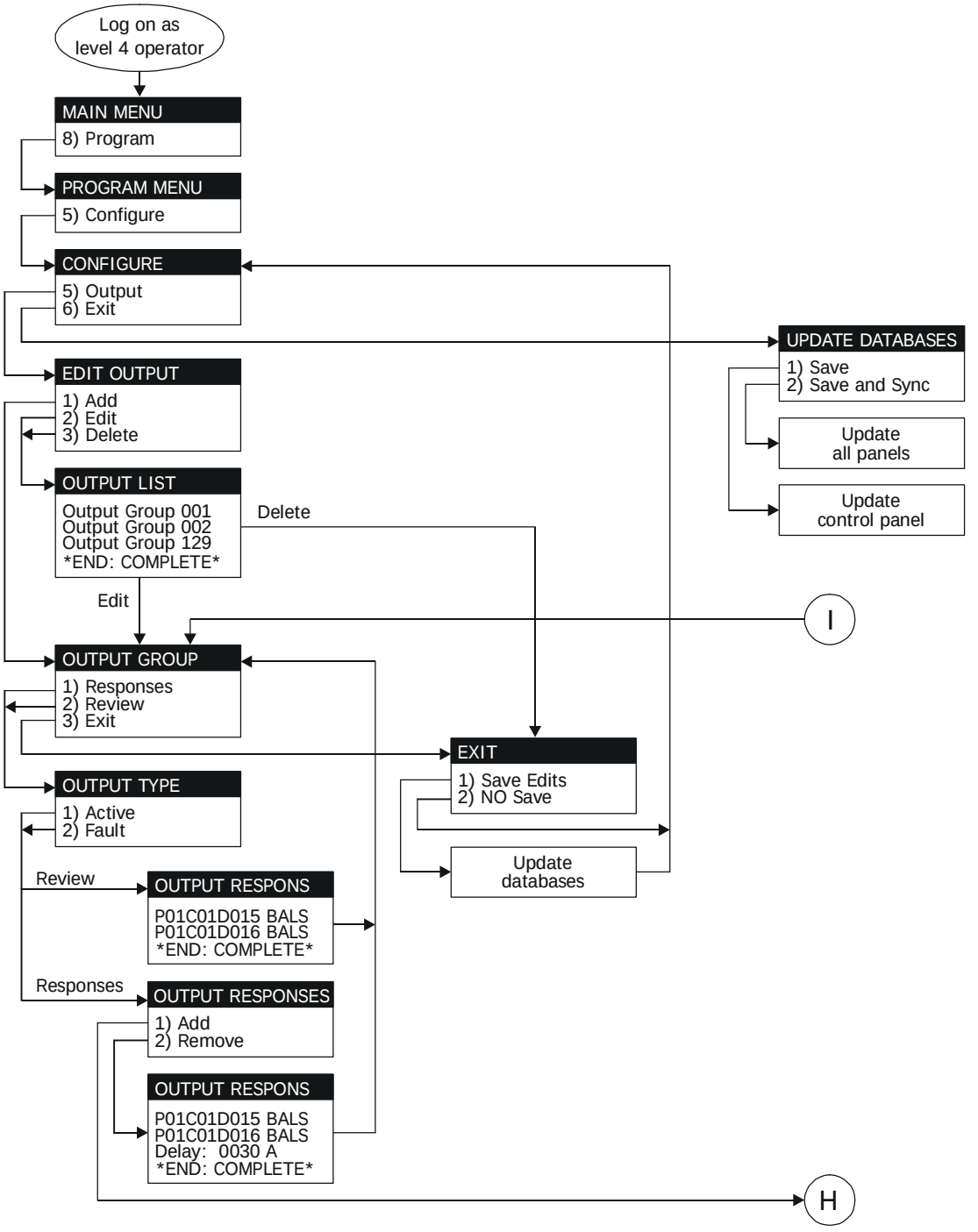

D
DIALER SETUP
1) #'s of CMS
2) CMS Phone #
3) Retry Count
4) Accounts
5) Default Msgs
6) Exit
E
DEFAULT MSGS
1) Alarm
2) Trouble
3) Supervisory
4) Exit
MSG
1) Account
2) Active Msg
3) Restore Msg
4) Exit
ENTER TEST STNG
XX
ACCOUNTS
1234
1235
*END: Complete
ACCOUNTS
1234
1235
<new>
*END: Complete
RETRY (05-10)
05
PHONE NUMBERS
1) Rcvr 1 Prim #
2) Rcvr 1 Sec #
3) Rcvr 2 Prim #
4) Rcvr 2 Sec #
5) Exit
ENTER PHONE #
*
NUMBER RECEIVE
1) 1
2) 2
ACCOUNTS
1) Account #
2) Formats
3) Test-Normal
4) Test-Abnormal
5) Test Time
6) CMS
7) Delete
8) Exit
EXIT
1) Save Edits
2) NO save
NUMBER RECEIVE
1) 1
2) 2
ENTER TEST TIME
1200
ENTER TEST STNG
00
DIALER FORMAT
1) 4/2
2) Contact ID
ENTER ACCOUNT
0000

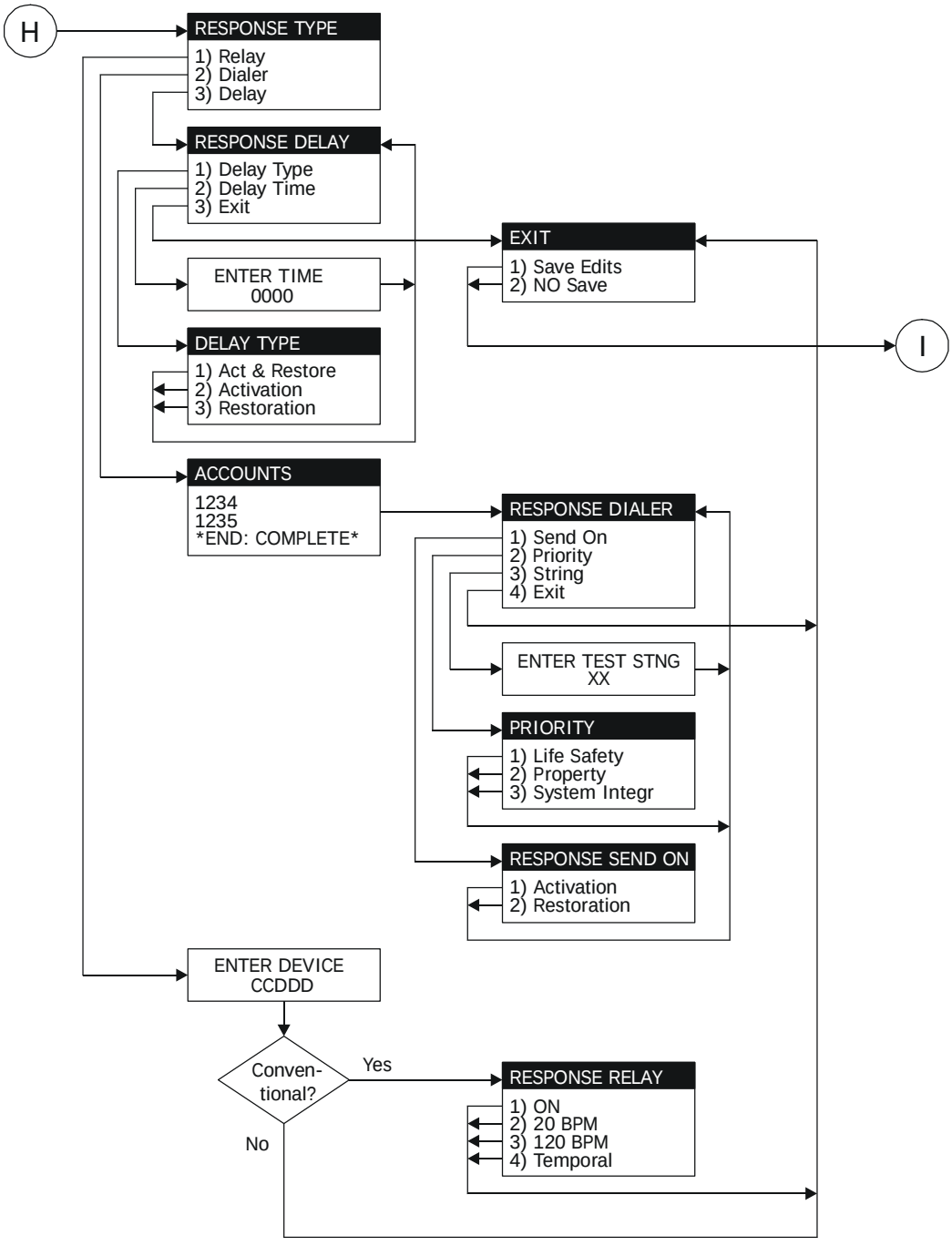
Zone configuration menus




F
ZONE EDIT
1) Message
2) Members
3) Output Group
4) Coding
5) Type
6) Exit
G
ZONE TYPE
1) Alarm Zone
2) Supervisory Z
3) Monitor Zone
CODED MSG (4)
XXXX
OUTPUT GROUP
1) Add
2) Remove
3) Review
OUTPUT LIST
Output 1
END: COMPLETE
OUTPUT LIST
Output 1
Output 2
Output 3
END: COMPLETE
ZONE MEMBERS
1) Device Addres
2) Delete
3) Review
ZONE LIST
P:01 C:01 D:001
P:01 C:01 D:002
P:01 C:01 D:003
END: COMPLETE
ENTER DEVICE
CCDDD
ENTER TEXT (32)

Output group configuration menus




H
RESPONSE TYPE
1) Relay
2) Dialer
3) Delay
RESPONSE DELAY
1) Delay Type
2) Delay Time
3) Exit
EXIT
1) Save Edits
2) NO Save
ENTER TIME
0000
I
DELAY TYPE
1) Act & Restore
2) Activation
3) Restoration
ACCOUNTS
1234
1235
END: COMPLETE
RESPONSE DIALER
1) Send On
2) Priority
3) String
4) Exit
ENTER TEST STNG
XX
PRIORITY
1) Life Safety
2) Property
3) System Integr
RESPONSE SEND ON
1) Activation
2) Restoration
ENTER DEVICE
CCDDD
Conven-
tional?
Yes
No
RESPONSE RELAY
1) ON
2) 20 BPM
3) 120 BPM
4) Temporal

Appendix D

Addresses

Summary

This appendix provides a comprehensive list of system addresses to use for general reference.

Content

System addresses

Table D-1 lists the addresses (PPCDDD) assigned to the fire alarm system.

Table D-1: System addresses

PP	CC	DDD	Description
00	00	000	Reserved
00	00	001	Startup Response pseudo point. The Startup Response pseudo point is activated when the system is started up or restarted.
00	00	002	First Alarm pseudo point. The First Alarm pseudo point is activated when the first fire alarm input is activated and is restored after all active fire alarm inputs have been restored.
00	00	003	First Supervisory pseudo point. The First Supervisory pseudo point is activated when the first supervisory input is activated and is restored after all active supervisory inputs have been restored.
00	00	004	First Trouble pseudo point. The First Trouble pseudo point is activated on the first trouble condition and is restored after all trouble conditions have been restored.
00	00	005	First Monitor pseudo point. The First Monitor pseudo point is activated when the first monitor input is activated and is restored after all active monitor inputs have been restored.
00	00	006	Drill pseudo point. The Drill pseudo point is activated when the Drill switch is pressed or a response that includes the Drill command is executed.
00	00	007	Evacuation pseudo point. The Evacuation pseudo point is activated when a response that includes the Evacuation command is executed.
00	00	008	Alarm Silence pseudo point. The Alarm Silence pseudo point is activated when the Alarm Silence switch is pressed or a response that includes the Alarm Silence command is executed.
00	00	009	Two Stage Expiration pseudo point. The Two Stage Expiration pseudo point is activated when the two-stage timer has expired.
00	00	010	Reset pseudo point. The Reset pseudo point is activated when the Reset switch is pressed.
00	00	011	Reset Phase 1 pseudo point. The Reset Phase 1 pseudo point is activated during the first phase of the Reset function.
00	00	012	Reset Phase 2 pseudo point. The Reset Phase 2 pseudo point is activated during the second phase of the Reset function.
00	00	013	Reset Phase 3 pseudo point. The Reset Phase 3 pseudo point is activated during the third phase of the Reset function.
00	00	014	First Disable pseudo point. The First Disable pseudo point is activated when the first point is disabled and is restored after all disabled points are enabled.

Table D-1: System addresses

PP	CC	DDD	Description
00	00	015	First Test pseudo point. The First Test pseudo point is activated when a service group test is active.
00	00	016	Two Stage Timer Started pseudo point. The Two Stage Timer Started pseudo point is activated when the first fire alarm input is activated and remains active until the two-stage timer expires or a second fire alarm input is activated.
00	00	017	User Trouble pseudo point. The User Trouble pseudo point is activated when a response that includes the Force Trouble command is executed.
00	00	018	Delayed Output pseudo point. The Delayed Output pseudo point is activated when a response that includes the Cancel Delay command is executed.
00	16	001 – XXX	LED/switch cards. See Table D-10 through Table D-25
00	17	001 – 480	Zones
00	18	001 – 016	AND groups
00	19	001 – 064	Matrix groups
00	20	001 – 129	Service groups
00	21	001 – 032	Time controls
00	21	248 – 255	Dialer subscriber account self-test time controls
00	22	001 – 250	Output groups
01	00	001 – 033	Control panel’s CPU card. See Table D-2.
01	01 – 13	000 – XXX	Option cards. See Table D-5, Table D-6, Table D-7, and Table D-8.
01	14	000 – 016	DLD card. See Table D-9.
01	15	000 – 024	Power supply card. See Table D-4.
02	00	001 – 033	Remote annunciator 1’s CPU card. See Table D-2.
03	00	001 – 033	Remote annunciator 2’s CPU card. See Table D-2.
04	00	001 – 033	Remote annunciator 3’s CPU card. See Table D-2.
05	00	001 – 033	Remote annunciator 4’s CPU card. See Table D-2.
06	00	001 – 033	Remote annunciator 5’s CPU card. See Table D-2.
07	00	001 – 033	Remote annunciator 6’s CPU card. See Table D-2.
08	00	001 – 033	Remote annunciator 7’s CPU card. See Table D-2.
09	00	001 – 033	Remote annunciator 8’s CPU card. See Table D-2.

Control panel CPU card addresses

Table D-2 lists the addresses (PPCCDDD) assigned to a CPU/Display Unit's CPU card. PP is the cabinet on which the CPU/Display Unit is installed (e.g., 01 for the control panel, 02 through 09 for remote annunciator panels). CC is the CPU card's address.

Table D-2: CPU card addresses

PP	CC	DDD	Description
PP	00	000	Panel PP Card Communications pseudo point. This pseudo point is activated when there is a communication failure between this CPU card and CPU card on the control panel.
PP	00	001	Panel PP Reset Extension pseudo point. This pseudo point is activated when an intelligent addressable loop requires additional time to initialize.
PP	00	002	Panel PP Service Active Trouble pseudo point. This pseudo point is activated when a service group test is canceled with a device still in the active state.
PP	00	003	Panel PP DB Incompatible pseudo point. This pseudo point is activated when there is a project database mismatch between CPU cards.
PP	00	004	Panel PP Reboot Fault pseudo point. This pseudo point is activated when there is an unexpected reboot of the system.
PP	00	005	Panel PP CH1 Communications pseudo point. This pseudo point is activated when there is a fault with the primary RS-485 transmission path (channel 1).
PP	00	006	Panel PP Task Failure pseudo point. This pseudo point is activated when there is an internal CPU process fault.
PP	00	007 – 019	Card xx Setup Mismatch pseudo point. This pseudo point is activated when the option card assigned address xx in the project database is not the same as the option card assigned address xx in the control panel.
PP	00	020	Dialer Setup Mismatch pseudo point. This pseudo point is activated when there is a problem configuring the DLD card.
PP	00	021	Power Supply Setup Mismatch pseudo point. This pseudo point indicates a problem configuring the power supply card.
PP	00	022	Panel PP LED/Switch Display pseudo point. This pseudo point indicates a problem with an LED/switch card.
PP	00	023	Panel PP CH2 Communications pseudo point. This pseudo point indicates a fault with the secondary RS-485 transmission path (channel 2).
PP	00	024	Reserved

Table D-2: CPU card addresses

PP	CC	DDD	Description
PP	00	025	Pnl PP Database Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	026	Panel PP Code Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	027	Panel PP Call for Service pseudo point. This pseudo point indicates a CPU process fault.
PP	00	028	Panel PP ROM Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	029	Panel PP RS232 Port Fault pseudo point. This pseudo point is reserved for future use.
PP	00	030	Panel PP Program Mode pseudo point. This pseudo point indicates an attempt is being made to change the project database.
PP	00	031	Panel PP Unexpected Card pseudo point. This pseudo point indicates an option card installed on the DIN rail is not defined in the project database.
PP	00	032	Panel PP Switch Latched pseudo point. This pseudo point indicates a switch is stuck in the pressed position.
01	00	034	Panel PP Loop Database pseudo point
01	00	035	Panel PP Alt. Sensitivity pseudo point
01	00	036	Panel PP Alt. Routing pseudo point

Remote annunciator CPU card addresses

Table D-2 lists the addresses assigned to a remote annunciator's CPU card. PP is the cabinet on which the CPU/Display Unit is installed (e.g., 02 through 09 for remote annunciator panels). CC is the CPU card's address.

