QSC
Technical Reference Manual

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DEVELOPED BY	UTC Fire & Security 8985 Town Center Parkway Bradenton, FL 34202 (941) 739-4200
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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 conventional life safety control panel. It is organized as follows:

Chapter 1, Introduction: Provides information about this manual and other related documentation.

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

Chapter 3, Panel components: Provides technical descriptions of the components that can be connected to the control panel.

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

Chapter 5, Operating instructions: 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: 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: 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: 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: 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: 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, Addresses: Provides a comprehensive list of addresses to use as a general reference.

Appendix D, 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 trained fire alarm system professionals 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

CTM City Tie Module Installation Sheet (P/N 3101025)

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)

QS-CPU(X) CPU/Display Unit Installation Sheet (P/N 3100276)

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

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)

Signature Series Component Installation Manual (P/N 270497)

EST Strobe Applications Guide (P/N 85000-0049)

QuickStart Online Help Utility (P/N 7350047)

QuickStart ULI and ULC Compatibility Lists (P/N 3100335)

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 40 Class A or up to 48 Class B initiating device circuits (IDCs). Combination systems can't have more than 40 IDCs.
- Up to 10 Class A or 12 Class B notification appliance circuits (NACs)
- 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 programmable dry contact relays
- 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 annunciators

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.

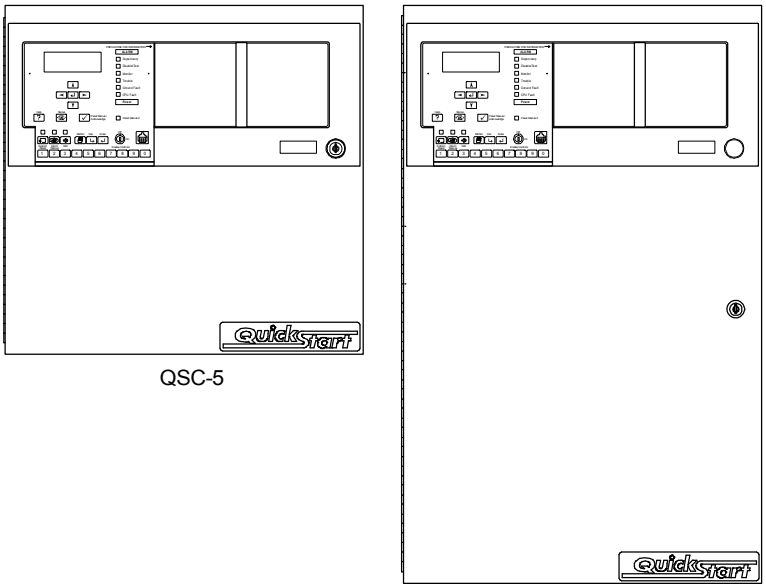


Figure 2-1: Fire alarm control panels, front view

Table 2-1: Control panel models

Model	Description
QSC-5-(G/R)-1	Conventional control panel, 5 option card spaces, gray (G) or red (R), finish, 115 V transformer
QSC-12-(G/R)-1	Conventional control panel, 12 option card spaces, gray (G) or red (R), finish, 115 V 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

Table 2-2 lists the option cards that you can install in a control panel. 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 initiating device circuits, 4 of which can be used as notification appliance circuits. Requires 2 card spaces.
ZA8-2	Class A Conventional Zone Card. The ZA8-2 card provides 8 initiating device circuits, 2 of which can be used as notification appliance circuits. Requires 2 card spaces.
ZR8	Relay Card. The ZR8 card provides 8 programmable dry contact relays. 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.

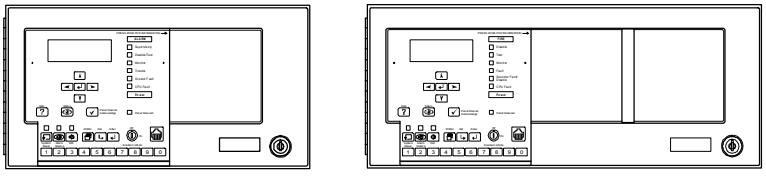
For more information, see Chapter 3, “Panel components.”

QSA series remote annunciators

QSA series remote annunciators provide common control switches, system status indicators, event messages at remote locations throughout the protected premises. If an LED/switch card is installed, they can provide zone status indicators and manual override switches.

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 annunciator 60-zone annunciator

Figure 2-2: QSA series remote annunciators, front view

Table 2-3: QSA series remote annunciators

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

QSA series remote annunciators communicate with the control panel over the RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory power output on a PS6 card
- An auxiliary/booster power supply

The PS6 card's smoke/accessory power 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/booster power supply that is UL/ULC listed for fire protective signaling systems. Use the same supply to power each remote annunciator.

R Series remote annunciators

R Series remote annunciators, see Figure 2-3, provide common control switches, system status indicators, zone event messages, and zone status indicators at remote locations throughout the protected premises. R Series remote annunciator models are listed in Table 2-4.

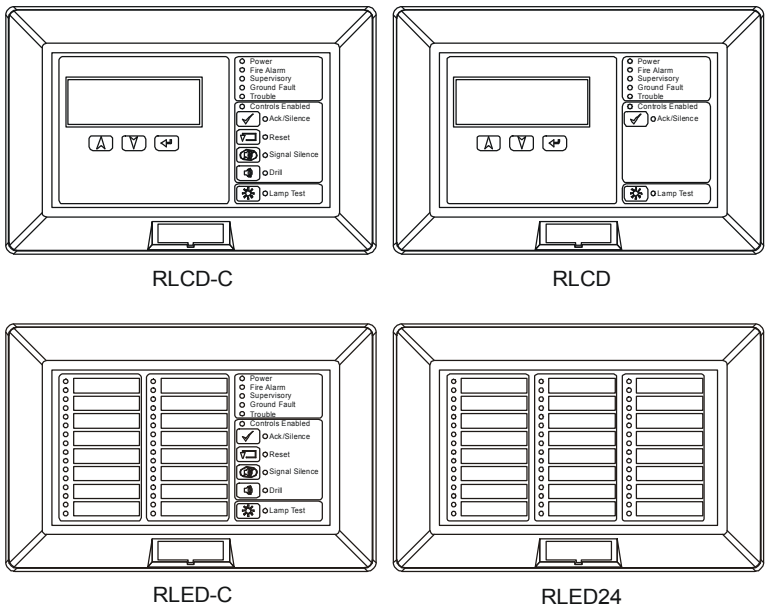


Figure 2-3: R Series remote annunciators

Table 2-4: R Series remote annunciators

Model	Description
RLCD-C	LCD text annunciator with common controls
RLCD	LCD text annunciator without common controls
RLED-C	LED zone annunciator with common controls
RLED24	LED zone expander
Note: LEDs on the RLED-C and the RLED24 are not programmable. Common control switches are not programmable.	

R Series remote annunciators communicate with the control panel over the RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory power output on a PS6 card
- An auxiliary/booster power supply

The PS6 card's smoke/accessory power output can supply power to only two R Series remote annunciators. If more than two R Series remote annunciators are installed, you must use an auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems. Use the same supply to power each remote annunciator.

Envoy graphic annunciators

Envoy graphic annunciators display system alarm, supervisory, monitor, and trouble events using a QSA series remote annunciator and the protected premises' building, floor, or site map. LEDs behind the map indicate the location of interest while the remote annunciator 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.

Envoy graphic annunciators communicate with the control panel over the RS-485 riser. Operating power can come from one of the following sources:

- The smoke/accessory power output on a PS6 card
- An auxiliary/booster power supply

Accessories

Table 2-5 lists the accessories that you can connect to the control panel.

Table 2-5: Control panel accessories

Model	Description
QS-Cable12	Expansion cable for 12-option cabinets
Trim-5	Trim ring kit for a QS4-5-G-1
Trim-5R	Trim ring kit for a QS4-5-R-1
Trim-12	Trim ring kit for a QS4-12-G-1
Trim-12R	Trim ring kit for a QS4-12-R-1
QS-CU	QuickStart configuration utility

Table 2-5: Control panel accessories

Model	Description
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
CTM	City Tie Module
BPS6(A)	6.5-amp Booster Power Supply, 110 V
BPS10(A)	10-amp Booster Power Supply, 110 V
PROGCABLE-1	Programming cable, DB-9 to RJ-12

Minimum system requirements

Table 2-6 lists the minimum hardware requirements for each type of system listing.

Table 2-6: Minimum system requirements

Listing	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 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 ZB16-4 card or ZA8-2 card with at least one alarm input and one output configured as a common alarm output device type
	A 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 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 ZB16-4 card or ZA8-2 card with at least one alarm input
	A DLD card or an RPM module

System status indicators

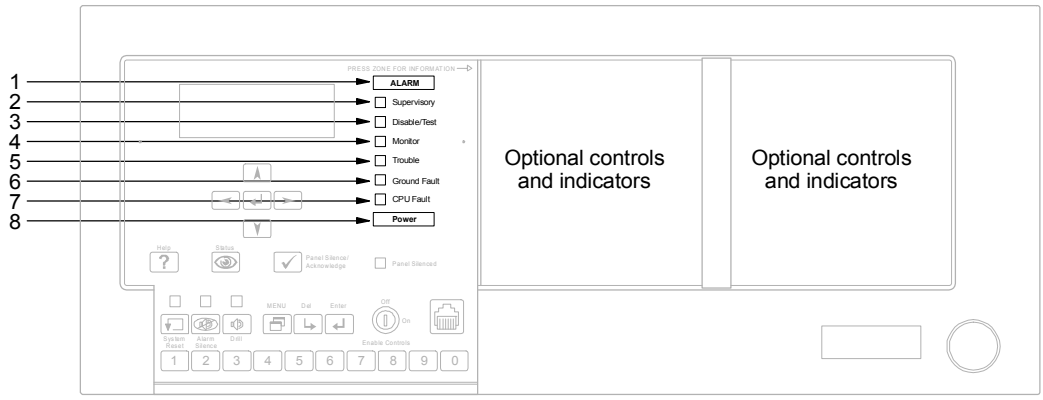


Table 2-7: System status indicator descriptions

No.	Indicator	Description
1	Alarm LED	Flashing indicates new alarm event messages. On indicates alarm event messages have been acknowledged.
2	Supervisory LED	Flashing indicates new supervisory event messages. On indicates supervisory event messages have been acknowledged.
3	Disable/Test LED	On indicates a disable or test event message is present **Note:** The disabled state has priority over the test state.
4	Monitor LED	Flashing indicates new monitor event messages. On indicates monitor event messages have been acknowledged.
5	Trouble LED	Flashing indicates new trouble event messages. On indicates trouble event messages have been acknowledged.
6	Ground Fault LED	On indicates a ground fault
7	CPU Fault LED	On indicates an unexpected restart or failure with the microprocessor
8	Power LED	On indicates the control panel is energized

Operator controls and indicators

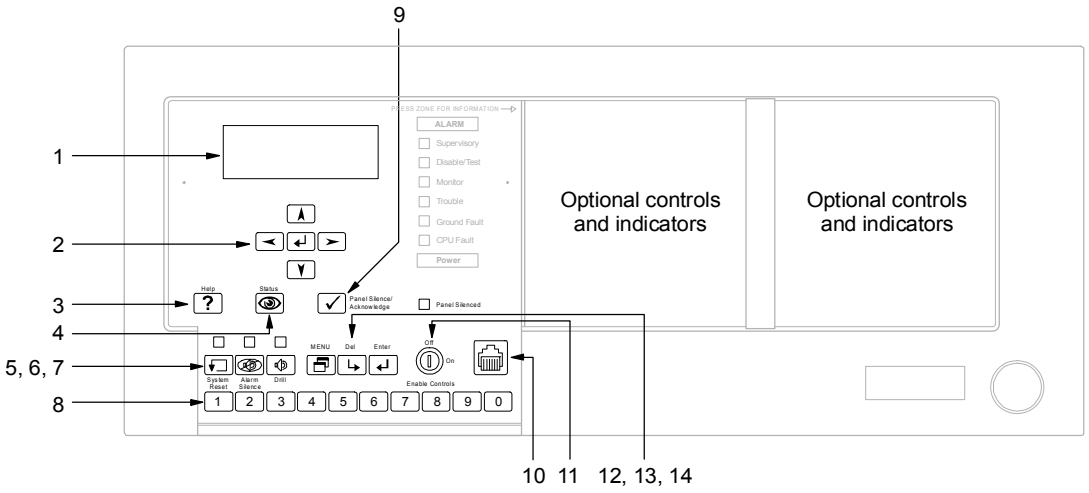


Table 2-8: Operator controls and indicator descriptions

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 buttons	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 button	Displays additional information about the selected event message
4	Status button	Displays the Status menu from which you can identify system components that are active, disabled, or in the test state
5	System Reset button	Restores the system to the normal state provided that no inputs are latched in the active state. The LED next to the button indicates the function is active. Requires the level 2 password or enable controls key to operate.
6	Alarm Silence button	Turns off (silences) all active audible and common alarm output device types, and if configured, all visible device types. Pressing the button again turns them on. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
7	Drill button	Turns on all audible and common alarm output device types, and if configured, all visible device types. Pressing the button again turns them off. The LED next to the button 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

Table 2-8: Operator controls and indicator descriptions

No.	Control/Indicator	Description
9	Panel Silence/ Acknowledge button	Silences the panel buzzer and acknowledges all current events. The LED next to the button indicates the function is active. Requires the level 2 password or the enable controls key to operate.
10	Barcode jack	Used to connect a compatible barcode wand for entering location description text or to connect a download cable (model PROGCABLE-1, ordered separately) for downloading or retrieving the project database
	Up and down cursor buttons	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	Enable Controls switch	Gives the operator immediate access to level 2 command menus and control buttons without entering a password
12	Menu button	Displays the system command menus from which you can operate, maintain, and program the fire alarm system
13	Delete button	Backspaces the cursor or returns the operator to the previous menu
14	Enter button	Processes commands or accepts data from the operator

Optional controls and indicators

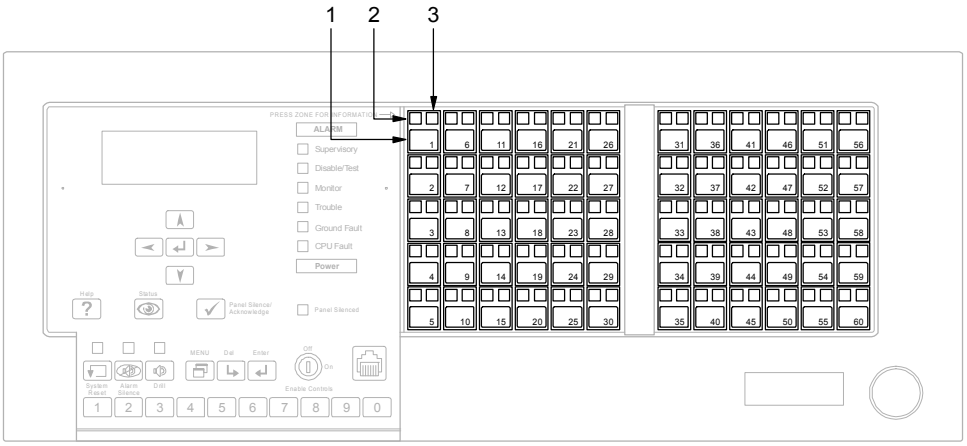


Table 2-9: Optional control and indicator descriptions

No.	Indicator	Description
1	Zone display/select button	Displays the location description, if programmed, for the corresponding zone. When enabling or disabling a zone, pressing the button selects the corresponding zone in the zone list. **Note:** 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 "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

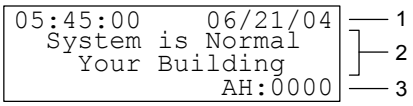
Annunciator group	Zones
3	61 to 90
4	91 to 120
5	121 to 150
6	151 to 180
7	181 to 210
8	211 to 240
9	241 to 270
10	271 to 300
11	301 to 330
12	331 to 360
13	361 to 390
14	391 to 420
15	421 to 450
16	451 to 480

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

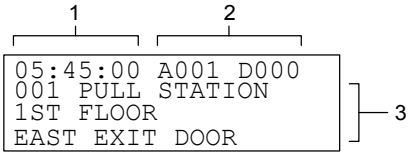
The alphanumeric display shows the System Normal display screen when the control panel is in the normal (quiescent) state.