Table D-3: Remote annunciator CPU card addresses

PP	CC	DDD	Description
PP	00	000	Annunciator PP Communications pseudo point. This pseudo point is activated when there is a communication failure between this CPU card and CPU card on the control panel.
PP	00	001	Annunciator PP Reset Extension pseudo point. This pseudo point is activated when an intelligent addressable loop requires additional time to initialize.
PP	00	002	Ann PP Service Active Trouble pseudo point. This pseudo point is activated when a service group test is canceled with one of its devices still in the active state.
PP	00	003	Ann PP Database Incompatible pseudo point. This pseudo point is activated when the project database has been revised and not updated on this CPU card.
PP	00	004	Annunciator PP Reboot Fault pseudo point. This pseudo point indicates an unexpected reboot of the system.
PP	00	005	Ann PP CH1 Communications pseudo point. This pseudo point indicates a fault with the primary RS-485 transmission path (channel 1).
PP	00	006	Annunciator PP Task Failure pseudo point. This pseudo point indicates an internal CPU process fault.
PP	00	022	Ann PP, LED/Switch Display pseudo point. This pseudo point indicates a problem with an LED/switch card.
PP	00	023	Ann PP, CH2 Communications pseudo point. This pseudo point indicates a fault with the secondary RS-485 transmission path (channel 2).
PP	00	025	Ann PP Database Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	026	Ann PP Code Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	027	Ann PP, Call for Service pseudo point. This pseudo point indicates a CPU process fault.
PP	00	028	Ann PP ROM Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP	00	029	Ann PP RS232 Port Fault pseudo point. This pseudo point is reserved for future use.

Table D-3: Remote annunciator CPU card addresses

PP	CC	DDD	Description
PP	00	030	Ann PP Program Mode pseudo point. This pseudo point indicates an attempt is being made to change the project database.
PP	00	032	Ann PP Switch Latched pseudo point. This pseudo point indicates a switch is stuck in the pressed position.
PP	00	033	Annunciator PP Power Fault pseudo point. This pseudo point indicates 24 Vdc is missing on a repeater panel's secondary power input terminals.
01	00	035	Panel PP Alt. Sensitivity pseudo point
01	00	036	Panel PP Alt. Routing pseudo point

PS6 card addresses

Table D-4 lists the addresses assigned to a PS6 card. PP is the cabinet in which the PS6 card resides (e.g., 01 for the control panel). CC is the PS6 card's address.

Table D-4: PS6 card addresses

PP	CC	DDD	Description
01	15	000	Card 15 Communications pseudo point. This pseudo point indicates a communication failure between the PS6 card and the CPU card.
01	15	001	Battery Charger Fault pseudo point. This pseudo point indicates the battery circuit charging voltage is below 20.4 Vdc.
01	15	002	Battery Wiring or Battery Fault pseudo point. This pseudo point indicates the battery voltage is below 20.4 Vdc.
01	15	003	AUX Power 1/2 Shorted pseudo point. This pseudo point indicates a short on AUX1 or AUX2.
01	15	004	Thermal Fault pseudo point. Reserved for future use.
01	15	005	AUX Power 3 Shorted pseudo point. This pseudo point indicates a short on AUX3.
01	15	006	Smoke Power Shorted pseudo point. This pseudo point indicates when the smoke/accessory power output is shorted.
01	15	007	Primary AC Power Failure pseudo point. This pseudo point indicates that the control panel has lost mains power.
01	15	008	Excessive Battery Current pseudo point. This pseudo point indicates an over current condition while operating on standby power.
01	15	009	Check System Wiring pseudo point. This pseudo point indicates the presence of an earth ground fault in the system wiring.
01	15	010	Power Supply RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	15	011	Power Supply ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	15	012	Power Supply EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	15	013 – 020	Reserved
01	15	021	Power Supply User Relay (programmable)
01	15	022	Power Supply Fault Relay (not programmable)
01	15	023	Power Supply Supv Relay (not programmable)
01	15	024	Power Supply Alarm Relay (not programmable)

SLIC card addresses

Table D-5 lists the addresses assigned to a SLIC card. PP is the cabinet in which the SLIC card resides (e.g., 01 for the control panel). CC is the card address as determined by the SLIC card's address switch.

Table D-5: SLIC card addresses

PP	CC	DDD	Description
01	CC	000	Card CC Communications pseudo point. Indicates a communication failure between the SLIC card and the CPU card
01	CC	001 – 125	Intelligent addressable detectors
01	CC	126 – 250	Intelligent addressable modules
01	CC	251	Card CC, Loop Wiring Problem pseudo point. Indicates an open or short on the loop.
01	CC	252	Card CC Map Fault pseudo point. Indicates a map fault.
01	CC	253	Card CC, Mapping in Progress pseudo point
01	CC	254	Card CC, Mapping Disabled pseudo point
01	CC	255	Card CC Unconfig. Device pseudo point. Indicates a device is installed on the loop that is not defined in the project database
01	CC	256	Card CC, Line Initialization pseudo point. Indicates the loop is being initialized.
01	CC	257	Card CC, Loop Ground Fault pseudo point. Indicates the SLIC card detected a ground fault on the loop wiring.
01	CC	258 - 269	Reserved
01	CC	270	NAC 1 (user defined)
01	CC	271	NAC 2 (user defined)
01	CC	272	Card CC, LIM Driver Fault pseudo point. Indicates a communication failure between the SLIC card and the LIM card.
01	CC	273	Card CC, RAM Supervision pseudo point. Indicates an internal memory fault.
01	CC	274	Card CC, ROM Supervision pseudo point. Indicates an internal memory fault.
01	CC	275	Card CC, EEPROM Supervision pseudo point. Indicates an internal memory fault.

Note: CC can be any number between 01 and 07.

ZB16-4 card addresses

Table D-6 lists the panel-card-device addresses assigned to a ZB16-4 card. PP is the cabinet in which the ZB16-4 card resides (e.g., 01 for the control panel). CC is the card address as determined by the ZB16-4 card's address switch.

Table D-6: ZB16-4 card addresses

PP	CC	DDD	Description
01	CC	000	Card CC Communications pseudo point. This pseudo point indicates a communication failure between the ZB16-4 card and the CPU card.
01	CC	001	IDC input circuit, Z1
01	CC	002	IDC input circuit, Z2
01	CC	003	IDC input circuit, Z3
01	CC	004	IDC input circuit, Z4
01	CC	005	IDC input circuit, Z5
01	CC	006	IDC input circuit, Z6
01	CC	007	IDC input circuit, Z7
01	CC	008	IDC input circuit, Z8
01	CC	009	IDC input circuit, Z9
01	CC	010	IDC input circuit, Z10
01	CC	011	IDC input circuit, Z11
01	CC	012	IDC input circuit, Z12
01	CC	013	IDC input/NAC output circuit, Z13
01	CC	014	IDC input/NAC output circuit, Z14
01	CC	015	IDC input/NAC output circuit, Z15
01	CC	016	IDC input/NAC output circuit, Z16
01	CC	017	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	018	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	019	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

Note: CC can be any number between 01 and 13.

ZA8-2 card addresses

Table D-7 lists the addresses assigned to a ZA8-2 card. PP is the cabinet in which the ZA8-2 card resides (e.g., 01 for the control panel). CC is the card address as determined by the ZA8-2 card's address switch.

Table D-7: ZA8-2 card addresses

PP	CC	DDD	Description
01	CC	000	Card CC Communications pseudo point. This pseudo point indicates a communication failure between the ZA8-2 card and the CPU card.
01	CC	001	IDC input circuit, Zone 1
01	CC	002	IDC input circuit, Zone 2
01	CC	003	IDC input circuit, Zone 3
01	CC	004	IDC input/NAC output circuit, Zone 4
01	CC	005	IDC input circuit, Zone 5
01	CC	006	IDC input circuit, Zone 6
01	CC	007	IDC input circuit, Zone 7
01	CC	008	IDC input/NAC output circuit, Zone 8
01	CC	009	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	010	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	011	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

Note: CC can be any number between 01 and 13.

ZR8 card addresses

Table D-8 lists the addresses assigned to a ZR8 card. PP is the cabinet in which the ZR8 card resides (e.g., 01 for the control panel). CC is the card address as determined by the ZR8 card's address switch.

Table D-8: ZR8 card addresses

PP	CC	DDD	Description
01	CC	000	Card CC Communications pseudo point. This pseudo point indicates a communication failure between the ZR8 card and the CPU card.
01	CC	001	Relay circuit R1
01	CC	002	Relay circuit R2
01	CC	003	Relay circuit R3
01	CC	004	Relay circuit R4
01	CC	005	Relay circuit R5
01	CC	006	Relay circuit R6
01	CC	007	Relay circuit R7
01	CC	008	Relay circuit R8
01	CC	009	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	010	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	CC	011	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

Note: CC can be any number between 01 and 13.

DLD card addresses

Table D-9 lists the addresses assigned to a DLD card. PP is the cabinet in which the DLD card resides (e.g., 01 for the control panel). CC is the DLD card's address.

Table D-9: DLD card addresses

PP	CC	DDD	Description
01	14	000	Card 14. This pseudo point indicates a communication failure between the DLD card and the CPU card.
01	14	001	Primary Phone Line:Check TELCO
01	14	002	Secondary Phone Line:Check TELCO
01	14	003	Pri. Receiver Failed to answer
01	14	004	Sec. Receiver Failed to answer
01	14	005	Dialer Account 1 Fault
01	14	006	Dialer Account 2 Fault
01	14	007	Dialer Account 3 Fault
01	14	008	Dialer Account 4 Fault
01	14	009	Dialer Account 5 Fault
01	14	010	Dialer Account 6 Fault
01	14	011	Dialer Account 7 Fault
01	14	012	Dialer Account 8 Fault
01	14	013	Dialer Card, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	14	014	Dialer, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	14	015	Dialer, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01	14	16	Dialer, Queue overflow

LED/switch card addresses

Table D-10 through Table D-25 list the addresses assigned to an LED/switch card. LED/switch card addresses vary according to the annunciator card group to which the LED/switch card is assigned. There are 16 possible annunciator card groups.

Note: Each point on an LED/switch card has a group-switch-LED address (GGSSL) and a panel-card-device address (PPCCDDD).

Table D-10: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	01	01	n/a	00	16	001
	Alarm (red) LED	01	01	1	00	16	001
	Active (yellow) LED	01	01	2	00	16	002
	Trouble (yellow) LED	01	01	3	00	16	003
2	Switch	01	02	n/a	00	16	004
	Alarm (red) LED	01	02	1	00	16	004
	Active (yellow) LED	01	02	2	00	16	005
	Trouble (yellow) LED	01	02	3	00	16	006
3	Switch	01	03	n/a	00	16	007
	Alarm (red) LED	01	03	1	00	16	007
	Active (yellow) LED	01	03	2	00	16	008
	Trouble (yellow) LED	01	03	3	00	16	009
4	Switch	01	04	n/a	00	16	010
	Alarm (red) LED	01	04	1	00	16	010
	Active (yellow) LED	01	04	2	00	16	011
	Trouble (yellow) LED	01	04	3	00	16	012
5	Switch	01	05	n/a	00	16	013
	Alarm (red) LED	01	05	1	00	16	013
	Active (yellow) LED	01	05	2	00	16	014
	Trouble (yellow) LED	01	05	3	00	16	015
6	Switch	01	06	n/a	00	16	016
	Alarm (red) LED	01	06	1	00	16	016
	Active (yellow) LED	01	06	2	00	16	017
	Trouble (yellow) LED	01	06	3	00	16	018
7	Switch	01	07	n/a	00	16	019
	Alarm (red) LED	01	07	1	00	16	019

Table D-10: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	01	07	2	00	16	020
	Trouble (yellow) LED	01	07	3	00	16	021
8	Switch	01	08	n/a	00	16	022
	Alarm (red) LED	01	08	1	00	16	022
	Active (yellow) LED	01	08	2	00	16	023
	Trouble (yellow) LED	01	08	3	00	16	024
9	Switch	01	09	n/a	00	16	025
	Alarm (red) LED	01	09	1	00	16	025
	Active (yellow) LED	01	09	2	00	16	026
	Trouble (yellow) LED	01	09	3	00	16	027
10	Switch	01	10	n/a	00	16	028
	Alarm (red) LED	01	10	1	00	16	028
	Active (yellow) LED	01	10	2	00	16	029
	Trouble (yellow) LED	01	10	3	00	16	030
11	Switch	01	11	n/a	00	16	031
	Alarm (red) LED	01	11	1	00	16	031
	Active (yellow) LED	01	11	2	00	16	032
	Trouble (yellow) LED	01	11	3	00	16	033
12	Switch	01	12	n/a	00	16	034
	Alarm (red) LED	01	12	1	00	16	034
	Active (yellow) LED	01	12	2	00	16	035
	Trouble (yellow) LED	01	12	3	00	16	036
13	Switch	01	13	n/a	00	16	037
	Alarm (red) LED	01	13	1	00	16	037
	Active (yellow) LED	01	13	2	00	16	038
	Trouble (yellow) LED	01	13	3	00	16	039
14	Switch	01	14	n/a	00	16	040
	Alarm (red) LED	01	14	1	00	16	040
	Active (yellow) LED	01	14	2	00	16	041
	Trouble (yellow) LED	01	14	3	00	16	042
15	Switch	01	15	n/a	00	16	043
	Alarm (red) LED	01	15	1	00	16	043
	Active (yellow) LED	01	15	2	00	16	044

Table D-10: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	01	15	3	00	16	045
16	Switch	01	16	n/a	00	16	046
	Alarm (red) LED	01	16	1	00	16	046
	Active (yellow) LED	01	16	2	00	16	047
	Trouble (yellow) LED	01	16	3	00	16	048
17	Switch	01	17	n/a	00	16	049
	Alarm (red) LED	01	17	1	00	16	049
	Active (yellow) LED	01	17	2	00	16	050
	Trouble (yellow) LED	01	17	3	00	16	051
18	Switch	01	18	n/a	00	16	052
	Alarm (red) LED	01	18	1	00	16	052
	Active (yellow) LED	01	18	2	00	16	053
	Trouble (yellow) LED	01	18	3	00	16	054
19	Switch	01	19	n/a	00	16	055
	Alarm (red) LED	01	19	1	00	16	055
	Active (yellow) LED	01	19	2	00	16	056
	Trouble (yellow) LED	01	19	3	00	16	057
20	Switch	01	20	n/a	00	16	058
	Alarm (red) LED	01	20	1	00	16	058
	Active (yellow) LED	01	20	2	00	16	059
	Trouble (yellow) LED	01	20	3	00	16	060
21	Switch	01	21	n/a	00	16	061
	Alarm (red) LED	01	21	1	00	16	061
	Active (yellow) LED	01	21	2	00	16	062
	Trouble (yellow) LED	01	21	3	00	16	063
22	Switch	01	22	n/a	00	16	064
	Alarm (red) LED	01	22	1	00	16	064
	Active (yellow) LED	01	22	2	00	16	065
	Trouble (yellow) LED	01	22	3	00	16	066
23	Switch	01	23	n/a	00	16	067
	Alarm (red) LED	01	23	1	00	16	067
	Active (yellow) LED	01	23	2	00	16	068
	Trouble (yellow) LED	01	23	3	00	16	069

Table D-10: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
24	Switch	01	24	n/a	00	16	070
	Alarm (red) LED	01	24	1	00	16	070
	Active (yellow) LED	01	24	2	00	16	071
	Trouble (yellow) LED	01	24	3	00	16	072
25	Switch	01	25	n/a	00	16	073
	Alarm (red) LED	01	25	1	00	16	073
	Active (yellow) LED	01	25	2	00	16	074
	Trouble (yellow) LED	01	25	3	00	16	075
26	Switch	01	26	n/a	00	16	076
	Alarm (red) LED	01	26	1	00	16	076
	Active (yellow) LED	01	26	2	00	16	077
	Trouble (yellow) LED	01	26	3	00	16	078
27	Switch	01	27	n/a	00	16	079
	Alarm (red) LED	01	27	1	00	16	079
	Active (yellow) LED	01	27	2	00	16	080
	Trouble (yellow) LED	01	27	3	00	16	081
28	Switch	01	28	n/a	00	16	082
	Alarm (red) LED	01	28	1	00	16	082
	Active (yellow) LED	01	28	2	00	16	083
	Trouble (yellow) LED	01	28	3	00	16	084
29	Switch	01	29	n/a	00	16	085
	Alarm (red) LED	01	29	1	00	16	085
	Active (yellow) LED	01	29	2	00	16	086
	Trouble (yellow) LED	01	29	3	00	16	087
30	Switch	01	30	n/a	00	16	088
	Alarm (red) LED	01	30	1	00	16	088
	Active (yellow) LED	01	30	2	00	16	089
	Trouble (yellow) LED	01	30	3	00	16	090

Table D-11: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	02	01	n/a	00	16	091
	Alarm (red) LED	02	01	1	00	16	091

Table D-11: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	02	01	2	00	16	092
	Trouble (yellow) LED	02	01	3	00	16	093
2	Switch	02	02	n/a	00	16	094
	Alarm (red) LED	02	02	1	00	16	094
	Active (yellow) LED	02	02	2	00	16	095
	Trouble (yellow) LED	02	02	3	00	16	096
3	Switch	02	03	n/a	00	16	097
	Alarm (red) LED	02	03	1	00	16	097
	Active (yellow) LED	02	03	2	00	16	098
	Trouble (yellow) LED	02	03	3	00	16	099
4	Switch	02	04	n/a	00	16	100
	Alarm (red) LED	02	04	1	00	16	100
	Active (yellow) LED	02	04	2	00	16	101
	Trouble (yellow) LED	02	04	3	00	16	102
5	Switch	02	05	n/a	00	16	103
	Alarm (red) LED	02	05	1	00	16	103
	Active (yellow) LED	02	05	2	00	16	104
	Trouble (yellow) LED	02	05	3	00	16	105
6	Switch	02	06	n/a	00	16	106
	Alarm (red) LED	02	06	1	00	16	106
	Active (yellow) LED	02	06	2	00	16	107
	Trouble (yellow) LED	02	06	3	00	16	108
7	Switch	02	07	n/a	00	16	109
	Alarm (red) LED	02	07	1	00	16	109
	Active (yellow) LED	02	07	2	00	16	110
	Trouble (yellow) LED	02	07	3	00	16	111
8	Switch	02	08	n/a	00	16	112
	Alarm (red) LED	02	08	1	00	16	112
	Active (yellow) LED	02	08	2	00	16	113
	Trouble (yellow) LED	02	08	3	00	16	114
9	Switch	02	09	n/a	00	16	115
	Alarm (red) LED	02	09	1	00	16	115
	Active (yellow) LED	02	09	2	00	16	116