No.	Name	Description
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. Example: 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.



No	Name	Description
1	Time field	Displays the system time in 24-hour format
2	Active and disabled points	Displays the number of active points (Annn) and the number of

	field	disabled points (Dnnn) currently in the system
3	Event message window	Displays the most recent, highest priority event message. Use the up and down arrow switches to scroll through the event messages.

Details display screen

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

```
DETAILS
P:01 C:01 D:002
1ST FLOOR
EAST EXIT DOOR
```

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

Table 2-10 lists the commands that you can always use. Entering a password is not required.

Table 2-10: Level 1 command menus

Menu	Commands
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) Alarm History
3) Test	1) Lamp Test
4) Login	

Level 2 command menus

Table 2-11 lists the commands that you can use after entering the level 2 password or after switching the Enable Controls key switch to the ON position.

Table 2-11: Level 2 command menus

Menu	Commands
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) History 2) Alarm History
3) Test	1) Lamp Test

Table 2-11: Level 2 command menus

Menu	Commands
4) Enable	1) Zone 2) Device
5) Disable	1) Zone 2) Device
6) Activate	1) Alt Sens 2) Alt Msg Route
7) Restore	1) Prm Sens 2) Prm Msg Route
8) Program	1) Time/Date 1) Enter Time 2) Edit Password 1) Level 1
9) Login	
Note: On NFPA 72 systems, the Time/Date menu is not available at level 2.	

Level 3 command menus

Table 2-12 lists the commands that you can use after entering the level 3 password.

Table 2-12: Level 3 command menus

Menu	Commands
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) History 2) Revisions 3) Alarm History
3) Test	1) Start Test 2) Cancel Test 3) Lamp Test

Table 2-12: Level 3 command menus

Menu	Commands
4) Enable	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch
5) Disable	1) Zone 2) Device 3) Group 1) AND 2) Matrix 3) Time Control 4) Switch
6) Activate	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED
7) Restore	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
9) Login	

Level 4 command menus

Table 2-13 lists the commands that you can use after entering the level 4 password.

Table 2-13: Level 4 command menus

Menu	Commands
1) Status	1) All Active 2) Alarm 3) Supervisory 4) Trouble 5) Monitor 6) Test 7) Disabled Pts 8) Outputs 9) Internal
2) Reports	1) History 2) Revisions 3) Alarm History
3) Test	1) Start Test 2) Cancel Test 3) Lamp Test
4) Enable	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch
5) Disable	1) Zone 2) Device 3) Card 4) Group 1) AND 2) Matrix 3) Time Control 5) Switch
6) Activate	1) Output 2) Alt Sens 3) Alt Msg Route 4) LED
7) Restore	1) Output 2) Prm Sens 3) Prm Msg Route 4) LED

Table 2-13: Level 4 command menus

Menu	Commands
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
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          V
>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        V
>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)History
 2)Revisions
 3)Alarm History
```

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

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        V
>1)Zone
 2)Device
 3)Card
 4)Group
 5)Switch
```

Use the commands on the Enable menu to place disabled components of the fire alarm system back into service.

Zone: Enables the zone selected from a zone list.

Device: Enables a 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      V
>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 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     V
>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: Not used on conventional panels.

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      V
>1)Output
 2)Alt Sens
 3)Alt 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: Not used on conventional panels.

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

LED: Changes the state of an LED to off.

Program menu

Program menu commands are discussed in detail in Chapter 7.

Event messages

Event messages are used to help locate points that are in an abnormal state. The control panel dynamically maintains the 300 most recent, highest priority event messages and are presented as one continuous list in the following order:

- Fire alarm event messages (highest priority)
- Supervisory event messages
- Trouble event messages
- Monitor event messages (lowest priority.)

Each event message consists of an event name and number, and two lines of text. Typically, the text is used to provide a location description. If a location description was not programmed, the two lines indicate the address of the point that signaled the event and the text "No message."

The event name identifies the type of event. The event number indicates the event message's position on the list and not the order in which the message was received. Event messages are numbered in descending order.

Use the up and down arrow switches to scroll through the event messages. When you reach the bottom of the list, pressing the down arrow switch takes you to the top. When you are at the top of the list, pressing the up arrow switch takes you to the bottom.

Fire alarm event messages

```
08:31:00 A002 D000
002ZONE ALARM
1ST FLOOR
EAST WING
001PULL STATION
P:01 C:01 D:001
No message
```

Fire alarm event messages identify fire alarm inputs that have been activated. 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 on the alphanumeric display.

Event name	Description
ALARM ACTIVE	An active initiating device circuit connected to two-wire smoke detectors, dry contact initiating devices, or both
AND GROUP	An active AND group
HEAT ALARM	An active initiating device circuit connected to a heat detector
PULL STATION	An active initiating device circuit connected to a pull station
MATRIX GROUP	An active matrix group
WATERFLOW	An active initiating device circuit connected to a waterflow switch

Event name	Description
ZONE ALARM	An active fire alarm zone

Supervisory event messages

```
08:31:00 A000 D000
001TAMPER
P:01 C:01 D:001
No message
```

Supervisory event messages 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 on the alphanumeric display.

Event name	Description
LATCH SUPV	An active latching initiating device circuit connected to a supervisory device other than an outside screw and yoke (OS&Y) valve supervisory switch
LATCH TAMPER	An active latching initiating device circuit connected to an outside screw and yoke (OS&Y) valve supervisory switch
SUPERVISORY	An active nonlatching initiating device circuit connected to a supervisory device other than an outside screw and yoke (OS&Y) valve supervisory switch
TAMPER	An active nonlatching initiating device circuit connected to an outside screw and yoke (OS&Y) valve supervisory switch
ZONE SUPER	An active supervisory zone

Trouble event messages

```
08:31:00 A000 D000
001LCL FAULT
Battery Wiring
Or Battery Fault
```

Trouble event messages identify system inputs and system outputs that are in a state that could affect the integrity of the fire alarm system. The table below describes the different trouble event messages that can appear on the alphanumeric display.

Event name	Description
AC POWER FAIL	An auxiliary/booster power supply lost AC power
DISABLED	A point is disabled
GROUND FAULT	An earth ground fault
LCL TROUBLE	An internal trouble on an option card

Event name	Description
SERVICE GROUP	An active service group
TEST	An active service group test
TROUBLE OPEN	An open detected on an initiating device circuit or on a notification appliance circuit
TROUBLE SHORT	A short detected on a notification appliance circuit

Monitor event messages

```
08:31:00 A000 D000
001MONITOR
P:01 C:01 D:001
No message
```

Monitor event messages 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 on the alphanumeric display.

Event name	Description
ALARM VERIFY	Alarm verification in progress
LCL MONITOR	An internal monitor point on an option card is active
MONITOR	An active nonlatching initiating device circuit connected to a dry contact device
OBJECT RUN	An active service group
SWITCH	An active switch on an LED/switch card
TIME CONTROL	An active time control
ZONE MONITOR	An active monitor zone

Control panel operation

The control panel can operate 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 events. 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 a point signals an alarm event.

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 for the First Alarm pseudo point
- Executes the active response for the point that signaled the alarm event

Indication of the alarm state

To indicate it is in the alarm state, the control panel:

- Sounds the panel buzzer using a repeating pattern of four beeps
- Flashes the Alarm LED at a rate of 300 times per minute

- Displays an event message in the ALM message queue for the point that signaled the alarm event

If the active point is an alarm zone and an LED/switch card is installed, the control panel also flashes the zone's alarm LED at a rate of 300 times per minute.

Supervisory state

The control panel enters the supervisory state when a point signals a supervisory event.

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 for the First Supervisory pseudo point
- Executes the active response for the point that signaled the supervisory event

Indication of the supervisory state

To indicate it is in the supervisory state, the control panel:

- Sounds the panel buzzer using a repeating pattern of two beeps
- Flashes the Supervisory LED at a rate of 30 times per minute
- Displays an event message in the SUP message queue for the point that signaled the supervisory event

If the active point is a supervisory zone and an LED/switch card is installed, the control panel also flashes the zone's active LED at a rate of 300 times per minute.

Trouble state

The control panel enters the trouble state when a point signals a trouble event.

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 for the First Trouble pseudo point

- Executes the trouble response for the point that signaled the trouble event

Indication of the trouble state

To indicate it is in the trouble state, the control panel:

- Sounds the panel buzzer at a rate of 30 times per minute
- Flashes the Trouble LED at a rate of 30 times per minute
- Displays an event message in the TRBL message queue for the point that signaled the trouble event
- Turns on the CPU Fault LED if the trouble is a CPU fault
- Turns on the Ground Fault LED if the trouble is an earth ground fault

If the point is an alarm, supervisory, or monitor zone and an LED/switch card is installed, the control panel also flashes the zone's trouble LED at a rate of 300 times per minute.

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 point signals a monitor event.

Output of the monitor state

Upon entering the monitor state, the control panel:

- Executes the active response for the First Monitor pseudo point
- Executes the active response for the point that signaled the monitor event

Indication of the monitor state

To indicate it is in the monitor state, the control panel:

- Sounds the panel buzzer using a repeating pattern of four beeps
- Flashes the Monitor LED at a rate of 30 times per minute
- Displays the point's event message in the MON message queue

If the point is a monitor zone and an LED/switch card is installed, the control panel also flashes the zone's active LED at a rate of 300 times per minute.

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

Disable state

The control panel enters the disable state when a point signals a disable event.

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 "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 for the First Trouble pseudo point
- Executes the trouble response for the First Disable pseudo point
- Executes the disablement response for the point that signaled the disable event

Indication of the disable state

To indicate it is in the disable state, the control panel:

- Sounds the panel buzzer at a rate of 30 times per minute
- Turns on the Disable/Test LED
- Flashes the Trouble LED at a rate of 30 times per minute
- Displays an event message in the TRBL message queue for the First Trouble pseudo point
- Displays an event message in the TRBL message queue for the point that signaled the disable event. This is the first line of the message: DISABLED.

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 notification appliance circuit whose wiring is

opened after it has been disabled still displays this event message after it is enabled: TROUBLE SHRT.

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 for the First Monitor pseudo point
- Executes the trouble response for the First Trouble pseudo point
- Executes the trouble response for the First Test pseudo point
- Executes the running response for the service group that was activated

While in the test state:

- When a member of an active service group signals an active event, the control panel executes the service group's active test response
- When a member of an active service group signals a trouble event, the control panel executes the service group's trouble test response

Note: If you do not program a trouble test response, the control panel executes the active test response instead.

Indication of the test state

To indicate it is in the test state, the control panel:

- Sounds the panel buzzer at a rate of 30 times per minute
- Turns on the Disable/Test LED
- Flashes the Monitor LED at a rate of 30 times per minute
- Flashes the Trouble LED at a rate of 30 times per minute
- Displays an event message in the TRBL message queue for the First Test pseudo point
- Displays an event message in the MON message queue for the service group that was activated. This is the first line of the message: OBJECT RUN.

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. It 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.

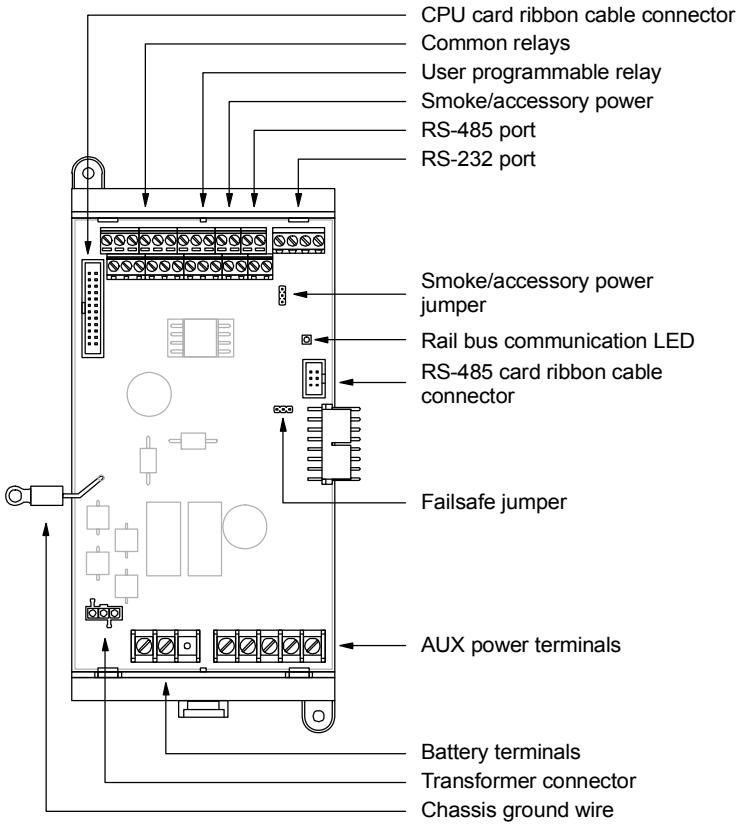


Figure 3-1: PS6 card, front view

The PS6 card provides the following outputs:

- Three 24 VFWR auxiliary outputs for powering notification appliance circuits
- One 24 VDC output for powering ancillary equipment or four-wire smoke detectors. Continuous or resettable power is selected using a jumper.
- One common alarm relay, one common trouble relay, one common supervisory relay, and one programmable relay

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)
- Battery type: Sealed lead acid
- Standby time: 24 hours

Maximum rail load: 1.32 A at 24 VDC
Smoke/accessory power output circuit
- UL rating: Special application
- Voltage: 19.5 to 26.3 VDC
- Current: 250 mA
- Continuous or resettable via jumper selection

Auxiliary power output circuits
- Quantity: 3
- UL rating: Special application
- 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. (20 twists/m), min.
- Circuit capacitance: 0.4 µF. max.
- Circuit resistance: 100 Ω, max.
- Circuit length: 3,000 ft. (914.4 m), max.

RS-232 port
- Circuit length: 20 ft. (6.1 m), max.

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 (programmable relay)
- Type: Normally open
- Contact rating: 1 A at 20.0 to 26.4 VDC (0.6 PF)

Ground fault impedance: 10 kΩ
Operating voltage: 24 VDC
Current requirements
- Standby current: 125 mA
- Alarm current: 132 mA

Operating environment

Temperature: 0 to 49°C (32 to 120°F)

Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

See *QuickStart Compatibility List* (P/N 3100335) for the devices that you can connect to circuits rated special applications and their quantity.

Relay outputs

The PS6 card provides four dry contact relay outputs as shown in Figure 3-2. Double-height terminals are provided for connection to an initiating device circuit. There are three common relays and one programmable relay.