Table D-11: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	02	09	3	00	16	117
10	Switch	02	10	n/a	00	16	118
	Alarm (red) LED	02	10	1	00	16	118
	Active (yellow) LED	02	10	2	00	16	119
	Trouble (yellow) LED	02	10	3	00	16	120
11	Switch	02	11	n/a	00	16	121
	Alarm (red) LED	02	11	1	00	16	121
	Active (yellow) LED	02	11	2	00	16	122
	Trouble (yellow) LED	02	11	3	00	16	123
12	Switch	02	12	n/a	00	16	124
	Alarm (red) LED	02	12	1	00	16	124
	Active (yellow) LED	02	12	2	00	16	125
	Trouble (yellow) LED	02	12	3	00	16	126
13	Switch	02	13	n/a	00	16	127
	Alarm (red) LED	02	13	1	00	16	127
	Active (yellow) LED	02	13	2	00	16	128
	Trouble (yellow) LED	02	13	3	00	16	129
14	Switch	02	14	n/a	00	16	130
	Alarm (red) LED	02	14	1	00	16	130
	Active (yellow) LED	02	14	2	00	16	131
	Trouble (yellow) LED	02	14	3	00	16	132
15	Switch	02	15	n/a	00	16	133
	Alarm (red) LED	02	15	1	00	16	133
	Active (yellow) LED	02	15	2	00	16	134
	Trouble (yellow) LED	02	15	3	00	16	135
16	Switch	02	16	n/a	00	16	136
	Alarm (red) LED	02	16	1	00	16	136
	Active (yellow) LED	02	16	2	00	16	137
	Trouble (yellow) LED	02	16	3	00	16	138
17	Switch	02	17	n/a	00	16	139
	Alarm (red) LED	02	17	1	00	16	139
	Active (yellow) LED	02	17	2	00	16	140
	Trouble (yellow) LED	02	17	3	00	16	141

Table D-11: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
18	Switch	02	18	n/a	00	16	142
	Alarm (red) LED	02	18	1	00	16	142
	Active (yellow) LED	02	18	2	00	16	143
	Trouble (yellow) LED	02	18	3	00	16	144
19	Switch	02	19	n/a	00	16	145
	Alarm (red) LED	02	19	1	00	16	145
	Active (yellow) LED	02	19	2	00	16	146
	Trouble (yellow) LED	02	19	3	00	16	147
20	Switch	02	20	n/a	00	16	148
	Alarm (red) LED	02	20	1	00	16	148
	Active (yellow) LED	02	20	2	00	16	149
	Trouble (yellow) LED	02	20	3	00	16	150
21	Switch	02	21	n/a	00	16	151
	Alarm (red) LED	02	21	1	00	16	151
	Active (yellow) LED	02	21	2	00	16	152
	Trouble (yellow) LED	02	21	3	00	16	153
22	Switch	02	22	n/a	00	16	154
	Alarm (red) LED	02	22	1	00	16	154
	Active (yellow) LED	02	22	2	00	16	155
	Trouble (yellow) LED	02	22	3	00	16	156
23	Switch	02	23	n/a	00	16	157
	Alarm (red) LED	02	23	1	00	16	157
	Active (yellow) LED	02	23	2	00	16	158
	Trouble (yellow) LED	02	23	3	00	16	159
24	Switch	02	24	n/a	00	16	160
	Alarm (red) LED	02	24	1	00	16	160
	Active (yellow) LED	02	24	2	00	16	161
	Trouble (yellow) LED	02	24	3	00	16	162
25	Switch	02	25	n/a	00	16	163
	Alarm (red) LED	02	25	1	00	16	163
	Active (yellow) LED	02	25	2	00	16	164
	Trouble (yellow) LED	02	25	3	00	16	165
26	Switch	02	26	n/a	00	16	166

Table D-11: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	02	26	1	00	16	166
	Active (yellow) LED	02	26	2	00	16	167
	Trouble (yellow) LED	02	26	3	00	16	168
27	Switch	02	27	n/a	00	16	169
	Alarm (red) LED	02	27	1	00	16	169
	Active (yellow) LED	02	27	2	00	16	170
	Trouble (yellow) LED	02	27	3	00	16	171
28	Switch	02	28	n/a	00	16	172
	Alarm (red) LED	02	28	1	00	16	172
	Active (yellow) LED	02	28	2	00	16	173
	Trouble (yellow) LED	02	28	3	00	16	174
29	Switch	02	29	n/a	00	16	175
	Alarm (red) LED	02	29	1	00	16	175
	Active (yellow) LED	02	29	2	00	16	176
	Trouble (yellow) LED	02	29	3	00	16	177
30	Switch	02	30	n/a	00	16	178
	Alarm (red) LED	02	30	1	00	16	178
	Active (yellow) LED	02	30	2	00	16	179
	Trouble (yellow) LED	02	30	3	00	16	180

Table D-12: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	03	01	n/a	00	16	181
	Alarm (red) LED	03	01	1	00	16	181
	Active (yellow) LED	03	01	2	00	16	182
	Trouble (yellow) LED	03	01	3	00	16	183
2	Switch	03	02	n/a	00	16	184
	Alarm (red) LED	03	02	1	00	16	184
	Active (yellow) LED	03	02	2	00	16	185
	Trouble (yellow) LED	03	02	3	00	16	186
3	Switch	03	03	n/a	00	16	187
	Alarm (red) LED	03	03	1	00	16	187
	Active (yellow) LED	03	03	2	00	16	188

Table D-12: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	03	03	3	00	16	189
4	Switch	03	04	n/a	00	16	190
	Alarm (red) LED	03	04	1	00	16	190
	Active (yellow) LED	03	04	2	00	16	191
	Trouble (yellow) LED	03	04	3	00	16	192
5	Switch	03	05	n/a	00	16	193
	Alarm (red) LED	03	05	1	00	16	193
	Active (yellow) LED	03	05	2	00	16	194
	Trouble (yellow) LED	03	05	3	00	16	195
6	Switch	03	06	n/a	00	16	196
	Alarm (red) LED	03	06	1	00	16	196
	Active (yellow) LED	03	06	2	00	16	197
	Trouble (yellow) LED	03	06	3	00	16	198
7	Switch	03	07	n/a	00	16	199
	Alarm (red) LED	03	07	1	00	16	199
	Active (yellow) LED	03	07	2	00	16	200
	Trouble (yellow) LED	03	07	3	00	16	201
8	Switch	03	08	n/a	00	16	202
	Alarm (red) LED	03	08	1	00	16	202
	Active (yellow) LED	03	08	2	00	16	203
	Trouble (yellow) LED	03	08	3	00	16	204
9	Switch	03	09	n/a	00	16	205
	Alarm (red) LED	03	09	1	00	16	205
	Active (yellow) LED	03	09	2	00	16	206
	Trouble (yellow) LED	03	09	3	00	16	207
10	Switch	03	10	n/a	00	16	208
	Alarm (red) LED	03	10	1	00	16	208
	Active (yellow) LED	03	10	2	00	16	209
	Trouble (yellow) LED	03	10	3	00	16	210
11	Switch	03	11	n/a	00	16	211
	Alarm (red) LED	03	11	1	00	16	211
	Active (yellow) LED	03	11	2	00	16	212
	Trouble (yellow) LED	03	11	3	00	16	213

Table D-12: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
12	Switch	03	12	n/a	00	16	214
	Alarm (red) LED	03	12	1	00	16	214
	Active (yellow) LED	03	12	2	00	16	215
	Trouble (yellow) LED	03	12	3	00	16	216
13	Switch	03	13	n/a	00	16	217
	Alarm (red) LED	03	13	1	00	16	217
	Active (yellow) LED	03	13	2	00	16	218
	Trouble (yellow) LED	03	13	3	00	16	219
14	Switch	03	14	n/a	00	16	220
	Alarm (red) LED	03	14	1	00	16	220
	Active (yellow) LED	03	14	2	00	16	221
	Trouble (yellow) LED	03	14	3	00	16	222
15	Switch	03	15	n/a	00	16	223
	Alarm (red) LED	03	15	1	00	16	223
	Active (yellow) LED	03	15	2	00	16	224
	Trouble (yellow) LED	03	15	3	00	16	225
16	Switch	03	16	n/a	00	16	226
	Alarm (red) LED	03	16	1	00	16	226
	Active (yellow) LED	03	16	2	00	16	227
	Trouble (yellow) LED	03	16	3	00	16	228
17	Switch	03	17	n/a	00	16	229
	Alarm (red) LED	03	17	1	00	16	229
	Active (yellow) LED	03	17	2	00	16	230
	Trouble (yellow) LED	03	17	3	00	16	231
18	Switch	03	18	n/a	00	16	232
	Alarm (red) LED	03	18	1	00	16	232
	Active (yellow) LED	03	18	2	00	16	233
	Trouble (yellow) LED	03	18	3	00	16	234
19	Switch	03	19	n/a	00	16	235
	Alarm (red) LED	03	19	1	00	16	235
	Active (yellow) LED	03	19	2	00	16	236
	Trouble (yellow) LED	03	19	3	00	16	237
20	Switch	03	20	n/a	00	16	238

Table D-12: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	03	20	1	00	16	238
	Active (yellow) LED	03	20	2	00	16	239
	Trouble (yellow) LED	03	20	3	00	16	240
21	Switch	03	21	n/a	00	16	241
	Alarm (red) LED	03	21	1	00	16	241
	Active (yellow) LED	03	21	2	00	16	242
	Trouble (yellow) LED	03	21	3	00	16	243
22	Switch	03	22	n/a	00	16	244
	Alarm (red) LED	03	22	1	00	16	244
	Active (yellow) LED	03	22	2	00	16	245
	Trouble (yellow) LED	03	22	3	00	16	246
23	Switch	03	23	n/a	00	16	247
	Alarm (red) LED	03	23	1	00	16	247
	Active (yellow) LED	03	23	2	00	16	248
	Trouble (yellow) LED	03	23	3	00	16	249
24	Switch	03	24	n/a	00	16	250
	Alarm (red) LED	03	24	1	00	16	250
	Active (yellow) LED	03	24	2	00	16	251
	Trouble (yellow) LED	03	24	3	00	16	252
25	Switch	03	25	n/a	00	16	253
	Alarm (red) LED	03	25	1	00	16	253
	Active (yellow) LED	03	25	2	00	16	254
	Trouble (yellow) LED	03	25	3	00	16	255
26	Switch	03	26	n/a	00	16	256
	Alarm (red) LED	03	26	1	00	16	256
	Active (yellow) LED	03	26	2	00	16	257
	Trouble (yellow) LED	03	26	3	00	16	258
27	Switch	03	27	n/a	00	16	259
	Alarm (red) LED	03	27	1	00	16	259
	Active (yellow) LED	03	27	2	00	16	260
	Trouble (yellow) LED	03	27	3	00	16	261
28	Switch	03	28	n/a	00	16	262
	Alarm (red) LED	03	28	1	00	16	262

Table D-12: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	03	28	2	00	16	263
	Trouble (yellow) LED	03	28	3	00	16	264
29	Switch	03	29	n/a	00	16	265
	Alarm (red) LED	03	29	1	00	16	265
	Active (yellow) LED	03	29	2	00	16	266
	Trouble (yellow) LED	03	29	3	00	16	267
30	Switch	03	30	n/a	00	16	268
	Alarm (red) LED	03	30	1	00	16	268
	Active (yellow) LED	03	30	2	00	16	269
	Trouble (yellow) LED	03	30	3	00	16	270

Table D-13: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	04	01	n/a	00	16	271
	Alarm (red) LED	04	01	1	00	16	271
	Active (yellow) LED	04	01	2	00	16	272
	Trouble (yellow) LED	04	01	3	00	16	273
2	Switch	04	02	n/a	00	16	274
	Alarm (red) LED	04	02	1	00	16	274
	Active (yellow) LED	04	02	2	00	16	275
	Trouble (yellow) LED	04	02	3	00	16	276
3	Switch	04	03	n/a	00	16	277
	Alarm (red) LED	04	03	1	00	16	277
	Active (yellow) LED	04	03	2	00	16	278
	Trouble (yellow) LED	04	03	3	00	16	279
4	Switch	04	04	n/a	00	16	280
	Alarm (red) LED	04	04	1	00	16	280
	Active (yellow) LED	04	04	2	00	16	281
	Trouble (yellow) LED	04	04	3	00	16	282
5	Switch	04	05	n/a	00	16	283
	Alarm (red) LED	04	05	1	00	16	283
	Active (yellow) LED	04	05	2	00	16	284
	Trouble (yellow) LED	04	05	3	00	16	285

Table D-13: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
6	Switch	04	06	n/a	00	16	286
	Alarm (red) LED	04	06	1	00	16	286
	Active (yellow) LED	04	06	2	00	16	287
	Trouble (yellow) LED	04	06	3	00	16	288
7	Switch	04	07	n/a	00	16	289
	Alarm (red) LED	04	07	1	00	16	289
	Active (yellow) LED	04	07	2	00	16	290
	Trouble (yellow) LED	04	07	3	00	16	291
8	Switch	04	08	n/a	00	16	292
	Alarm (red) LED	04	08	1	00	16	292
	Active (yellow) LED	04	08	2	00	16	293
	Trouble (yellow) LED	04	08	3	00	16	294
9	Switch	04	09	n/a	00	16	295
	Alarm (red) LED	04	09	1	00	16	295
	Active (yellow) LED	04	09	2	00	16	296
	Trouble (yellow) LED	04	09	3	00	16	297
10	Switch	04	10	n/a	00	16	298
	Alarm (red) LED	04	10	1	00	16	298
	Active (yellow) LED	04	10	2	00	16	299
	Trouble (yellow) LED	04	10	3	00	16	300
11	Switch	04	11	n/a	00	16	301
	Alarm (red) LED	04	11	1	00	16	301
	Active (yellow) LED	04	11	2	00	16	302
	Trouble (yellow) LED	04	11	3	00	16	303
12	Switch	04	12	n/a	00	16	304
	Alarm (red) LED	04	12	1	00	16	304
	Active (yellow) LED	04	12	2	00	16	305
	Trouble (yellow) LED	04	12	3	00	16	306
13	Switch	04	13	n/a	00	16	307
	Alarm (red) LED	04	13	1	00	16	307
	Active (yellow) LED	04	13	2	00	16	308
	Trouble (yellow) LED	04	13	3	00	16	309
14	Switch	04	14	n/a	00	16	310

Table D-13: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	04	14	1	00	16	310
	Active (yellow) LED	04	14	2	00	16	311
	Trouble (yellow) LED	04	14	3	00	16	312
15	Switch	04	15	n/a	00	16	313
	Alarm (red) LED	04	15	1	00	16	313
	Active (yellow) LED	04	15	2	00	16	314
	Trouble (yellow) LED	04	15	3	00	16	315
16	Switch	04	16	n/a	00	16	316
	Alarm (red) LED	04	16	1	00	16	316
	Active (yellow) LED	04	16	2	00	16	317
	Trouble (yellow) LED	04	16	3	00	16	318
17	Switch	04	17	n/a	00	16	319
	Alarm (red) LED	04	17	1	00	16	319
	Active (yellow) LED	04	17	2	00	16	320
	Trouble (yellow) LED	04	17	3	00	16	321
18	Switch	04	18	n/a	00	16	322
	Alarm (red) LED	04	18	1	00	16	322
	Active (yellow) LED	04	18	2	00	16	323
	Trouble (yellow) LED	04	18	3	00	16	324
19	Switch	04	19	n/a	00	16	325
	Alarm (red) LED	04	19	1	00	16	325
	Active (yellow) LED	04	19	2	00	16	326
	Trouble (yellow) LED	04	19	3	00	16	327
20	Switch	04	20	n/a	00	16	328
	Alarm (red) LED	04	20	1	00	16	328
	Active (yellow) LED	04	20	2	00	16	329
	Trouble (yellow) LED	04	20	3	00	16	330
21	Switch	04	21	n/a	00	16	331
	Alarm (red) LED	04	21	1	00	16	331
	Active (yellow) LED	04	21	2	00	16	332
	Trouble (yellow) LED	04	21	3	00	16	333
22	Switch	04	22	n/a	00	16	334
	Alarm (red) LED	04	22	1	00	16	334

Table D-13: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	04	22	2	00	16	335
	Trouble (yellow) LED	04	22	3	00	16	336
23	Switch	04	23	n/a	00	16	337
	Alarm (red) LED	04	23	1	00	16	337
	Active (yellow) LED	04	23	2	00	16	338
	Trouble (yellow) LED	04	23	3	00	16	339
24	Switch	04	24	n/a	00	16	340
	Alarm (red) LED	04	24	1	00	16	340
	Active (yellow) LED	04	24	2	00	16	341
	Trouble (yellow) LED	04	24	3	00	16	342
25	Switch	04	25	n/a	00	16	343
	Alarm (red) LED	04	25	1	00	16	343
	Active (yellow) LED	04	25	2	00	16	344
	Trouble (yellow) LED	04	25	3	00	16	345
26	Switch	04	26	n/a	00	16	346
	Alarm (red) LED	04	26	1	00	16	346
	Active (yellow) LED	04	26	2	00	16	347
	Trouble (yellow) LED	04	26	3	00	16	348
27	Switch	04	27	n/a	00	16	349
	Alarm (red) LED	04	27	1	00	16	349
	Active (yellow) LED	04	27	2	00	16	350
	Trouble (yellow) LED	04	27	3	00	16	351
28	Switch	04	28	n/a	00	16	352
	Alarm (red) LED	04	28	1	00	16	352
	Active (yellow) LED	04	28	2	00	16	353
	Trouble (yellow) LED	04	28	3	00	16	354
29	Switch	04	29	n/a	00	16	355
	Alarm (red) LED	04	29	1	00	16	355
	Active (yellow) LED	04	29	2	00	16	356
	Trouble (yellow) LED	04	29	3	00	16	357
30	Switch	04	30	n/a	00	16	358
	Alarm (red) LED	04	30	1	00	16	358
	Active (yellow) LED	04	30	2	00	16	359