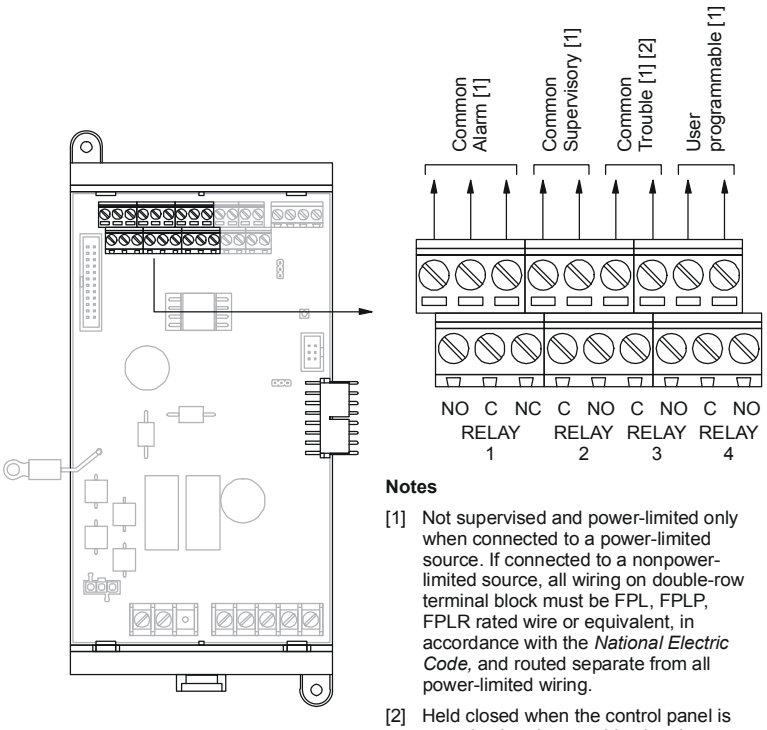


Figure 3-2: Relay output wiring

The four relays are described below.

Relay 1: Form C relay that changes over on any alarm event (common alarm).

Relay 2: Normally open relay that closes on any supervisory event (common supervisory).

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

Relay 4: Normally open relay that you can program to open and close.

Smoke/accessory power output

The PS6 card provides one 24 VDC regulated output as shown in Figure 3-3. You can use the smoke/accessory power output to power four-wire smoke detectors or accessory equipment.

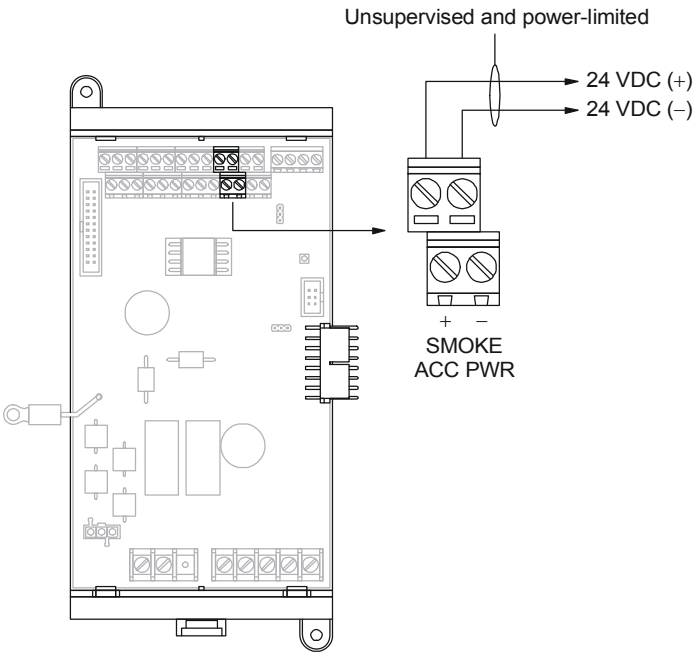


Figure 3-3: Smoke/accessory power output wiring

You can configure the smoke/accessory power output for continuous or resettable 24 VDC using jumper JP2. For more information, see “Jumper settings” later in this topic.

RS-485 port

The PS6 card provides one Class B RS-485 port as shown in Figure 3-4. You can use the RS-485 port to connect remote annunciators to the control panel.

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

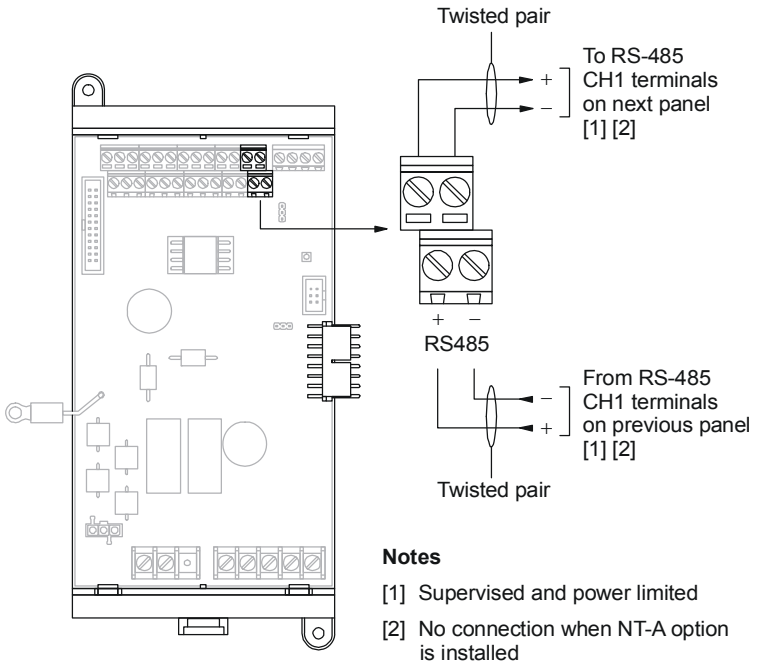


Figure 3-4: RS-485 port wiring

RS-232 port

The PS6 card provides one RS-232 port as shown in Figure 3-5. You can use the RS-232 port to connect a computer or a printer to the control panel, as well as other accessories.

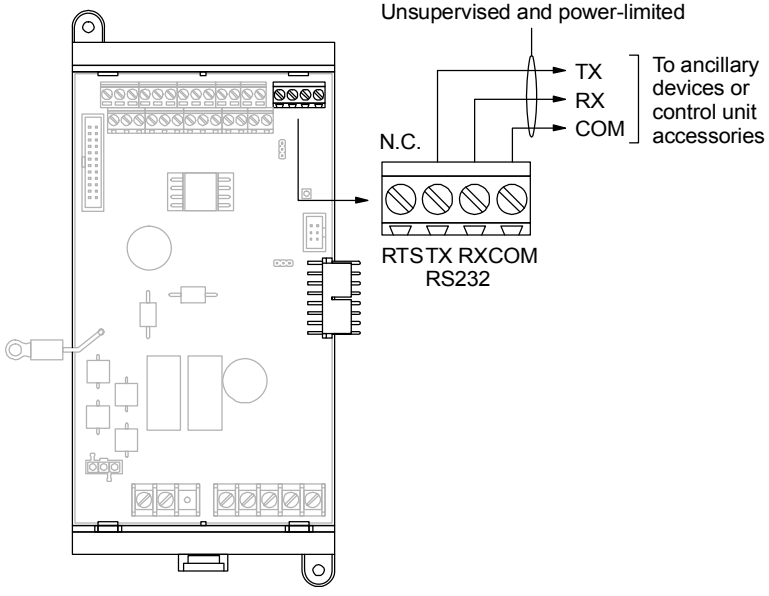


Figure 3-5: RS-232 port wiring

Auxiliary power outputs

The PS6 card provides three 24 VFWR (full-wave rectified) power outputs as shown in Figure 3-6. Typically, the AUX power outputs are used as signal risers for notification appliance circuits inside the cabinet.

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

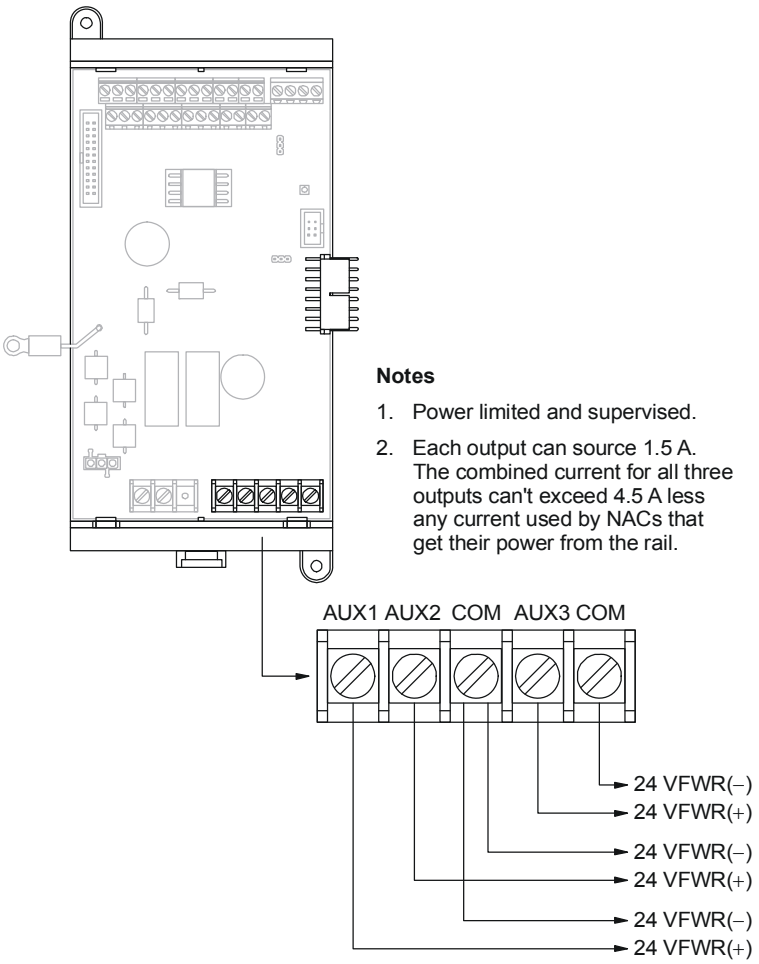


Figure 3-6: AUX power output wiring

Standby batteries

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

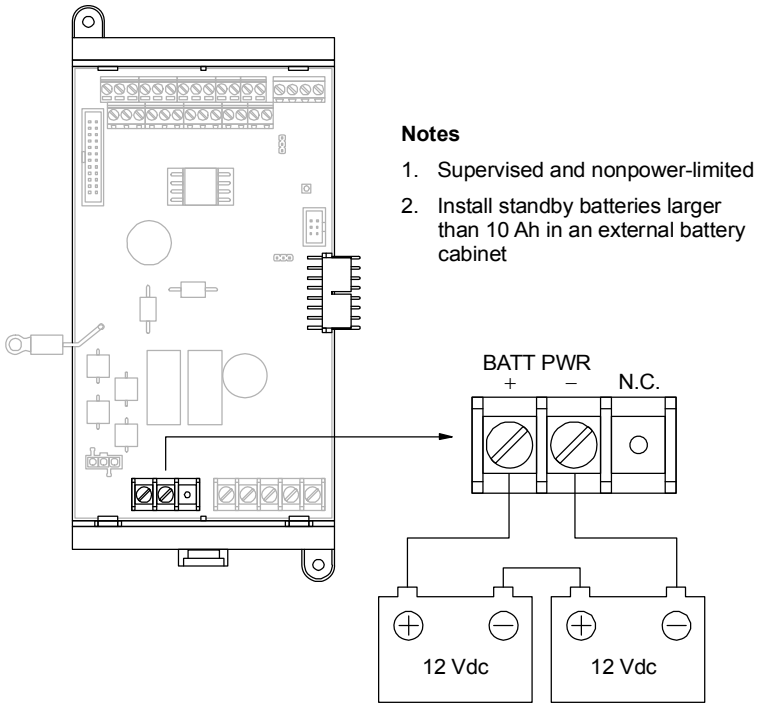


Figure 3-7: Standby battery wiring

Caution: Reversing the battery polarity can damage the PS6 card. Observe battery polarity when connecting standby batteries to 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 "PS6 card addresses" in Appendix D.

Jumper settings

Figure 3-8 shows the PS6 card's configuration jumpers.

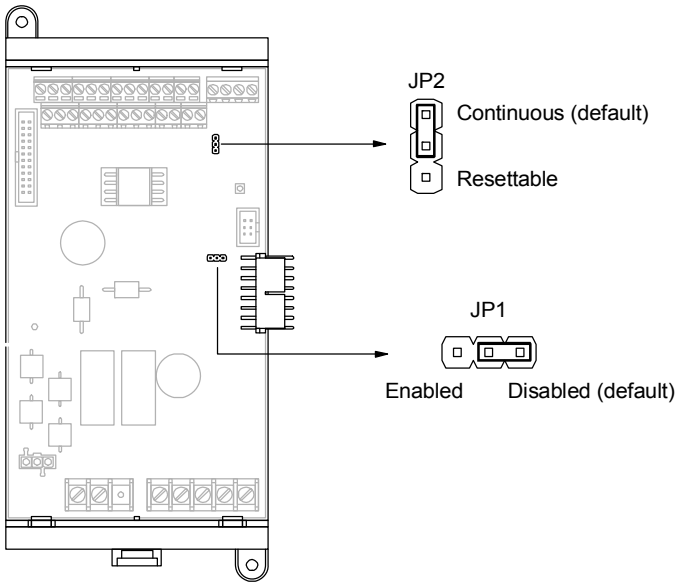


Figure 3-8: PS6 card jumpers

JP1: Failsafe operation

Setting	Description
Enabled	Failsafe operation enabled
Disabled	Failsafe operation disabled (default setting)

JP2: Smoke/accessory power

Setting	Description
Resettable	Reset temporarily turns off output. Use this setting when powering four-wire smoke detectors.
Continuous	Reset does not turn off output (default setting). Use this setting when powering remote annunciators and accessory devices.

With failsafe operation enabled, the PS6 card takes over responsibility for monitoring the fire alarm system whenever it can't communicate with the CPU/Display Unit. During this time, if there is a fire alarm event:

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

ZB16-4 Class B Zone Card

Description

The ZB16-4 Class B Zone Card, see Figure 3-1, provides 12 dedicated Class B initiating device circuits (IDCs) and 4 circuits that you can configure as IDCs or as Class B notification appliance circuits (NACs). The IDCs are used for monitoring two-wire smoke detectors and dry contact devices in alarm signaling, supervisory signaling, and equipment monitoring applications. The NACs are used for sounding horns and turning on strobes.

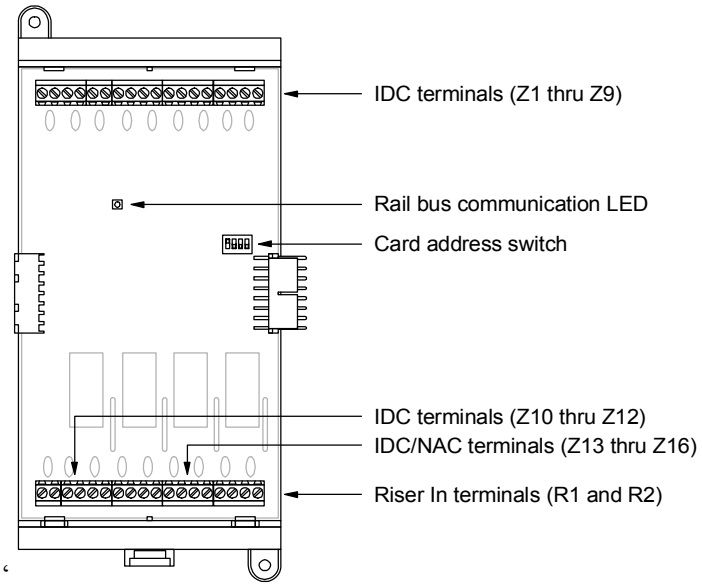


Figure 3-9: ZB16-4 card, front view

Specifications

Footprint: Double space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq. mm)
Initiating device 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

Notification appliance circuits
- Quantity: 0 to 4
- UL rating: Special application

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

Ground fault impedance: 10 kΩ

Operating voltage: 24 VDC

Current requirements
Standby: 127 mA
Alarm: 395 mA, max.