Table D-13: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	04	30	3	00	16	360

Table D-14: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	05	01	n/a	00	16	361
	Alarm (red) LED	05	01	1	00	16	361
	Active (yellow) LED	05	01	2	00	16	362
	Trouble (yellow) LED	05	01	3	00	16	363
2	Switch	05	02	n/a	00	16	364
	Alarm (red) LED	05	02	1	00	16	364
	Active (yellow) LED	05	02	2	00	16	365
	Trouble (yellow) LED	05	02	3	00	16	366
3	Switch	05	03	n/a	00	16	367
	Alarm (red) LED	05	03	1	00	16	367
	Active (yellow) LED	05	03	2	00	16	368
	Trouble (yellow) LED	05	03	3	00	16	369
4	Switch	05	04	n/a	00	16	370
	Alarm (red) LED	05	04	1	00	16	370
	Active (yellow) LED	05	04	2	00	16	371
	Trouble (yellow) LED	05	04	3	00	16	372
5	Switch	05	05	n/a	00	16	373
	Alarm (red) LED	05	05	1	00	16	373
	Active (yellow) LED	05	05	2	00	16	374
	Trouble (yellow) LED	05	05	3	00	16	375
6	Switch	05	06	n/a	00	16	376
	Alarm (red) LED	05	06	1	00	16	376
	Active (yellow) LED	05	06	2	00	16	377
	Trouble (yellow) LED	05	06	3	00	16	378
7	Switch	05	07	n/a	00	16	379
	Alarm (red) LED	05	07	1	00	16	379
	Active (yellow) LED	05	07	2	00	16	380
	Trouble (yellow) LED	05	07	3	00	16	381
8	Switch	05	08	n/a	00	16	382

Table D-14: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	05	08	1	00	16	382
	Active (yellow) LED	05	08	2	00	16	383
	Trouble (yellow) LED	05	08	3	00	16	384
9	Switch	05	09	n/a	00	16	385
	Alarm (red) LED	05	09	1	00	16	385
	Active (yellow) LED	05	09	2	00	16	386
	Trouble (yellow) LED	05	09	3	00	16	387
10	Switch	05	10	n/a	00	16	388
	Alarm (red) LED	05	10	1	00	16	388
	Active (yellow) LED	05	10	2	00	16	389
	Trouble (yellow) LED	05	10	3	00	16	390
11	Switch	05	11	n/a	00	16	391
	Alarm (red) LED	05	11	1	00	16	391
	Active (yellow) LED	05	11	2	00	16	392
	Trouble (yellow) LED	05	11	3	00	16	393
12	Switch	05	12	n/a	00	16	394
	Alarm (red) LED	05	12	1	00	16	394
	Active (yellow) LED	05	12	2	00	16	395
	Trouble (yellow) LED	05	12	3	00	16	396
13	Switch	05	13	n/a	00	16	397
	Alarm (red) LED	05	13	1	00	16	397
	Active (yellow) LED	05	13	2	00	16	398
	Trouble (yellow) LED	05	13	3	00	16	399
14	Switch	05	14	n/a	00	16	400
	Alarm (red) LED	05	14	1	00	16	400
	Active (yellow) LED	05	14	2	00	16	401
	Trouble (yellow) LED	05	14	3	00	16	402
15	Switch	05	15	n/a	00	16	403
	Alarm (red) LED	05	15	1	00	16	403
	Active (yellow) LED	05	15	2	00	16	404
	Trouble (yellow) LED	05	15	3	00	16	405
16	Switch	05	16	n/a	00	16	406
	Alarm (red) LED	05	16	1	00	16	406

Table D-14: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	05	16	2	00	16	407
	Trouble (yellow) LED	05	16	3	00	16	408
17	Switch	05	17	n/a	00	16	409
	Alarm (red) LED	05	17	1	00	16	409
	Active (yellow) LED	05	17	2	00	16	410
	Trouble (yellow) LED	05	17	3	00	16	411
18	Switch	05	18	n/a	00	16	412
	Alarm (red) LED	05	18	1	00	16	412
	Active (yellow) LED	05	18	2	00	16	413
	Trouble (yellow) LED	05	18	3	00	16	414
19	Switch	05	19	n/a	00	16	415
	Alarm (red) LED	05	19	1	00	16	415
	Active (yellow) LED	05	19	2	00	16	416
	Trouble (yellow) LED	05	19	3	00	16	417
20	Switch	05	20	n/a	00	16	418
	Alarm (red) LED	05	20	1	00	16	418
	Active (yellow) LED	05	20	2	00	16	419
	Trouble (yellow) LED	05	20	3	00	16	420
21	Switch	05	21	n/a	00	16	421
	Alarm (red) LED	05	21	1	00	16	421
	Active (yellow) LED	05	21	2	00	16	422
	Trouble (yellow) LED	05	21	3	00	16	423
22	Switch	05	22	n/a	00	16	424
	Alarm (red) LED	05	22	1	00	16	424
	Active (yellow) LED	05	22	2	00	16	425
	Trouble (yellow) LED	05	22	3	00	16	426
23	Switch	05	23	n/a	00	16	427
	Alarm (red) LED	05	23	1	00	16	427
	Active (yellow) LED	05	23	2	00	16	428
	Trouble (yellow) LED	05	23	3	00	16	429
24	Switch	05	24	n/a	00	16	430
	Alarm (red) LED	05	24	1	00	16	430
	Active (yellow) LED	05	24	2	00	16	431

Table D-14: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	05	24	3	00	16	432
25	Switch	05	25	n/a	00	16	433
	Alarm (red) LED	05	25	1	00	16	433
	Active (yellow) LED	05	25	2	00	16	434
	Trouble (yellow) LED	05	25	3	00	16	435
26	Switch	05	26	n/a	00	16	436
	Alarm (red) LED	05	26	1	00	16	436
	Active (yellow) LED	05	26	2	00	16	437
	Trouble (yellow) LED	05	26	3	00	16	438
27	Switch	05	27	n/a	00	16	439
	Alarm (red) LED	05	27	1	00	16	439
	Active (yellow) LED	05	27	2	00	16	440
	Trouble (yellow) LED	05	27	3	00	16	441
28	Switch	05	28	n/a	00	16	442
	Alarm (red) LED	05	28	1	00	16	442
	Active (yellow) LED	05	28	2	00	16	443
	Trouble (yellow) LED	05	28	3	00	16	444
29	Switch	05	29	n/a	00	16	445
	Alarm (red) LED	05	29	1	00	16	445
	Active (yellow) LED	05	29	2	00	16	446
	Trouble (yellow) LED	05	29	3	00	16	447
30	Switch	05	30	n/a	00	16	448
	Alarm (red) LED	05	30	1	00	16	448
	Active (yellow) LED	05	30	2	00	16	449
	Trouble (yellow) LED	05	30	3	00	16	450

Table D-15: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	06	01	n/a	00	16	451
	Alarm (red) LED	06	01	1	00	16	451
	Active (yellow) LED	06	01	2	00	16	452
	Trouble (yellow) LED	06	01	3	00	16	453
2	Switch	06	02	n/a	00	16	454

Table D-15: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	06	02	1	00	16	454
	Active (yellow) LED	06	02	2	00	16	455
	Trouble (yellow) LED	06	02	3	00	16	456
3	Switch	06	03	n/a	00	16	457
	Alarm (red) LED	06	03	1	00	16	457
	Active (yellow) LED	06	03	2	00	16	458
	Trouble (yellow) LED	06	03	3	00	16	459
4	Switch	06	04	n/a	00	16	460
	Alarm (red) LED	06	04	1	00	16	460
	Active (yellow) LED	06	04	2	00	16	461
	Trouble (yellow) LED	06	04	3	00	16	462
5	Switch	06	05	n/a	00	16	463
	Alarm (red) LED	06	05	1	00	16	463
	Active (yellow) LED	06	05	2	00	16	464
	Trouble (yellow) LED	06	05	3	00	16	465
6	Switch	06	06	n/a	00	16	466
	Alarm (red) LED	06	06	1	00	16	466
	Active (yellow) LED	06	06	2	00	16	467
	Trouble (yellow) LED	06	06	3	00	16	468
7	Switch	06	07	n/a	00	16	469
	Alarm (red) LED	06	07	1	00	16	469
	Active (yellow) LED	06	07	2	00	16	470
	Trouble (yellow) LED	06	07	3	00	16	471
8	Switch	06	08	n/a	00	16	472
	Alarm (red) LED	06	08	1	00	16	472
	Active (yellow) LED	06	08	2	00	16	473
	Trouble (yellow) LED	06	08	3	00	16	474
9	Switch	06	09	n/a	00	16	475
	Alarm (red) LED	06	09	1	00	16	475
	Active (yellow) LED	06	09	2	00	16	476
	Trouble (yellow) LED	06	09	3	00	16	477
10	Switch	06	10	n/a	00	16	478
	Alarm (red) LED	06	10	1	00	16	478

Table D-15: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	06	10	2	00	16	479
	Trouble (yellow) LED	06	10	3	00	16	480
11	Switch	06	11	n/a	00	16	481
	Alarm (red) LED	06	11	1	00	16	481
	Active (yellow) LED	06	11	2	00	16	482
	Trouble (yellow) LED	06	11	3	00	16	483
12	Switch	06	12	n/a	00	16	484
	Alarm (red) LED	06	12	1	00	16	484
	Active (yellow) LED	06	12	2	00	16	485
	Trouble (yellow) LED	06	12	3	00	16	486
13	Switch	06	13	n/a	00	16	487
	Alarm (red) LED	06	13	1	00	16	487
	Active (yellow) LED	06	13	2	00	16	488
	Trouble (yellow) LED	06	13	3	00	16	489
14	Switch	06	14	n/a	00	16	490
	Alarm (red) LED	06	14	1	00	16	490
	Active (yellow) LED	06	14	2	00	16	491
	Trouble (yellow) LED	06	14	3	00	16	492
15	Switch	06	15	n/a	00	16	493
	Alarm (red) LED	06	15	1	00	16	493
	Active (yellow) LED	06	15	2	00	16	494
	Trouble (yellow) LED	06	15	3	00	16	495
16	Switch	06	16	n/a	00	16	496
	Alarm (red) LED	06	16	1	00	16	496
	Active (yellow) LED	06	16	2	00	16	497
	Trouble (yellow) LED	06	16	3	00	16	498
17	Switch	06	17	n/a	00	16	499
	Alarm (red) LED	06	17	1	00	16	499
	Active (yellow) LED	06	17	2	00	16	500
	Trouble (yellow) LED	06	17	3	00	16	501
18	Switch	06	18	n/a	00	16	502
	Alarm (red) LED	06	18	1	00	16	502
	Active (yellow) LED	06	18	2	00	16	503

Table D-15: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	06	18	3	00	16	504
19	Switch	06	19	n/a	00	16	505
	Alarm (red) LED	06	19	1	00	16	505
	Active (yellow) LED	06	19	2	00	16	506
	Trouble (yellow) LED	06	19	3	00	16	507
20	Switch	06	20	n/a	00	16	508
	Alarm (red) LED	06	20	1	00	16	508
	Active (yellow) LED	06	20	2	00	16	509
	Trouble (yellow) LED	06	20	3	00	16	510
21	Switch	06	21	n/a	00	16	511
	Alarm (red) LED	06	21	1	00	16	511
	Active (yellow) LED	06	21	2	00	16	512
	Trouble (yellow) LED	06	21	3	00	16	513
22	Switch	06	22	n/a	00	16	514
	Alarm (red) LED	06	22	1	00	16	514
	Active (yellow) LED	06	22	2	00	16	515
	Trouble (yellow) LED	06	22	3	00	16	516
23	Switch	06	23	n/a	00	16	517
	Alarm (red) LED	06	23	1	00	16	517
	Active (yellow) LED	06	23	2	00	16	518
	Trouble (yellow) LED	06	23	3	00	16	519
24	Switch	06	24	n/a	00	16	520
	Alarm (red) LED	06	24	1	00	16	520
	Active (yellow) LED	06	24	2	00	16	521
	Trouble (yellow) LED	06	24	3	00	16	522
25	Switch	06	25	n/a	00	16	523
	Alarm (red) LED	06	25	1	00	16	523
	Active (yellow) LED	06	25	2	00	16	524
	Trouble (yellow) LED	06	25	3	00	16	525
26	Switch	06	26	n/a	00	16	526
	Alarm (red) LED	06	26	1	00	16	526
	Active (yellow) LED	06	26	2	00	16	527
	Trouble (yellow) LED	06	26	3	00	16	528

Table D-15: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
27	Switch	06	27	n/a	00	16	529
	Alarm (red) LED	06	27	1	00	16	529
	Active (yellow) LED	06	27	2	00	16	530
	Trouble (yellow) LED	06	27	3	00	16	531
28	Switch	06	28	n/a	00	16	532
	Alarm (red) LED	06	28	1	00	16	532
	Active (yellow) LED	06	28	2	00	16	533
	Trouble (yellow) LED	06	28	3	00	16	534
29	Switch	06	29	n/a	00	16	535
	Alarm (red) LED	06	29	1	00	16	535
	Active (yellow) LED	06	29	2	00	16	536
	Trouble (yellow) LED	06	29	3	00	16	537
30	Switch	06	30	n/a	00	16	538
	Alarm (red) LED	06	30	1	00	16	538
	Active (yellow) LED	06	30	2	00	16	539
	Trouble (yellow) LED	06	30	3	00	16	540

Table D-16: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	07	01	n/a	00	16	541
	Alarm (red) LED	07	01	1	00	16	541
	Active (yellow) LED	07	01	2	00	16	542
	Trouble (yellow) LED	07	01	3	00	16	543
2	Switch	07	02	n/a	00	16	544
	Alarm (red) LED	07	02	1	00	16	544
	Active (yellow) LED	07	02	2	00	16	545
	Trouble (yellow) LED	07	02	3	00	16	546
3	Switch	07	03	n/a	00	16	547
	Alarm (red) LED	07	03	1	00	16	547
	Active (yellow) LED	07	03	2	00	16	548
	Trouble (yellow) LED	07	03	3	00	16	549
4	Switch	07	04	n/a	00	16	550
	Alarm (red) LED	07	04	1	00	16	550

Table D-16: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	07	04	2	00	16	551
	Trouble (yellow) LED	07	04	3	00	16	552
5	Switch	07	05	n/a	00	16	553
	Alarm (red) LED	07	05	1	00	16	553
	Active (yellow) LED	07	05	2	00	16	554
	Trouble (yellow) LED	07	05	3	00	16	555
6	Switch	07	06	n/a	00	16	556
	Alarm (red) LED	07	06	1	00	16	556
	Active (yellow) LED	07	06	2	00	16	557
	Trouble (yellow) LED	07	06	3	00	16	558
7	Switch	07	07	n/a	00	16	559
	Alarm (red) LED	07	07	1	00	16	559
	Active (yellow) LED	07	07	2	00	16	560
	Trouble (yellow) LED	07	07	3	00	16	561
8	Switch	07	08	n/a	00	16	562
	Alarm (red) LED	07	08	1	00	16	562
	Active (yellow) LED	07	08	2	00	16	563
	Trouble (yellow) LED	07	08	3	00	16	564
9	Switch	07	09	n/a	00	16	565
	Alarm (red) LED	07	09	1	00	16	565
	Active (yellow) LED	07	09	2	00	16	566
	Trouble (yellow) LED	07	09	3	00	16	567
10	Switch	07	10	n/a	00	16	568
	Alarm (red) LED	07	10	1	00	16	568
	Active (yellow) LED	07	10	2	00	16	569
	Trouble (yellow) LED	07	10	3	00	16	570
11	Switch	07	11	n/a	00	16	571
	Alarm (red) LED	07	11	1	00	16	571
	Active (yellow) LED	07	11	2	00	16	572
	Trouble (yellow) LED	07	11	3	00	16	573
12	Switch	07	12	n/a	00	16	574
	Alarm (red) LED	07	12	1	00	16	574
	Active (yellow) LED	07	12	2	00	16	575

Table D-16: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	07	12	3	00	16	576
13	Switch	07	13	n/a	00	16	577
	Alarm (red) LED	07	13	1	00	16	577
	Active (yellow) LED	07	13	2	00	16	578
	Trouble (yellow) LED	07	13	3	00	16	579
14	Switch	07	14	n/a	00	16	580
	Alarm (red) LED	07	14	1	00	16	580
	Active (yellow) LED	07	14	2	00	16	581
	Trouble (yellow) LED	07	14	3	00	16	582
15	Switch	07	15	n/a	00	16	583
	Alarm (red) LED	07	15	1	00	16	583
	Active (yellow) LED	07	15	2	00	16	584
	Trouble (yellow) LED	07	15	3	00	16	585
16	Switch	07	16	n/a	00	16	586
	Alarm (red) LED	07	16	1	00	16	586
	Active (yellow) LED	07	16	2	00	16	587
	Trouble (yellow) LED	07	16	3	00	16	588
17	Switch	07	17	n/a	00	16	589
	Alarm (red) LED	07	17	1	00	16	589
	Active (yellow) LED	07	17	2	00	16	590
	Trouble (yellow) LED	07	17	3	00	16	591
18	Switch	07	18	n/a	00	16	592
	Alarm (red) LED	07	18	1	00	16	592
	Active (yellow) LED	07	18	2	00	16	593
	Trouble (yellow) LED	07	18	3	00	16	594
19	Switch	07	19	n/a	00	16	595
	Alarm (red) LED	07	19	1	00	16	595
	Active (yellow) LED	07	19	2	00	16	596
	Trouble (yellow) LED	07	19	3	00	16	597
20	Switch	07	20	n/a	00	16	598
	Alarm (red) LED	07	20	1	00	16	598
	Active (yellow) LED	07	20	2	00	16	599
	Trouble (yellow) LED	07	20	3	00	16	600