Operating environment
Temperature: 32 to 120°F (0 to 49°C)
Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

See *QuickStart Compatibility List* (P/N 3100335) for the devices that you can connect to circuits rated special applications and their quantity.

Initiating device circuits

Z1 to Z12, see Figure 3-11, are dedicated initiating device circuits (IDCs). Z13 to Z16 can be configured as IDCs or as notification appliance circuits (NACs).

Note: By default, Z13 to Z16 are configured as notification appliance circuits.

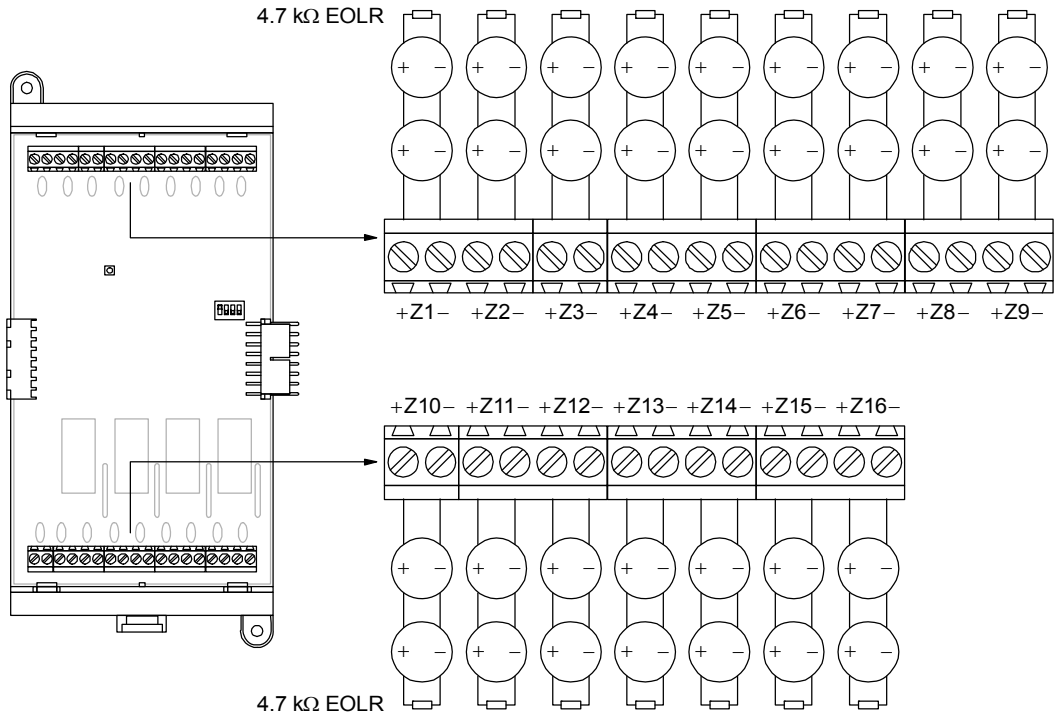


Figure 3-10: ZB16-4 card IDC wiring

ZB16-4 card IDCs operate as follows:

- A short circuit or low impedance activates an active event with an event message based on the IDC's device type
- An open circuit activates a trouble event with this event message: TROUBLE OPEN

You can configure ZB16-4 card IDCs using the device types below.

For alarm signaling applications:

- Alarm Active (default)
- Pull Station
- Heat Alarm
- Alarm Verify
- Waterflow

For supervisory signaling applications:

- Supervisory
- Tamper
- Latching Supervisory
- Latching Tamper

For equipment monitoring applications:

- Monitor

For auxiliary/booster supply monitoring applications:

- AC Pwr Fail

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

Notification appliance circuits

By default, Z13 to Z16, see Figure 3-11, are notification appliance circuits (NACs.) You can also configure them as initiating device circuits (IDCs). NAC power is supplied by the PS6 card’s AUX power outputs.

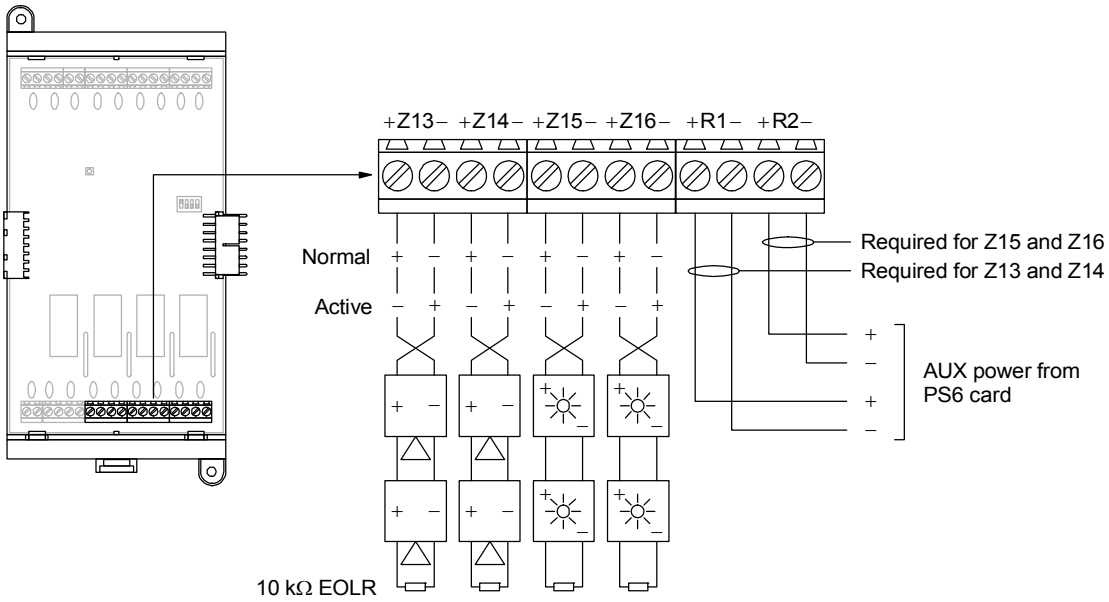


Figure 3-11: ZB16-4 card NAC wiring

In the normal state (off):

- A short circuit activates a trouble event with this event message: TROUBLE SHORT
- A open circuit activates a trouble event and generates this event message: TROUBLE OPEN

In the active state (on):

- AUX power from the PS6 card is connected directly to the circuit by way of the riser input terminals (R1 and R2)
- Output signal polarity is reversed and circuit supervision is suspended

Notes

- Notification appliance circuits will not turn on if the circuit is shorted

- A short placed across an NAC when it is active also shorts the AUX power output connected to its riser input terminals.

  To meet UL requirements, you must use the configuration utility to program a trouble response that provides protection from AUX power short circuits. For more information, see "AUX power short circuit protection" in the configuration utility's online help.

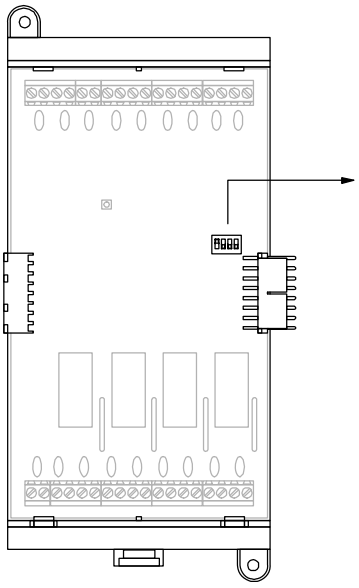
You can use these device types to configure ZB16-4 card NACs:

- Comm Alm Out (default for Z13 and Z14)
- Audible
- Visual (default for Z15 and Z16)
- 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 3-12.



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
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 3-12: ZB16-4 card address switch

For a list of ZB16-4 card point addresses, see "ZB16-4 card addresses" in Appendix D.

ZA8-2 Class A Conventional Zone Card

Description

The ZA8-2 card, see Figure 3-13, provides six dedicated Class A initiating device circuits (IDCs) and two circuits that you can configure as IDCs or as Class A notification appliance circuits (NACs). The IDCs are used for monitoring two-wire smoke detectors and dry contact devices in alarm signaling, supervisory signaling, and equipment monitoring applications. The NACs are used for sounding horns and turning on strobes.