Table D-16: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
21	Switch	07	21	n/a	00	16	601
	Alarm (red) LED	07	21	1	00	16	601
	Active (yellow) LED	07	21	2	00	16	602
	Trouble (yellow) LED	07	21	3	00	16	603
22	Switch	07	22	n/a	00	16	604
	Alarm (red) LED	07	22	1	00	16	604
	Active (yellow) LED	07	22	2	00	16	605
	Trouble (yellow) LED	07	22	3	00	16	606
23	Switch	07	23	n/a	00	16	607
	Alarm (red) LED	07	23	1	00	16	607
	Active (yellow) LED	07	23	2	00	16	608
	Trouble (yellow) LED	07	23	3	00	16	609
24	Switch	07	24	n/a	00	16	610
	Alarm (red) LED	07	24	1	00	16	610
	Active (yellow) LED	07	24	2	00	16	611
	Trouble (yellow) LED	07	24	3	00	16	612
25	Switch	07	25	n/a	00	16	613
	Alarm (red) LED	07	25	1	00	16	613
	Active (yellow) LED	07	25	2	00	16	614
	Trouble (yellow) LED	07	25	3	00	16	615
26	Switch	07	26	n/a	00	16	616
	Alarm (red) LED	07	26	1	00	16	616
	Active (yellow) LED	07	26	2	00	16	617
	Trouble (yellow) LED	07	26	3	00	16	618
27	Switch	07	27	n/a	00	16	619
	Alarm (red) LED	07	27	1	00	16	619
	Active (yellow) LED	07	27	2	00	16	620
	Trouble (yellow) LED	07	27	3	00	16	621
28	Switch	07	28	n/a	00	16	622
	Alarm (red) LED	07	28	1	00	16	622
	Active (yellow) LED	07	28	2	00	16	623
	Trouble (yellow) LED	07	28	3	00	16	624
29	Switch	07	29	n/a	00	16	625

Table D-16: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	07	29	1	00	16	625
	Active (yellow) LED	07	29	2	00	16	626
	Trouble (yellow) LED	07	29	3	00	16	627
30	Switch	07	30	n/a	00	16	628
	Alarm (red) LED	07	30	1	00	16	628
	Active (yellow) LED	07	30	2	00	16	629
	Trouble (yellow) LED	07	30	3	00	16	630

Table D-17: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	08	01	n/a	00	16	631
	Alarm (red) LED	08	01	1	00	16	631
	Active (yellow) LED	08	01	2	00	16	632
	Trouble (yellow) LED	08	01	3	00	16	633
2	Switch	08	02	n/a	00	16	634
	Alarm (red) LED	08	02	1	00	16	634
	Active (yellow) LED	08	02	2	00	16	635
	Trouble (yellow) LED	08	02	3	00	16	636
3	Switch	08	03	n/a	00	16	637
	Alarm (red) LED	08	03	1	00	16	637
	Active (yellow) LED	08	03	2	00	16	638
	Trouble (yellow) LED	08	03	3	00	16	639
4	Switch	08	04	n/a	00	16	640
	Alarm (red) LED	08	04	1	00	16	640
	Active (yellow) LED	08	04	2	00	16	641
	Trouble (yellow) LED	08	04	3	00	16	642
5	Switch	08	05	n/a	00	16	643
	Alarm (red) LED	08	05	1	00	16	643
	Active (yellow) LED	08	05	2	00	16	644
	Trouble (yellow) LED	08	05	3	00	16	645
6	Switch	08	06	n/a	00	16	646
	Alarm (red) LED	08	06	1	00	16	646
	Active (yellow) LED	08	06	2	00	16	647

Table D-17: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	08	06	3	00	16	648
7	Switch	08	07	n/a	00	16	649
	Alarm (red) LED	08	07	1	00	16	649
	Active (yellow) LED	08	07	2	00	16	650
	Trouble (yellow) LED	08	07	3	00	16	651
8	Switch	08	08	n/a	00	16	652
	Alarm (red) LED	08	08	1	00	16	652
	Active (yellow) LED	08	08	2	00	16	653
	Trouble (yellow) LED	08	08	3	00	16	654
9	Switch	08	09	n/a	00	16	655
	Alarm (red) LED	08	09	1	00	16	655
	Active (yellow) LED	08	09	2	00	16	656
	Trouble (yellow) LED	08	09	3	00	16	657
10	Switch	08	10	n/a	00	16	658
	Alarm (red) LED	08	10	1	00	16	658
	Active (yellow) LED	08	10	2	00	16	659
	Trouble (yellow) LED	08	10	3	00	16	660
11	Switch	08	11	n/a	00	16	661
	Alarm (red) LED	08	11	1	00	16	661
	Active (yellow) LED	08	11	2	00	16	662
	Trouble (yellow) LED	08	11	3	00	16	663
12	Switch	08	12	n/a	00	16	664
	Alarm (red) LED	08	12	1	00	16	664
	Active (yellow) LED	08	12	2	00	16	665
	Trouble (yellow) LED	08	12	3	00	16	666
13	Switch	08	13	n/a	00	16	667
	Alarm (red) LED	08	13	1	00	16	667
	Active (yellow) LED	08	13	2	00	16	668
	Trouble (yellow) LED	08	13	3	00	16	669
14	Switch	08	14	n/a	00	16	670
	Alarm (red) LED	08	14	1	00	16	670
	Active (yellow) LED	08	14	2	00	16	671
	Trouble (yellow) LED	08	14	3	00	16	672

Table D-17: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
15	Switch	08	15	n/a	00	16	673
	Alarm (red) LED	08	15	1	00	16	673
	Active (yellow) LED	08	15	2	00	16	674
	Trouble (yellow) LED	08	15	3	00	16	675
16	Switch	08	16	n/a	00	16	676
	Alarm (red) LED	08	16	1	00	16	676
	Active (yellow) LED	08	16	2	00	16	677
	Trouble (yellow) LED	08	16	3	00	16	678
17	Switch	08	17	n/a	00	16	679
	Alarm (red) LED	08	17	1	00	16	679
	Active (yellow) LED	08	17	2	00	16	680
	Trouble (yellow) LED	08	17	3	00	16	681
18	Switch	08	18	n/a	00	16	682
	Alarm (red) LED	08	18	1	00	16	682
	Active (yellow) LED	08	18	2	00	16	683
	Trouble (yellow) LED	08	18	3	00	16	684
19	Switch	08	19	n/a	00	16	685
	Alarm (red) LED	08	19	1	00	16	685
	Active (yellow) LED	08	19	2	00	16	686
	Trouble (yellow) LED	08	19	3	00	16	687
20	Switch	08	20	n/a	00	16	688
	Alarm (red) LED	08	20	1	00	16	688
	Active (yellow) LED	08	20	2	00	16	689
	Trouble (yellow) LED	08	20	3	00	16	690
21	Switch	08	21	n/a	00	16	691
	Alarm (red) LED	08	21	1	00	16	691
	Active (yellow) LED	08	21	2	00	16	692
	Trouble (yellow) LED	08	21	3	00	16	693
22	Switch	08	22	n/a	00	16	694
	Alarm (red) LED	08	22	1	00	16	694
	Active (yellow) LED	08	22	2	00	16	695
	Trouble (yellow) LED	08	22	3	00	16	696
23	Switch	08	23	n/a	00	16	697

Table D-17: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	08	23	1	00	16	697
	Active (yellow) LED	08	23	2	00	16	698
	Trouble (yellow) LED	08	23	3	00	16	699
24	Switch	08	24	n/a	00	16	700
	Alarm (red) LED	08	24	1	00	16	700
	Active (yellow) LED	08	24	2	00	16	701
	Trouble (yellow) LED	08	24	3	00	16	702
25	Switch	08	25	n/a	00	16	703
	Alarm (red) LED	08	25	1	00	16	703
	Active (yellow) LED	08	25	2	00	16	704
	Trouble (yellow) LED	08	25	3	00	16	705
26	Switch	08	26	n/a	00	16	706
	Alarm (red) LED	08	26	1	00	16	706
	Active (yellow) LED	08	26	2	00	16	707
	Trouble (yellow) LED	08	26	3	00	16	708
27	Switch	08	27	n/a	00	16	709
	Alarm (red) LED	08	27	1	00	16	709
	Active (yellow) LED	08	27	2	00	16	710
	Trouble (yellow) LED	08	27	3	00	16	711
28	Switch	08	28	n/a	00	16	712
	Alarm (red) LED	08	28	1	00	16	712
	Active (yellow) LED	08	28	2	00	16	713
	Trouble (yellow) LED	08	28	3	00	16	714
29	Switch	08	29	n/a	00	16	715
	Alarm (red) LED	08	29	1	00	16	715
	Active (yellow) LED	08	29	2	00	16	716
	Trouble (yellow) LED	08	29	3	00	16	717
30	Switch	08	30	n/a	00	16	718
	Alarm (red) LED	08	30	1	00	16	718
	Active (yellow) LED	08	30	2	00	16	719
	Trouble (yellow) LED	08	30	3	00	16	720

Table D-18: Annunciator card group 9 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	09	01	n/a	00	16	721
	Alarm (red) LED	09	01	1	00	16	721
	Active (yellow) LED	09	01	2	00	16	722
	Trouble (yellow) LED	09	01	3	00	16	723
2	Switch	09	02	n/a	00	16	724
	Alarm (red) LED	09	02	1	00	16	724
	Active (yellow) LED	09	02	2	00	16	725
	Trouble (yellow) LED	09	02	3	00	16	726
3	Switch	09	03	n/a	00	16	727
	Alarm (red) LED	09	03	1	00	16	727
	Active (yellow) LED	09	03	2	00	16	728
	Trouble (yellow) LED	09	03	3	00	16	729
4	Switch	09	04	n/a	00	16	730
	Alarm (red) LED	09	04	1	00	16	730
	Active (yellow) LED	09	04	2	00	16	731
	Trouble (yellow) LED	09	04	3	00	16	732
5	Switch	09	05	n/a	00	16	733
	Alarm (red) LED	09	05	1	00	16	733
	Active (yellow) LED	09	05	2	00	16	734
	Trouble (yellow) LED	09	05	3	00	16	735
6	Switch	09	06	n/a	00	16	736
	Alarm (red) LED	09	06	1	00	16	736
	Active (yellow) LED	09	06	2	00	16	737
	Trouble (yellow) LED	09	06	3	00	16	738
7	Switch	09	07	n/a	00	16	739
	Alarm (red) LED	09	07	1	00	16	739
	Active (yellow) LED	09	07	2	00	16	740
	Trouble (yellow) LED	09	07	3	00	16	741
8	Switch	09	08	n/a	00	16	742
	Alarm (red) LED	09	08	1	00	16	742
	Active (yellow) LED	09	08	2	00	16	743
	Trouble (yellow) LED	09	08	3	00	16	744
9	Switch	09	09	n/a	00	16	745

Table D-18: Annunciator card group 9 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	09	09	1	00	16	745
	Active (yellow) LED	09	09	2	00	16	746
	Trouble (yellow) LED	09	09	3	00	16	747
10	Switch	09	10	n/a	00	16	748
	Alarm (red) LED	09	10	1	00	16	748
	Active (yellow) LED	09	10	2	00	16	749
	Trouble (yellow) LED	09	10	3	00	16	750
11	Switch	09	11	n/a	00	16	751
	Alarm (red) LED	09	11	1	00	16	751
	Active (yellow) LED	09	11	2	00	16	752
	Trouble (yellow) LED	09	11	3	00	16	753
12	Switch	09	12	n/a	00	16	754
	Alarm (red) LED	09	12	1	00	16	754
	Active (yellow) LED	09	12	2	00	16	755
	Trouble (yellow) LED	09	12	3	00	16	756
13	Switch	09	13	n/a	00	16	757
	Alarm (red) LED	09	13	1	00	16	757
	Active (yellow) LED	09	13	2	00	16	758
	Trouble (yellow) LED	09	13	3	00	16	759
14	Switch	09	14	n/a	00	16	760
	Alarm (red) LED	09	14	1	00	16	760
	Active (yellow) LED	09	14	2	00	16	761
	Trouble (yellow) LED	09	14	3	00	16	762
15	Switch	09	15	n/a	00	16	763
	Alarm (red) LED	09	15	1	00	16	763
	Active (yellow) LED	09	15	2	00	16	764
	Trouble (yellow) LED	09	15	3	00	16	765
16	Switch	09	16	n/a	00	16	766
	Alarm (red) LED	09	16	1	00	16	766
	Active (yellow) LED	09	16	2	00	16	767
	Trouble (yellow) LED	09	16	3	00	16	768
17	Switch	09	17	n/a	00	16	769
	Alarm (red) LED	09	17	1	00	16	769

Table D-18: Annunciator card group 9 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	09	17	2	00	16	770
	Trouble (yellow) LED	09	17	3	00	16	771
18	Switch	09	18	n/a	00	16	772
	Alarm (red) LED	09	18	1	00	16	772
	Active (yellow) LED	09	18	2	00	16	773
	Trouble (yellow) LED	09	18	3	00	16	774
19	Switch	09	19	n/a	00	16	775
	Alarm (red) LED	09	19	1	00	16	775
	Active (yellow) LED	09	19	2	00	16	776
	Trouble (yellow) LED	09	19	3	00	16	777
20	Switch	09	20	n/a	00	16	778
	Alarm (red) LED	09	20	1	00	16	778
	Active (yellow) LED	09	20	2	00	16	779
	Trouble (yellow) LED	09	20	3	00	16	780
21	Switch	09	21	n/a	00	16	781
	Alarm (red) LED	09	21	1	00	16	781
	Active (yellow) LED	09	21	2	00	16	782
	Trouble (yellow) LED	09	21	3	00	16	783
22	Switch	09	22	n/a	00	16	784
	Alarm (red) LED	09	22	1	00	16	784
	Active (yellow) LED	09	22	2	00	16	785
	Trouble (yellow) LED	09	22	3	00	16	786
23	Switch	09	23	n/a	00	16	787
	Alarm (red) LED	09	23	1	00	16	787
	Active (yellow) LED	09	23	2	00	16	788
	Trouble (yellow) LED	09	23	3	00	16	789
24	Switch	09	24	n/a	00	16	790
	Alarm (red) LED	09	24	1	00	16	790
	Active (yellow) LED	09	24	2	00	16	791
	Trouble (yellow) LED	09	24	3	00	16	792
25	Switch	09	25	n/a	00	16	793
	Alarm (red) LED	09	25	1	00	16	793
	Active (yellow) LED	09	25	2	00	16	794

Table D-18: Annunciator card group 9 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	09	25	3	00	16	795
26	Switch	09	26	n/a	00	16	796
	Alarm (red) LED	09	26	1	00	16	796
	Active (yellow) LED	09	26	2	00	16	797
	Trouble (yellow) LED	09	26	3	00	16	798
27	Switch	09	27	n/a	00	16	799
	Alarm (red) LED	09	27	1	00	16	799
	Active (yellow) LED	09	27	2	00	16	800
	Trouble (yellow) LED	09	27	3	00	16	801
28	Switch	09	28	n/a	00	16	802
	Alarm (red) LED	09	28	1	00	16	802
	Active (yellow) LED	09	28	2	00	16	803
	Trouble (yellow) LED	09	28	3	00	16	804
29	Switch	09	29	n/a	00	16	805
	Alarm (red) LED	09	29	1	00	16	805
	Active (yellow) LED	09	29	2	00	16	806
	Trouble (yellow) LED	09	29	3	00	16	807
30	Switch	09	30	n/a	00	16	808
	Alarm (red) LED	09	30	1	00	16	808
	Active (yellow) LED	09	30	2	00	16	809
	Trouble (yellow) LED	09	30	3	00	16	810

Table D-19: Annunciator card group 10 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	10	01	n/a	00	16	811
	Alarm (red) LED	10	01	1	00	16	811
	Active (yellow) LED	10	01	2	00	16	812
	Trouble (yellow) LED	10	01	3	00	16	813
2	Switch	10	02	n/a	00	16	814
	Alarm (red) LED	10	02	1	00	16	814
	Active (yellow) LED	10	02	2	00	16	815
	Trouble (yellow) LED	10	02	3	00	16	816
3	Switch	10	03	n/a	00	16	817

Table D-19: Annunciator card group 10 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	10	03	1	00	16	817
	Active (yellow) LED	10	03	2	00	16	818
	Trouble (yellow) LED	10	03	3	00	16	819
4	Switch	10	04	n/a	00	16	820
	Alarm (red) LED	10	04	1	00	16	820
	Active (yellow) LED	10	04	2	00	16	821
	Trouble (yellow) LED	10	04	3	00	16	822
5	Switch	10	05	n/a	00	16	823
	Alarm (red) LED	10	05	1	00	16	823
	Active (yellow) LED	10	05	2	00	16	824
	Trouble (yellow) LED	10	05	3	00	16	825
6	Switch	10	06	n/a	00	16	826
	Alarm (red) LED	10	06	1	00	16	826
	Active (yellow) LED	10	06	2	00	16	827
	Trouble (yellow) LED	10	06	3	00	16	828
7	Switch	10	07	n/a	00	16	829
	Alarm (red) LED	10	07	1	00	16	829
	Active (yellow) LED	10	07	2	00	16	830
	Trouble (yellow) LED	10	07	3	00	16	831
8	Switch	10	08	n/a	00	16	832
	Alarm (red) LED	10	08	1	00	16	832
	Active (yellow) LED	10	08	2	00	16	833
	Trouble (yellow) LED	10	08	3	00	16	834
9	Switch	10	09	n/a	00	16	835
	Alarm (red) LED	10	09	1	00	16	835
	Active (yellow) LED	10	09	2	00	16	836
	Trouble (yellow) LED	10	09	3	00	16	837
10	Switch	10	10	n/a	00	16	838
	Alarm (red) LED	10	10	1	00	16	838
	Active (yellow) LED	10	10	2	00	16	839
	Trouble (yellow) LED	10	10	3	00	16	840
11	Switch	10	11	n/a	00	16	841
	Alarm (red) LED	10	11	1	00	16	841

Table D-19: Annunciator card group 10 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	10	11	2	00	16	842
	Trouble (yellow) LED	10	11	3	00	16	843
12	Switch	10	12	n/a	00	16	844
	Alarm (red) LED	10	12	1	00	16	844
	Active (yellow) LED	10	12	2	00	16	845
	Trouble (yellow) LED	10	12	3	00	16	846
13	Switch	10	13	n/a	00	16	847
	Alarm (red) LED	10	13	1	00	16	847
	Active (yellow) LED	10	13	2	00	16	848
	Trouble (yellow) LED	10	13	3	00	16	849
14	Switch	10	14	n/a	00	16	850
	Alarm (red) LED	10	14	1	00	16	850
	Active (yellow) LED	10	14	2	00	16	851
	Trouble (yellow) LED	10	14	3	00	16	852
15	Switch	10	15	n/a	00	16	853
	Alarm (red) LED	10	15	1	00	16	853
	Active (yellow) LED	10	15	2	00	16	854
	Trouble (yellow) LED	10	15	3	00	16	855
16	Switch	10	16	n/a	00	16	856
	Alarm (red) LED	10	16	1	00	16	856
	Active (yellow) LED	10	16	2	00	16	857
	Trouble (yellow) LED	10	16	3	00	16	858
17	Switch	10	17	n/a	00	16	859
	Alarm (red) LED	10	17	1	00	16	859
	Active (yellow) LED	10	17	2	00	16	860
	Trouble (yellow) LED	10	17	3	00	16	861
18	Switch	10	18	n/a	00	16	862
	Alarm (red) LED	10	18	1	00	16	862
	Active (yellow) LED	10	18	2	00	16	863
	Trouble (yellow) LED	10	18	3	00	16	864
19	Switch	10	19	n/a	00	16	865
	Alarm (red) LED	10	19	1	00	16	865
	Active (yellow) LED	10	19	2	00	16	866

Table D-19: Annunciator card group 10 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	10	19	3	00	16	867
20	Switch	10	20	n/a	00	16	868
	Alarm (red) LED	10	20	1	00	16	868
	Active (yellow) LED	10	20	2	00	16	869
	Trouble (yellow) LED	10	20	3	00	16	870
21	Switch	10	21	n/a	00	16	871
	Alarm (red) LED	10	21	1	00	16	871
	Active (yellow) LED	10	21	2	00	16	872
	Trouble (yellow) LED	10	21	3	00	16	873
22	Switch	10	22	n/a	00	16	874
	Alarm (red) LED	10	22	1	00	16	874
	Active (yellow) LED	10	22	2	00	16	875
	Trouble (yellow) LED	10	22	3	00	16	876
23	Switch	10	23	n/a	00	16	877
	Alarm (red) LED	10	23	1	00	16	877
	Active (yellow) LED	10	23	2	00	16	878
	Trouble (yellow) LED	10	23	3	00	16	879
24	Switch	10	24	n/a	00	16	880
	Alarm (red) LED	10	24	1	00	16	880
	Active (yellow) LED	10	24	2	00	16	881
	Trouble (yellow) LED	10	24	3	00	16	882
25	Switch	10	25	n/a	00	16	883
	Alarm (red) LED	10	25	1	00	16	883
	Active (yellow) LED	10	25	2	00	16	884
	Trouble (yellow) LED	10	25	3	00	16	885
26	Switch	10	26	n/a	00	16	886
	Alarm (red) LED	10	26	1	00	16	886
	Active (yellow) LED	10	26	2	00	16	887
	Trouble (yellow) LED	10	26	3	00	16	888
27	Switch	10	27	n/a	00	16	889
	Alarm (red) LED	10	27	1	00	16	889
	Active (yellow) LED	10	27	2	00	16	890
	Trouble (yellow) LED	10	27	3	00	16	891

Table D-19: Annunciator card group 10 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
28	Switch	10	28	n/a	00	16	892
	Alarm (red) LED	10	28	1	00	16	892
	Active (yellow) LED	10	28	2	00	16	893
	Trouble (yellow) LED	10	28	3	00	16	894
29	Switch	10	29	n/a	00	16	895
	Alarm (red) LED	10	29	1	00	16	895
	Active (yellow) LED	10	29	2	00	16	896
	Trouble (yellow) LED	10	29	3	00	16	897
30	Switch	10	30	n/a	00	16	898
	Alarm (red) LED	10	30	1	00	16	898
	Active (yellow) LED	10	30	2	00	16	899
	Trouble (yellow) LED	10	30	3	00	16	900

Table D-20: Annunciator card group 11 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	11	01	n/a	00	16	901
	Alarm (red) LED	11	01	1	00	16	901
	Active (yellow) LED	11	01	2	00	16	902
	Trouble (yellow) LED	11	01	3	00	16	903
2	Switch	11	02	n/a	00	16	904
	Alarm (red) LED	11	02	1	00	16	904
	Active (yellow) LED	11	02	2	00	16	905
	Trouble (yellow) LED	11	02	3	00	16	906
3	Switch	11	03	n/a	00	16	907
	Alarm (red) LED	11	03	1	00	16	907
	Active (yellow) LED	11	03	2	00	16	908
	Trouble (yellow) LED	11	03	3	00	16	909
4	Switch	11	04	n/a	00	16	910
	Alarm (red) LED	11	04	1	00	16	910
	Active (yellow) LED	11	04	2	00	16	911
	Trouble (yellow) LED	11	04	3	00	16	912
5	Switch	11	05	n/a	00	16	913
	Alarm (red) LED	11	05	1	00	16	913

Table D-20: Annunciator card group 11 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	11	05	2	00	16	914
	Trouble (yellow) LED	11	05	3	00	16	915
6	Switch	11	06	n/a	00	16	916
	Alarm (red) LED	11	06	1	00	16	916
	Active (yellow) LED	11	06	2	00	16	917
	Trouble (yellow) LED	11	06	3	00	16	918
7	Switch	11	07	n/a	00	16	919
	Alarm (red) LED	11	07	1	00	16	919
	Active (yellow) LED	11	07	2	00	16	920
	Trouble (yellow) LED	11	07	3	00	16	921
8	Switch	11	08	n/a	00	16	922
	Alarm (red) LED	11	08	1	00	16	922
	Active (yellow) LED	11	08	2	00	16	923
	Trouble (yellow) LED	11	08	3	00	16	924
9	Switch	11	09	n/a	00	16	925
	Alarm (red) LED	11	09	1	00	16	925
	Active (yellow) LED	11	09	2	00	16	926
	Trouble (yellow) LED	11	09	3	00	16	927
10	Switch	11	10	n/a	00	16	928
	Alarm (red) LED	11	10	1	00	16	928
	Active (yellow) LED	11	10	2	00	16	929
	Trouble (yellow) LED	11	10	3	00	16	930
11	Switch	11	11	n/a	00	16	931
	Alarm (red) LED	11	11	1	00	16	931
	Active (yellow) LED	11	11	2	00	16	932
	Trouble (yellow) LED	11	11	3	00	16	933
12	Switch	11	12	n/a	00	16	934
	Alarm (red) LED	11	12	1	00	16	934
	Active (yellow) LED	11	12	2	00	16	935
	Trouble (yellow) LED	11	12	3	00	16	936
13	Switch	11	13	n/a	00	16	937
	Alarm (red) LED	11	13	1	00	16	937
	Active (yellow) LED	11	13	2	00	16	938

Table D-20: Annunciator card group 11 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	11	13	3	00	16	939
14	Switch	11	14	n/a	00	16	940
	Alarm (red) LED	11	14	1	00	16	940
	Active (yellow) LED	11	14	2	00	16	941
	Trouble (yellow) LED	11	14	3	00	16	942
15	Switch	11	15	n/a	00	16	943
	Alarm (red) LED	11	15	1	00	16	943
	Active (yellow) LED	11	15	2	00	16	944
	Trouble (yellow) LED	11	15	3	00	16	945
16	Switch	11	16	n/a	00	16	946
	Alarm (red) LED	11	16	1	00	16	946
	Active (yellow) LED	11	16	2	00	16	947
	Trouble (yellow) LED	11	16	3	00	16	948
17	Switch	11	17	n/a	00	16	949
	Alarm (red) LED	11	17	1	00	16	949
	Active (yellow) LED	11	17	2	00	16	950
	Trouble (yellow) LED	11	17	3	00	16	951
18	Switch	11	18	n/a	00	16	952
	Alarm (red) LED	11	18	1	00	16	952
	Active (yellow) LED	11	18	2	00	16	953
	Trouble (yellow) LED	11	18	3	00	16	954
19	Switch	11	19	n/a	00	16	955
	Alarm (red) LED	11	19	1	00	16	955
	Active (yellow) LED	11	19	2	00	16	956
	Trouble (yellow) LED	11	19	3	00	16	957
20	Switch	11	20	n/a	00	16	958
	Alarm (red) LED	11	20	1	00	16	958
	Active (yellow) LED	11	20	2	00	16	959
	Trouble (yellow) LED	11	20	3	00	16	960
21	Switch	11	21	n/a	00	16	961
	Alarm (red) LED	11	21	1	00	16	961
	Active (yellow) LED	11	21	2	00	16	962
	Trouble (yellow) LED	11	21	3	00	16	963

Table D-20: Annunciator card group 11 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
22	Switch	11	22	n/a	00	16	964
	Alarm (red) LED	11	22	1	00	16	964
	Active (yellow) LED	11	22	2	00	16	965
	Trouble (yellow) LED	11	22	3	00	16	966
23	Switch	11	23	n/a	00	16	967
	Alarm (red) LED	11	23	1	00	16	967
	Active (yellow) LED	11	23	2	00	16	968
	Trouble (yellow) LED	11	23	3	00	16	969
24	Switch	11	24	n/a	00	16	970
	Alarm (red) LED	11	24	1	00	16	970
	Active (yellow) LED	11	24	2	00	16	971
	Trouble (yellow) LED	11	24	3	00	16	972
25	Switch	11	25	n/a	00	16	973
	Alarm (red) LED	11	25	1	00	16	973
	Active (yellow) LED	11	25	2	00	16	974
	Trouble (yellow) LED	11	25	3	00	16	975
26	Switch	11	26	n/a	00	16	976
	Alarm (red) LED	11	26	1	00	16	976
	Active (yellow) LED	11	26	2	00	16	977
	Trouble (yellow) LED	11	26	3	00	16	978
27	Switch	11	27	n/a	00	16	979
	Alarm (red) LED	11	27	1	00	16	979
	Active (yellow) LED	11	27	2	00	16	980
	Trouble (yellow) LED	11	27	3	00	16	981
28	Switch	11	28	n/a	00	16	982
	Alarm (red) LED	11	28	1	00	16	982
	Active (yellow) LED	11	28	2	00	16	983
	Trouble (yellow) LED	11	28	3	00	16	984
29	Switch	11	29	n/a	00	16	985
	Alarm (red) LED	11	29	1	00	16	985
	Active (yellow) LED	11	29	2	00	16	986
	Trouble (yellow) LED	11	29	3	00	16	987
30	Switch	11	30	n/a	00	16	988

Table D-20: Annunciator card group 11 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	11	30	1	00	16	988
	Active (yellow) LED	11	30	2	00	16	989
	Trouble (yellow) LED	11	30	3	00	16	990

Table D-21: Annunciator card group 12 addresses

LED/switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	12	01	n/a	00	16	991
	Alarm (red) LED	12	01	1	00	16	991
	Active (yellow) LED	12	01	2	00	16	992
	Trouble (yellow) LED	12	01	3	00	16	993
2	Switch	12	02	n/a	00	16	994
	Alarm (red) LED	12	02	1	00	16	994
	Active (yellow) LED	12	02	2	00	16	995
	Trouble (yellow) LED	12	02	3	00	16	996
3	Switch	12	03	n/a	00	16	997
	Alarm (red) LED	12	03	1	00	16	997
	Active (yellow) LED	12	03	2	00	16	998
	Trouble (yellow) LED	12	03	3	00	16	999
4	Switch	12	04	n/a	00	16	***
	Alarm (red) LED	12	04	1	00	16	***
	Active (yellow) LED	12	04	2	00	16	***
	Trouble (yellow) LED	12	04	3	00	16	***
5	Switch	12	05	n/a	00	16	***
	Alarm (red) LED	12	05	1	00	16	***
	Active (yellow) LED	12	05	2	00	16	***
	Trouble (yellow) LED	12	05	3	00	16	***
6	Switch	12	06	n/a	00	16	***
	Alarm (red) LED	12	06	1	00	16	***
	Active (yellow) LED	12	06	2	00	16	***
	Trouble (yellow) LED	12	06	3	00	16	***
7	Switch	12	07	n/a	00	16	***
	Alarm (red) LED	12	07	1	00	16	***
	Active (yellow) LED	12	07	2	00	16	***

Table D-21: Annunciator card group 12 addresses

LED/switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	12	07	3	00	16	***
8	Switch	12	08	n/a	00	16	***
	Alarm (red) LED	12	08	1	00	16	***
	Active (yellow) LED	12	08	2	00	16	***
	Trouble (yellow) LED	12	08	3	00	16	***
9	Switch	12	09	n/a	00	16	***
	Alarm (red) LED	12	09	1	00	16	***
	Active (yellow) LED	12	09	2	00	16	***
	Trouble (yellow) LED	12	09	3	00	16	***
10	Switch	12	10	n/a	00	16	***
	Alarm (red) LED	12	10	1	00	16	***
	Active (yellow) LED	12	10	2	00	16	***
	Trouble (yellow) LED	12	10	3	00	16	***
11	Switch	12	11	n/a	00	16	***
	Alarm (red) LED	12	11	1	00	16	***
	Active (yellow) LED	12	11	2	00	16	***
	Trouble (yellow) LED	12	11	3	00	16	***
12	Switch	12	12	n/a	00	16	***
	Alarm (red) LED	12	12	1	00	16	***
	Active (yellow) LED	12	12	2	00	16	***
	Trouble (yellow) LED	12	12	3	00	16	***
13	Switch	12	13	n/a	00	16	***
	Alarm (red) LED	12	13	1	00	16	***
	Active (yellow) LED	12	13	2	00	16	***
	Trouble (yellow) LED	12	13	3	00	16	***
14	Switch	12	14	n/a	00	16	***
	Alarm (red) LED	12	14	1	00	16	***
	Active (yellow) LED	12	14	2	00	16	***
	Trouble (yellow) LED	12	14	3	00	16	***
15	Switch	12	15	n/a	00	16	***
	Alarm (red) LED	12	15	1	00	16	***
	Active (yellow) LED	12	15	2	00	16	***
	Trouble (yellow) LED	12	15	3	00	16	***

Table D-21: Annunciator card group 12 addresses

LED/switch group	Component	GG	SS	L	PP	CC	DDD
16	Switch	12	16	n/a	00	16	***
	Alarm (red) LED	12	16	1	00	16	***
	Active (yellow) LED	12	16	2	00	16	***
	Trouble (yellow) LED	12	16	3	00	16	***
17	Switch	12	17	n/a	00	16	***
	Alarm (red) LED	12	17	1	00	16	***
	Active (yellow) LED	12	17	2	00	16	***
	Trouble (yellow) LED	12	17	3	00	16	***
18	Switch	12	18	n/a	00	16	***
	Alarm (red) LED	12	18	1	00	16	***
	Active (yellow) LED	12	18	2	00	16	***
	Trouble (yellow) LED	12	18	3	00	16	***
19	Switch	12	19	n/a	00	16	***
	Alarm (red) LED	12	19	1	00	16	***
	Active (yellow) LED	12	19	2	00	16	***
	Trouble (yellow) LED	12	19	3	00	16	***
20	Switch	12	20	n/a	00	16	***
	Alarm (red) LED	12	20	1	00	16	***
	Active (yellow) LED	12	20	2	00	16	***
	Trouble (yellow) LED	12	20	3	00	16	***
21	Switch	12	21	n/a	00	16	***
	Alarm (red) LED	12	21	1	00	16	***
	Active (yellow) LED	12	21	2	00	16	***
	Trouble (yellow) LED	12	21	3	00	16	***
22	Switch	12	22	n/a	00	16	***
	Alarm (red) LED	12	22	1	00	16	***
	Active (yellow) LED	12	22	2	00	16	***
	Trouble (yellow) LED	12	22	3	00	16	***
23	Switch	12	23	n/a	00	16	***
	Alarm (red) LED	12	23	1	00	16	***
	Active (yellow) LED	12	23	2	00	16	***
	Trouble (yellow) LED	12	23	3	00	16	***
24	Switch	12	24	n/a	00	16	***

Table D-21: Annunciator card group 12 addresses

LED/switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	12	24	1	00	16	***
	Active (yellow) LED	12	24	2	00	16	***
	Trouble (yellow) LED	12	24	3	00	16	***
25	Switch	12	25	n/a	00	16	***
	Alarm (red) LED	12	25	1	00	16	***
	Active (yellow) LED	12	25	2	00	16	***
	Trouble (yellow) LED	12	25	3	00	16	***
26	Switch	12	26	n/a	00	16	***
	Alarm (red) LED	12	26	1	00	16	***
	Active (yellow) LED	12	26	2	00	16	***
	Trouble (yellow) LED	12	26	3	00	16	***
27	Switch	12	27	n/a	00	16	***
	Alarm (red) LED	12	27	1	00	16	***
	Active (yellow) LED	12	27	2	00	16	***
	Trouble (yellow) LED	12	27	3	00	16	***
28	Switch	12	28	n/a	00	16	***
	Alarm (red) LED	12	28	1	00	16	***
	Active (yellow) LED	12	28	2	00	16	***
	Trouble (yellow) LED	12	28	3	00	16	***
29	Switch	12	29	n/a	00	16	***
	Alarm (red) LED	12	29	1	00	16	***
	Active (yellow) LED	12	29	2	00	16	***
	Trouble (yellow) LED	12	29	3	00	16	***
30	Switch	12	30	n/a	00	16	***
	Alarm (red) LED	12	30	1	00	16	***
	Active (yellow) LED	12	30	2	00	16	***
	Trouble (yellow) LED	12	30	3	00	16	***

Table D-22: Annunciator card group 13 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	13	01	n/a	00	16	***
	Alarm (red) LED	13	01	1	00	16	***
	Active (yellow) LED	13	01	2	00	16	***

Table D-22: Annunciator card group 13 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	13	01	3	00	16	***
2	Switch	13	02	n/a	00	16	***
	Alarm (red) LED	13	02	1	00	16	***
	Active (yellow) LED	13	02	2	00	16	***
	Trouble (yellow) LED	13	02	3	00	16	***
3	Switch	13	03	n/a	00	16	***
	Alarm (red) LED	13	03	1	00	16	***
	Active (yellow) LED	13	03	2	00	16	***
	Trouble (yellow) LED	13	03	3	00	16	***
4	Switch	13	04	n/a	00	16	***
	Alarm (red) LED	13	04	1	00	16	***
	Active (yellow) LED	13	04	2	00	16	***
	Trouble (yellow) LED	13	04	3	00	16	***
5	Switch	13	05	n/a	00	16	***
	Alarm (red) LED	13	05	1	00	16	***
	Active (yellow) LED	13	05	2	00	16	***
	Trouble (yellow) LED	13	05	3	00	16	***
6	Switch	13	06	n/a	00	16	***
	Alarm (red) LED	13	06	1	00	16	***
	Active (yellow) LED	13	06	2	00	16	***
	Trouble (yellow) LED	13	06	3	00	16	***
7	Switch	13	07	n/a	00	16	***
	Alarm (red) LED	13	07	1	00	16	***
	Active (yellow) LED	13	07	2	00	16	***
	Trouble (yellow) LED	13	07	3	00	16	***
8	Switch	13	08	n/a	00	16	***
	Alarm (red) LED	13	08	1	00	16	***
	Active (yellow) LED	13	08	2	00	16	***
	Trouble (yellow) LED	13	08	3	00	16	***
9	Switch	13	09	n/a	00	16	***
	Alarm (red) LED	13	09	1	00	16	***
	Active (yellow) LED	13	09	2	00	16	***
	Trouble (yellow) LED	13	09	3	00	16	***

Table D-22: Annunciator card group 13 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
10	Switch	13	10	n/a	00	16	***
	Alarm (red) LED	13	10	1	00	16	***
	Active (yellow) LED	13	10	2	00	16	***
	Trouble (yellow) LED	13	10	3	00	16	***
11	Switch	13	11	n/a	00	16	***
	Alarm (red) LED	13	11	1	00	16	***
	Active (yellow) LED	13	11	2	00	16	***
	Trouble (yellow) LED	13	11	3	00	16	***
12	Switch	13	12	n/a	00	16	***
	Alarm (red) LED	13	12	1	00	16	***
	Active (yellow) LED	13	12	2	00	16	***
	Trouble (yellow) LED	13	12	3	00	16	***
13	Switch	13	13	n/a	00	16	***
	Alarm (red) LED	13	13	1	00	16	***
	Active (yellow) LED	13	13	2	00	16	***
	Trouble (yellow) LED	13	13	3	00	16	***
14	Switch	13	14	n/a	00	16	***
	Alarm (red) LED	13	14	1	00	16	***
	Active (yellow) LED	13	14	2	00	16	***
	Trouble (yellow) LED	13	14	3	00	16	***
15	Switch	13	15	n/a	00	16	***
	Alarm (red) LED	13	15	1	00	16	***
	Active (yellow) LED	13	15	2	00	16	***
	Trouble (yellow) LED	13	15	3	00	16	***
16	Switch	13	16	n/a	00	16	***
	Alarm (red) LED	13	16	1	00	16	***
	Active (yellow) LED	13	16	2	00	16	***
	Trouble (yellow) LED	13	16	3	00	16	***
17	Switch	13	17	n/a	00	16	***
	Alarm (red) LED	13	17	1	00	16	***
	Active (yellow) LED	13	17	2	00	16	***
	Trouble (yellow) LED	13	17	3	00	16	***
18	Switch	13	18	n/a	00	16	***

Table D-22: Annunciator card group 13 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	13	18	1	00	16	***
	Active (yellow) LED	13	18	2	00	16	***
	Trouble (yellow) LED	13	18	3	00	16	***
19	Switch	13	19	n/a	00	16	***
	Alarm (red) LED	13	19	1	00	16	***
	Active (yellow) LED	13	19	2	00	16	***
	Trouble (yellow) LED	13	19	3	00	16	***
20	Switch	13	20	n/a	00	16	***
	Alarm (red) LED	13	20	1	00	16	***
	Active (yellow) LED	13	20	2	00	16	***
	Trouble (yellow) LED	13	20	3	00	16	***
21	Switch	13	21	n/a	00	16	***
	Alarm (red) LED	13	21	1	00	16	***
	Active (yellow) LED	13	21	2	00	16	***
	Trouble (yellow) LED	13	21	3	00	16	***
22	Switch	13	22	n/a	00	16	***
	Alarm (red) LED	13	22	1	00	16	***
	Active (yellow) LED	13	22	2	00	16	***
	Trouble (yellow) LED	13	22	3	00	16	***
23	Switch	13	23	n/a	00	16	***
	Alarm (red) LED	13	23	1	00	16	***
	Active (yellow) LED	13	23	2	00	16	***
	Trouble (yellow) LED	13	23	3	00	16	***
24	Switch	13	24	n/a	00	16	***
	Alarm (red) LED	13	24	1	00	16	***
	Active (yellow) LED	13	24	2	00	16	***
	Trouble (yellow) LED	13	24	3	00	16	***
25	Switch	13	25	n/a	00	16	***
	Alarm (red) LED	13	25	1	00	16	***
	Active (yellow) LED	13	25	2	00	16	***
	Trouble (yellow) LED	13	25	3	00	16	***
26	Switch	13	26	n/a	00	16	***
	Alarm (red) LED	13	26	1	00	16	***

Table D-22: Annunciator card group 13 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	13	26	2	00	16	***
	Trouble (yellow) LED	13	26	3	00	16	***
27	Switch	13	27	n/a	00	16	***
	Alarm (red) LED	13	27	1	00	16	***
	Active (yellow) LED	13	27	2	00	16	***
	Trouble (yellow) LED	13	27	3	00	16	***
28	Switch	13	28	n/a	00	16	***
	Alarm (red) LED	13	28	1	00	16	***
	Active (yellow) LED	13	28	2	00	16	***
	Trouble (yellow) LED	13	28	3	00	16	***
29	Switch	13	29	n/a	00	16	***
	Alarm (red) LED	13	29	1	00	16	***
	Active (yellow) LED	13	29	2	00	16	***
	Trouble (yellow) LED	13	29	3	00	16	***
30	Switch	13	30	n/a	00	16	***
	Alarm (red) LED	13	30	1	00	16	***
	Active (yellow) LED	13	30	2	00	16	***
	Trouble (yellow) LED	13	30	3	00	16	***

Table D-23: Annunciator card group 14 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	14	01	n/a	00	16	***
	Alarm (red) LED	14	01	1	00	16	***
	Active (yellow) LED	14	01	2	00	16	***
	Trouble (yellow) LED	14	01	3	00	16	***
2	Switch	14	02	n/a	00	16	***
	Alarm (red) LED	14	02	1	00	16	***
	Active (yellow) LED	14	02	2	00	16	***
	Trouble (yellow) LED	14	02	3	00	16	***
3	Switch	14	03	n/a	00	16	***
	Alarm (red) LED	14	03	1	00	16	***
	Active (yellow) LED	14	03	2	00	16	***
	Trouble (yellow) LED	14	03	3	00	16	***

Table D-23: Annunciator card group 14 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
4	Switch	14	04	n/a	00	16	***
	Alarm (red) LED	14	04	1	00	16	***
	Active (yellow) LED	14	04	2	00	16	***
	Trouble (yellow) LED	14	04	3	00	16	***
5	Switch	14	05	n/a	00	16	***
	Alarm (red) LED	14	05	1	00	16	***
	Active (yellow) LED	14	05	2	00	16	***
	Trouble (yellow) LED	14	05	3	00	16	***
6	Switch	14	06	n/a	00	16	***
	Alarm (red) LED	14	06	1	00	16	***
	Active (yellow) LED	14	06	2	00	16	***
	Trouble (yellow) LED	14	06	3	00	16	***
7	Switch	14	07	n/a	00	16	***
	Alarm (red) LED	14	07	1	00	16	***
	Active (yellow) LED	14	07	2	00	16	***
	Trouble (yellow) LED	14	07	3	00	16	***
8	Switch	14	08	n/a	00	16	***
	Alarm (red) LED	14	08	1	00	16	***
	Active (yellow) LED	14	08	2	00	16	***
	Trouble (yellow) LED	14	08	3	00	16	***
9	Switch	14	09	n/a	00	16	***
	Alarm (red) LED	14	09	1	00	16	***
	Active (yellow) LED	14	09	2	00	16	***
	Trouble (yellow) LED	14	09	3	00	16	***
10	Switch	14	10	n/a	00	16	***
	Alarm (red) LED	14	10	1	00	16	***
	Active (yellow) LED	14	10	2	00	16	***
	Trouble (yellow) LED	14	10	3	00	16	***
11	Switch	14	11	n/a	00	16	***
	Alarm (red) LED	14	11	1	00	16	***
	Active (yellow) LED	14	11	2	00	16	***
	Trouble (yellow) LED	14	11	3	00	16	***
12	Switch	14	12	n/a	00	16	***

Table D-23: Annunciator card group 14 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	14	12	1	00	16	***
	Active (yellow) LED	14	12	2	00	16	***
	Trouble (yellow) LED	14	12	3	00	16	***
13	Switch	14	13	n/a	00	16	***
	Alarm (red) LED	14	13	1	00	16	***
	Active (yellow) LED	14	13	2	00	16	***
	Trouble (yellow) LED	14	13	3	00	16	***
14	Switch	14	14	n/a	00	16	***
	Alarm (red) LED	14	14	1	00	16	***
	Active (yellow) LED	14	14	2	00	16	***
	Trouble (yellow) LED	14	14	3	00	16	***
15	Switch	14	15	n/a	00	16	***
	Alarm (red) LED	14	15	1	00	16	***
	Active (yellow) LED	14	15	2	00	16	***
	Trouble (yellow) LED	14	15	3	00	16	***
16	Switch	14	16	n/a	00	16	***
	Alarm (red) LED	14	16	1	00	16	***
	Active (yellow) LED	14	16	2	00	16	***
	Trouble (yellow) LED	14	16	3	00	16	***
17	Switch	14	17	n/a	00	16	***
	Alarm (red) LED	14	17	1	00	16	***
	Active (yellow) LED	14	17	2	00	16	***
	Trouble (yellow) LED	14	17	3	00	16	***
18	Switch	14	18	n/a	00	16	***
	Alarm (red) LED	14	18	1	00	16	***
	Active (yellow) LED	14	18	2	00	16	***
	Trouble (yellow) LED	14	18	3	00	16	***
19	Switch	14	19	n/a	00	16	***
	Alarm (red) LED	14	19	1	00	16	***
	Active (yellow) LED	14	19	2	00	16	***
	Trouble (yellow) LED	14	19	3	00	16	***
20	Switch	14	20	n/a	00	16	***
	Alarm (red) LED	14	20	1	00	16	***

Table D-23: Annunciator card group 14 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	14	20	2	00	16	***
	Trouble (yellow) LED	14	20	3	00	16	***
21	Switch	14	21	n/a	00	16	***
	Alarm (red) LED	14	21	1	00	16	***
	Active (yellow) LED	14	21	2	00	16	***
	Trouble (yellow) LED	14	21	3	00	16	***
22	Switch	14	22	n/a	00	16	***
	Alarm (red) LED	14	22	1	00	16	***
	Active (yellow) LED	14	22	2	00	16	***
	Trouble (yellow) LED	14	22	3	00	16	***
23	Switch	14	23	n/a	00	16	***
	Alarm (red) LED	14	23	1	00	16	***
	Active (yellow) LED	14	23	2	00	16	***
	Trouble (yellow) LED	14	23	3	00	16	***
24	Switch	14	24	n/a	00	16	***
	Alarm (red) LED	14	24	1	00	16	***
	Active (yellow) LED	14	24	2	00	16	***
	Trouble (yellow) LED	14	24	3	00	16	***
25	Switch	14	25	n/a	00	16	***
	Alarm (red) LED	14	25	1	00	16	***
	Active (yellow) LED	14	25	2	00	16	***
	Trouble (yellow) LED	14	25	3	00	16	***
26	Switch	14	26	n/a	00	16	***
	Alarm (red) LED	14	26	1	00	16	***
	Active (yellow) LED	14	26	2	00	16	***
	Trouble (yellow) LED	14	26	3	00	16	***
27	Switch	14	27	n/a	00	16	***
	Alarm (red) LED	14	27	1	00	16	***
	Active (yellow) LED	14	27	2	00	16	***
	Trouble (yellow) LED	14	27	3	00	16	***
28	Switch	14	28	n/a	00	16	***
	Alarm (red) LED	14	28	1	00	16	***
	Active (yellow) LED	14	28	2	00	16	***

Table D-23: Annunciator card group 14 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	14	28	3	00	16	***
29	Switch	14	29	n/a	00	16	***
	Alarm (red) LED	14	29	1	00	16	***
	Active (yellow) LED	14	29	2	00	16	***
	Trouble (yellow) LED	14	29	3	00	16	***
30	Switch	14	30	n/a	00	16	***
	Alarm (red) LED	14	30	1	00	16	***
	Active (yellow) LED	14	30	2	00	16	***
	Trouble (yellow) LED	14	30	3	00	16	***

Table D-24: Annunciator card group 15 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	15	01	n/a	00	16	***
	Alarm (red) LED	15	01	1	00	16	***
	Active (yellow) LED	15	01	2	00	16	***
	Trouble (yellow) LED	15	01	3	00	16	***
2	Switch	15	02	n/a	00	16	***
	Alarm (red) LED	15	02	1	00	16	***
	Active (yellow) LED	15	02	2	00	16	***
	Trouble (yellow) LED	15	02	3	00	16	***
3	Switch	15	03	n/a	00	16	***
	Alarm (red) LED	15	03	1	00	16	***
	Active (yellow) LED	15	03	2	00	16	***
	Trouble (yellow) LED	15	03	3	00	16	***
4	Switch	15	04	n/a	00	16	***
	Alarm (red) LED	15	04	1	00	16	***
	Active (yellow) LED	15	04	2	00	16	***
	Trouble (yellow) LED	15	04	3	00	16	***
5	Switch	15	05	n/a	00	16	***
	Alarm (red) LED	15	05	1	00	16	***
	Active (yellow) LED	15	05	2	00	16	***
	Trouble (yellow) LED	15	05	3	00	16	***
6	Switch	15	06	n/a	00	16	***

Table D-24: Annunciator card group 15 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	15	06	1	00	16	***
	Active (yellow) LED	15	06	2	00	16	***
	Trouble (yellow) LED	15	06	3	00	16	***
7	Switch	15	07	n/a	00	16	***
	Alarm (red) LED	15	07	1	00	16	***
	Active (yellow) LED	15	07	2	00	16	***
	Trouble (yellow) LED	15	07	3	00	16	***
8	Switch	15	08	n/a	00	16	***
	Alarm (red) LED	15	08	1	00	16	***
	Active (yellow) LED	15	08	2	00	16	***
	Trouble (yellow) LED	15	08	3	00	16	***
9	Switch	15	09	n/a	00	16	***
	Alarm (red) LED	15	09	1	00	16	***
	Active (yellow) LED	15	09	2	00	16	***
	Trouble (yellow) LED	15	09	3	00	16	***
10	Switch	15	10	n/a	00	16	***
	Alarm (red) LED	15	10	1	00	16	***
	Active (yellow) LED	15	10	2	00	16	***
	Trouble (yellow) LED	15	10	3	00	16	***
11	Switch	15	11	n/a	00	16	***
	Alarm (red) LED	15	11	1	00	16	***
	Active (yellow) LED	15	11	2	00	16	***
	Trouble (yellow) LED	15	11	3	00	16	***
12	Switch	15	12	n/a	00	16	***
	Alarm (red) LED	15	12	1	00	16	***
	Active (yellow) LED	15	12	2	00	16	***
	Trouble (yellow) LED	15	12	3	00	16	***
13	Switch	15	13	n/a	00	16	***
	Alarm (red) LED	15	13	1	00	16	***
	Active (yellow) LED	15	13	2	00	16	***
	Trouble (yellow) LED	15	13	3	00	16	***
14	Switch	15	14	n/a	00	16	***
	Alarm (red) LED	15	14	1	00	16	***

Table D-24: Annunciator card group 15 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	15	14	2	00	16	***
	Trouble (yellow) LED	15	14	3	00	16	***
15	Switch	15	15	n/a	00	16	***
	Alarm (red) LED	15	15	1	00	16	***
	Active (yellow) LED	15	15	2	00	16	***
	Trouble (yellow) LED	15	15	3	00	16	***
16	Switch	15	16	n/a	00	16	***
	Alarm (red) LED	15	16	1	00	16	***
	Active (yellow) LED	15	16	2	00	16	***
	Trouble (yellow) LED	15	16	3	00	16	***
17	Switch	15	17	n/a	00	16	***
	Alarm (red) LED	15	17	1	00	16	***
	Active (yellow) LED	15	17	2	00	16	***
	Trouble (yellow) LED	15	17	3	00	16	***
18	Switch	15	18	n/a	00	16	***
	Alarm (red) LED	15	18	1	00	16	***
	Active (yellow) LED	15	18	2	00	16	***
	Trouble (yellow) LED	15	18	3	00	16	***
19	Switch	15	19	n/a	00	16	***
	Alarm (red) LED	15	19	1	00	16	***
	Active (yellow) LED	15	19	2	00	16	***
	Trouble (yellow) LED	15	19	3	00	16	***
20	Switch	15	20	n/a	00	16	***
	Alarm (red) LED	15	20	1	00	16	***
	Active (yellow) LED	15	20	2	00	16	***
	Trouble (yellow) LED	15	20	3	00	16	***
21	Switch	15	21	n/a	00	16	***
	Alarm (red) LED	15	21	1	00	16	***
	Active (yellow) LED	15	21	2	00	16	***
	Trouble (yellow) LED	15	21	3	00	16	***
22	Switch	15	22	n/a	00	16	***
	Alarm (red) LED	15	22	1	00	16	***
	Active (yellow) LED	15	22	2	00	16	***

Table D-24: Annunciator card group 15 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	15	22	3	00	16	***
23	Switch	15	23	n/a	00	16	***
	Alarm (red) LED	15	23	1	00	16	***
	Active (yellow) LED	15	23	2	00	16	***
	Trouble (yellow) LED	15	23	3	00	16	***
24	Switch	15	24	n/a	00	16	***
	Alarm (red) LED	15	24	1	00	16	***
	Active (yellow) LED	15	24	2	00	16	***
	Trouble (yellow) LED	15	24	3	00	16	***
25	Switch	15	25	n/a	00	16	***
	Alarm (red) LED	15	25	1	00	16	***
	Active (yellow) LED	15	25	2	00	16	***
	Trouble (yellow) LED	15	25	3	00	16	***
26	Switch	15	26	n/a	00	16	***
	Alarm (red) LED	15	26	1	00	16	***
	Active (yellow) LED	15	26	2	00	16	***
	Trouble (yellow) LED	15	26	3	00	16	***
27	Switch	15	27	n/a	00	16	***
	Alarm (red) LED	15	27	1	00	16	***
	Active (yellow) LED	15	27	2	00	16	***
	Trouble (yellow) LED	15	27	3	00	16	***
28	Switch	15	28	n/a	00	16	***
	Alarm (red) LED	15	28	1	00	16	***
	Active (yellow) LED	15	28	2	00	16	***
	Trouble (yellow) LED	15	28	3	00	16	***
29	Switch	15	29	n/a	00	16	***
	Alarm (red) LED	15	29	1	00	16	***
	Active (yellow) LED	15	29	2	00	16	***
	Trouble (yellow) LED	15	29	3	00	16	***
30	Switch	15	30	n/a	00	16	***
	Alarm (red) LED	15	30	1	00	16	***
	Active (yellow) LED	15	30	2	00	16	***
	Trouble (yellow) LED	15	30	3	00	16	***

Table D-25: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	16	01	n/a	00	16	***
	Alarm (red) LED	16	01	1	00	16	***
	Active (yellow) LED	16	01	2	00	16	***
	Trouble (yellow) LED	16	01	3	00	16	***
2	Switch	16	02	n/a	00	16	***
	Alarm (red) LED	16	02	1	00	16	***
	Active (yellow) LED	16	02	2	00	16	***
	Trouble (yellow) LED	16	02	3	00	16	***
3	Switch	16	03	n/a	00	16	***
	Alarm (red) LED	16	03	1	00	16	***
	Active (yellow) LED	16	03	2	00	16	***
	Trouble (yellow) LED	16	03	3	00	16	***
4	Switch	16	04	n/a	00	16	***
	Alarm (red) LED	16	04	1	00	16	***
	Active (yellow) LED	16	04	2	00	16	***
	Trouble (yellow) LED	16	04	3	00	16	***
5	Switch	16	05	n/a	00	16	***
	Alarm (red) LED	16	05	1	00	16	***
	Active (yellow) LED	16	05	2	00	16	***
	Trouble (yellow) LED	16	05	3	00	16	***
6	Switch	16	06	n/a	00	16	***
	Alarm (red) LED	16	06	1	00	16	***
	Active (yellow) LED	16	06	2	00	16	***
	Trouble (yellow) LED	16	06	3	00	16	***
7	Switch	16	07	n/a	00	16	***
	Alarm (red) LED	16	07	1	00	16	***
	Active (yellow) LED	16	07	2	00	16	***
	Trouble (yellow) LED	16	07	3	00	16	***
8	Switch	16	08	n/a	00	16	***
	Alarm (red) LED	16	08	1	00	16	***
	Active (yellow) LED	16	08	2	00	16	***
	Trouble (yellow) LED	16	08	3	00	16	***

Table D-25: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
9	Switch	16	09	n/a	00	16	***
	Alarm (red) LED	16	09	1	00	16	***
	Active (yellow) LED	16	09	2	00	16	***
	Trouble (yellow) LED	16	09	3	00	16	***
10	Switch	16	10	n/a	00	16	***
	Alarm (red) LED	16	10	1	00	16	***
	Active (yellow) LED	16	10	2	00	16	***
	Trouble (yellow) LED	16	10	3	00	16	***
11	Switch	16	11	n/a	00	16	***
	Alarm (red) LED	16	11	1	00	16	***
	Active (yellow) LED	16	11	2	00	16	***
	Trouble (yellow) LED	16	11	3	00	16	***
12	Switch	16	12	n/a	00	16	***
	Alarm (red) LED	16	12	1	00	16	***
	Active (yellow) LED	16	12	2	00	16	***
	Trouble (yellow) LED	16	12	3	00	16	***
13	Switch	16	13	n/a	00	16	***
	Alarm (red) LED	16	13	1	00	16	***
	Active (yellow) LED	16	13	2	00	16	***
	Trouble (yellow) LED	16	13	3	00	16	***
14	Switch	16	14	n/a	00	16	***
	Alarm (red) LED	16	14	1	00	16	***
	Active (yellow) LED	16	14	2	00	16	***
	Trouble (yellow) LED	16	14	3	00	16	***
15	Switch	16	15	n/a	00	16	***
	Alarm (red) LED	16	15	1	00	16	***
	Active (yellow) LED	16	15	2	00	16	***
	Trouble (yellow) LED	16	15	3	00	16	***
16	Switch	16	16	n/a	00	16	***
	Alarm (red) LED	16	16	1	00	16	***
	Active (yellow) LED	16	16	2	00	16	***
	Trouble (yellow) LED	16	16	3	00	16	***
17	Switch	16	17	n/a	00	16	***

Table D-25: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	16	17	1	00	16	***
	Active (yellow) LED	16	17	2	00	16	***
	Trouble (yellow) LED	16	17	3	00	16	***
18	Switch	16	18	n/a	00	16	***
	Alarm (red) LED	16	18	1	00	16	***
	Active (yellow) LED	16	18	2	00	16	***
	Trouble (yellow) LED	16	18	3	00	16	***
19	Switch	16	19	n/a	00	16	***
	Alarm (red) LED	16	19	1	00	16	***
	Active (yellow) LED	16	19	2	00	16	***
	Trouble (yellow) LED	16	19	3	00	16	***
20	Switch	16	20	n/a	00	16	***
	Alarm (red) LED	16	20	1	00	16	***
	Active (yellow) LED	16	20	2	00	16	***
	Trouble (yellow) LED	16	20	3	00	16	***
21	Switch	16	21	n/a	00	16	***
	Alarm (red) LED	16	21	1	00	16	***
	Active (yellow) LED	16	21	2	00	16	***
	Trouble (yellow) LED	16	21	3	00	16	***
22	Switch	16	22	n/a	00	16	***
	Alarm (red) LED	16	22	1	00	16	***
	Active (yellow) LED	16	22	2	00	16	***
	Trouble (yellow) LED	16	22	3	00	16	***
23	Switch	16	23	n/a	00	16	***
	Alarm (red) LED	16	23	1	00	16	***
	Active (yellow) LED	16	23	2	00	16	***
	Trouble (yellow) LED	16	23	3	00	16	***
24	Switch	16	24	n/a	00	16	***
	Alarm (red) LED	16	24	1	00	16	***
	Active (yellow) LED	16	24	2	00	16	***
	Trouble (yellow) LED	16	24	3	00	16	***
25	Switch	16	25	n/a	00	16	***
	Alarm (red) LED	16	25	1	00	16	***

Table D-25: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	16	25	2	00	16	***
	Trouble (yellow) LED	16	25	3	00	16	***
26	Switch	16	26	n/a	00	16	***
	Alarm (red) LED	16	26	1	00	16	***
	Active (yellow) LED	16	26	2	00	16	***
	Trouble (yellow) LED	16	26	3	00	16	***
27	Switch	16	27	n/a	00	16	***
	Alarm (red) LED	16	27	1	00	16	***
	Active (yellow) LED	16	27	2	00	16	***
	Trouble (yellow) LED	16	27	3	00	16	***
28	Switch	16	28	n/a	00	16	***
	Alarm (red) LED	16	28	1	00	16	***
	Active (yellow) LED	16	28	2	00	16	***
	Trouble (yellow) LED	16	28	3	00	16	***
29	Switch	16	29	n/a	00	16	***
	Alarm (red) LED	16	29	1	00	16	***
	Active (yellow) LED	16	29	2	00	16	***
	Trouble (yellow) LED	16	29	3	00	16	***
30	Switch	16	30	n/a	00	16	***
	Alarm (red) LED	16	30	1	00	16	***
	Active (yellow) LED	16	30	2	00	16	***
	Trouble (yellow) LED	16	30	3	00	16	***

Appendix E

Contact ID event codes

Summary

This appendix provides a list of Contact ID event codes that you can use when programming dialer strings.

Content

Alarms

Contact ID alarm event codes are listed in the table below. The Data Type column designates which information to include as the last five digits of the dialer string when you use the corresponding event code.

Fire alarms (110 – 119)

Event code	Description	Data type
110	Fire	Point ID
111	Smoke	Point ID
112	Combustion	Point ID
113	Water flow	Point ID
114	Heat	Point ID
115	Pull station	Point ID
116	Duct	Point ID
117	Flame	Point ID
118	Near alarm	Point ID
119	not defined	

Supervisories

The following table lists the Contact ID supervisory event codes. The last column (data type) designates which information to include in the last five digits of the dialer string when you use the corresponding event code.

Fire supervisory (200 – 219)

Event code	Description	Data type
200	Fire supervisory	Point ID
201	Low water pressure	Point ID
202	Low CO2 (carbon dioxide)	Point ID
203	Gate valve sensor	Point ID
204	Low water level	Point ID
205	Pump activated	Point ID
206	Pump failure	Point ID
207 – 219	not defined	

Troubles

Contact ID trouble event codes are divided into the following categories:

- System troubles
- Sounder/relay troubles
- System peripheral troubles
- Communication troubles
- Protection loop troubles
- Sensor troubles
- General alarms

The following tables list the Contact ID trouble event codes. The last column (data type) designates which information to include in the last five digits of the dialer string when you use the corresponding event code.

System troubles (300 – 319)

Event code	Description	Data type
300	System trouble	Point ID
301	AC loss	Point ID
302	Low system battery	Point ID
303	RAM checksum bad	Point ID
304	ROM checksum bad	Point ID
305	System reset	Point ID
306	Panel programming changed	Point ID
307	Self-test failure	Point ID
308	System shutdown	Point ID
309	Battery test failure	Point ID
310	Ground fault	Point ID
311	Battery missing or dead	Point ID
312	Power supply over-current	Point ID
313	Engineer reset	User ID
314 – 319	not defined	

Sounder/relay troubles (320 – 329)

Event code	Description	Data type
320	Sounder/relay	Point ID
321	Bell 1	Point ID
322	Bell 2	Point ID

Event code	Description	Data type
323	Alarm relay	Point ID
324	Trouble relay	Point ID
325	Reversing relay	Point ID
326	Notification appliance Ckt. #3	Point ID
327	Notification appliance Ckt. #4	Point ID
328 – 329	not defined	

System peripheral troubles (330 – 349)

Event code	Description	Data type
330	System peripheral trouble	Point ID
331	Polling loop open	Point ID
332	Polling loop short	Point ID
333	Expansion module failure	Point ID
334	Repeater failure	Point ID
335	Local printer out of paper	Point ID
336	Local printer failure	Point ID
337	Expansion module DC loss	Point ID
338	Expansion module low battery	Point ID
339	Expansion module reset	Point ID
340	not defined	Point ID
341	Expansion module tamper	Point ID
342	Expansion module AC loss	Point ID
343	Expansion module self-test fail	Point ID
344 – 349	not defined	

Communication troubles (350 – 369)

Event code	Description	Data type
350	Communication trouble	Point ID
351	Telco line 1 fault	Point ID
352	Telco line 2 fault	Point ID
353	Long range radio transmitter fault	Point ID
354	Failure to communicate event	Point ID
355	Loss of radio supervision	Point ID

Event code	Description	Data type
356	Loss of central polling	Point ID
357	Long range radio VSWR problem	Point ID
358 – 369	not defined	

Protection loop (370 – 379)

Event code	Description	Data type
370	Protection loop	Point ID
371	Protection loop open	Point ID
372	Protection loop short	Point ID
373	Fire trouble	Point ID
374	Exit error (zone)	Point ID
375	Panel zone trouble	Point ID
376	Holdup zone trouble	Point ID
377 – 379	not defined	

Sensor troubles (380 – 399)

Event code	Description	Data type
380	Sensor trouble	Point ID
381	Loss of supervision - RF	Point ID
382	Loss of supervision - RPM	Point ID
383	Sensor tamper	Point ID
384	RF low battery	Point ID
385	Smoke detector high sensitivity	Point ID
386	Smoke detector low sensitivity	Point ID
387	Intrusion detector high sensitivity	Point ID
388	Intrusion detector low sensitivity	Point ID
389	Sensor self-test failure	Point ID
390	not defined	
391	Sensor watch trouble	Point ID
392	Drift compensation error	Point ID
393	Maintenance alert	Point ID
394 – 399	not defined	

General alarms (140 – 149)

Event code	Description	Data type
140	General alarm	Point ID
141	Polling loop open	Point ID
142	Polling loop short	Point ID
143	Expansion module failure	Point ID
144	Sensor tamper	Point ID
145	Expansion module tamper	Point ID
146	Silent burglary	Point ID
147 – 149	not defined	

Bypasses/disables

Contact ID bypasses/disables event codes are divided into the following categories:

- System disables
- Sounder/relay disables
- System peripheral disables
- Communication disables
- Bypasses

The following tables list the Contact ID bypasses/disables event codes. The last column (data type) designates which information to include in the last five digits of the dialer string when you use the corresponding event code.

System disables (500 – 519)

Event code	Description	Data type
500	System disable	Point ID
501	Access reader disable	Point ID
502 – 519	not defined	

Sounder/relay disables (520 – 529)

Event code	Description	Data type
520	Sounder/relay disable	Point ID
521	Bell 1 disable	Point ID
522	Bell 2 disable	Point ID
523	Alarm relay disable	Point ID
524	Trouble relay disable	Point ID
525	Reversing relay disable	Point ID
526	Notification appliance Ckt. #3 disable	Point ID
527	Notification appliance Ckt. #4 disable	Point ID
528 – 529	not defined	

System peripheral disables (530 – 549)

Event code	Description	Data type
530	System peripheral disable	Point ID
531	Module added	Point ID
532	Module removed	Point ID

Event code	Description	Data type
533 – 549	not defined	

Communication disables (550 – 569)

Event code	Description	Data type
550	Communication disabled	Point ID
551	Dialer disabled	Point ID
552	Radio transmitter disabled	Point ID
553	Remote upload/download disabled	Point ID
534 – 549	not defined	

Bypasses (570 – 579)

Event code	Description	Data type
570	Zone/sensor bypass	Point ID
571	Fire bypass	Point ID
572	24 hour zone bypass	Point ID
573	Burglar bypass	Point ID
574	Group bypass	User ID
575	Swinger bypass	Point ID
576	Access zone shunt	Point ID
577	Access point bypass	Point ID
578 – 579	not defined	

Test/miscellaneous

Contact ID test/miscellaneous event codes are divided into the following categories:

- Test/miscellaneous
- Event log
- Scheduling
- Personnel monitoring
- Miscellaneous

The following tables list the Contact ID test/miscellaneous event codes. The last column (data type) designates which information to include in the last five digits of the dialer string when you use the corresponding event code.

Test/miscellaneous (600 – 619)

Event code	Description	Data type
600	Test/miscellaneous	Point ID
601	Manual trigger test report	Point ID
602	Periodic test report	Point ID
603	Periodic RF transmission	Point ID
604	Fire test	User ID
605	Status report to follow	Point ID
606	Listen-in to follow	Point ID
607	Walk Test mode	User ID
608	Periodic test - system trouble present	Point ID
609	Video transmitter active	Point ID
610	not defined	
611	Point tested OK	Point ID
612	Point not tested	Point ID
613	Intrusion zone walk tested	Point ID
614	Fire zone walk tested	Point ID
615	Panic zone walk tested	Point ID
616	Service request	Point ID
617– 619	not defined	

Event log (620 – 629)

Event code	Description	Data type
620	Event log	Point ID
621	Event log reset	Point ID
622	Event log 50% full	Point ID
623	Event log 90% full	Point ID
624	Event log overflow	Point ID
625	Time/date reset	User ID
626	Time/date inaccurate	Point ID
627	Program mode entry	Point ID
628	Program mode exit	Point ID
629	32 hour event log marker	Point ID

Scheduling (630 – 639)

Event code	Description	Data type
630	Schedule change	Point ID
631	Exception schedule change	Point ID
632	Access schedule change	Point ID
633 – 639	not defined	

Personnel monitoring (640 – 649)

Event code	Description	Data type
640	Personnel monitoring	Point ID
641	Senior watch trouble	Point ID
642	Latch-key supervision	User ID
643 – 649	not defined	

Miscellaneous (650 – 659)

Event code	Description	Data type
650	Personnel monitoring	Point ID
651	Reserved	
652 – 652	not defined	

Z

Index

B

C

D

E

F

G

H

I

J

L

M

N

O

P

R

S

T

U

V

W

Z