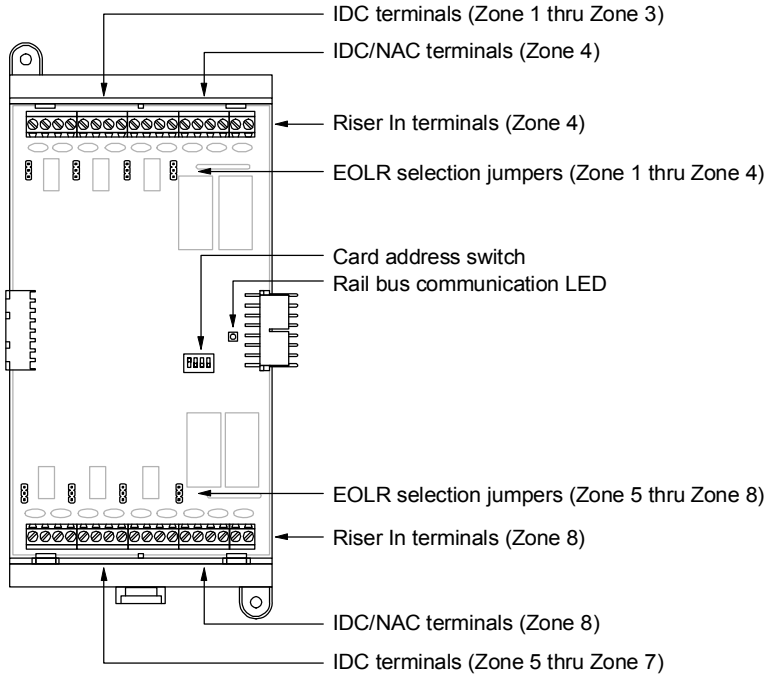


Figure 3-13: ZA8-2 card, front view

Specifications

Footprint: Double space
Wire size: 18 to 12 AWG (0.75 to 2.5 sq. mm)
Initiating device 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, via jumper selection
Compatibility ID: 100
Notification appliance circuits
Quantity: 0 to 2
UL rating: Special application
Wiring configuration: Class A
Output voltage: 24 V, nominal
Output current: 2.0 A, max.
End-of-line resistor: 10 kΩ, 1/2 W, via jumper selection
Riser inputs
Quantity: 2
Voltage: 24 V, nominal
Ground fault impedance: 7 kΩ
Operating voltage: 24 VDC
Current requirements
Standby: 81 mA
Alarm: 281 mA, max.
Operating environment
Temperature: 32 to 120°F (0 to 49°C)
Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

See *QuickStart Compatibility List* (P/N 3100335) for the devices that you can connect to circuits rated special applications and their quantity.

Initiating device circuits

Zone 1 to Zone 3 and Zone 5 to Zone 7, see Figure 3-14, are dedicated initiating device circuits (IDCs). Zone 4 and Zone 8 can be configured as IDCs or as notification appliance circuits (NACs).

Note: By default, Zone 4 and Zone 8 are configured as notification appliance circuits.

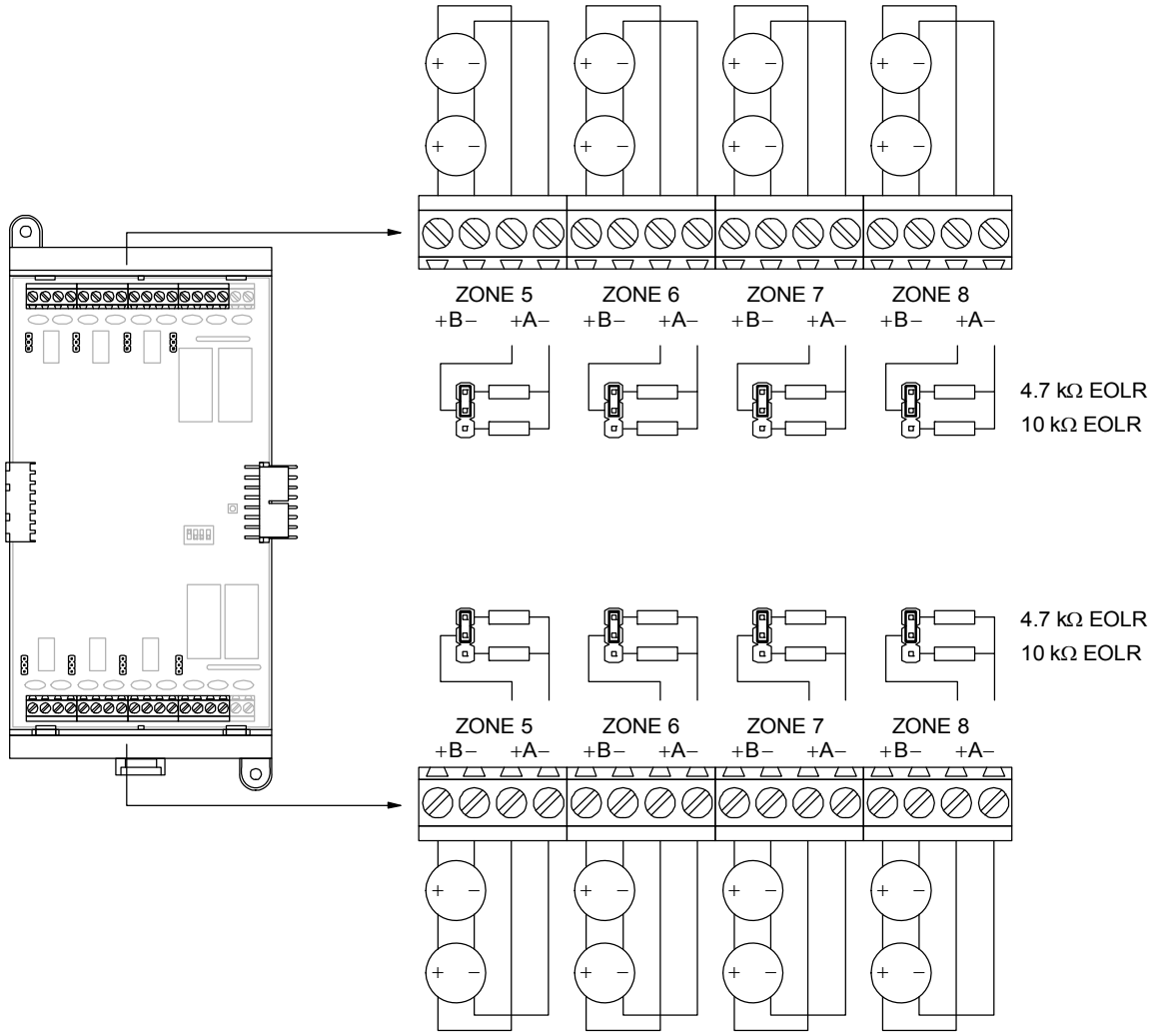


Figure 3-14: ZA8-2 card IDCwiring

ZA8-2 card IDCs operate as follows:

- A short circuit or low impedance activates an active event with an event message based on the IDC's device type
- An open circuit activates a trouble event with this event message: TROUBLE OPEN

Note: Trouble open event messages are latched and won't clear until the wiring fault is corrected and the control panel is reset.

You can configure the ZA8-2 card's IDCs using the device types below.

For alarm signaling applications:

- Alarm Active (default)
- Pull Station
- Heat Alarm

- Alarm Verify
- Waterflow

For supervisory signaling applications:

- Supervisory
- Tamper
- Latching Supervisory
- Latching Tamper

For equipment monitoring applications:

- Monitor

For auxiliary/booster supply monitoring applications:

- AC Pwr Fail

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

Notification appliance circuits

By default, Zone 4 and Zone 8, see Figure 3-15, are notification appliance circuits (NACs.) You can also configure them as initiating device circuits (IDCs). NAC power is supplied by the PS6 card’s AUX power outputs.

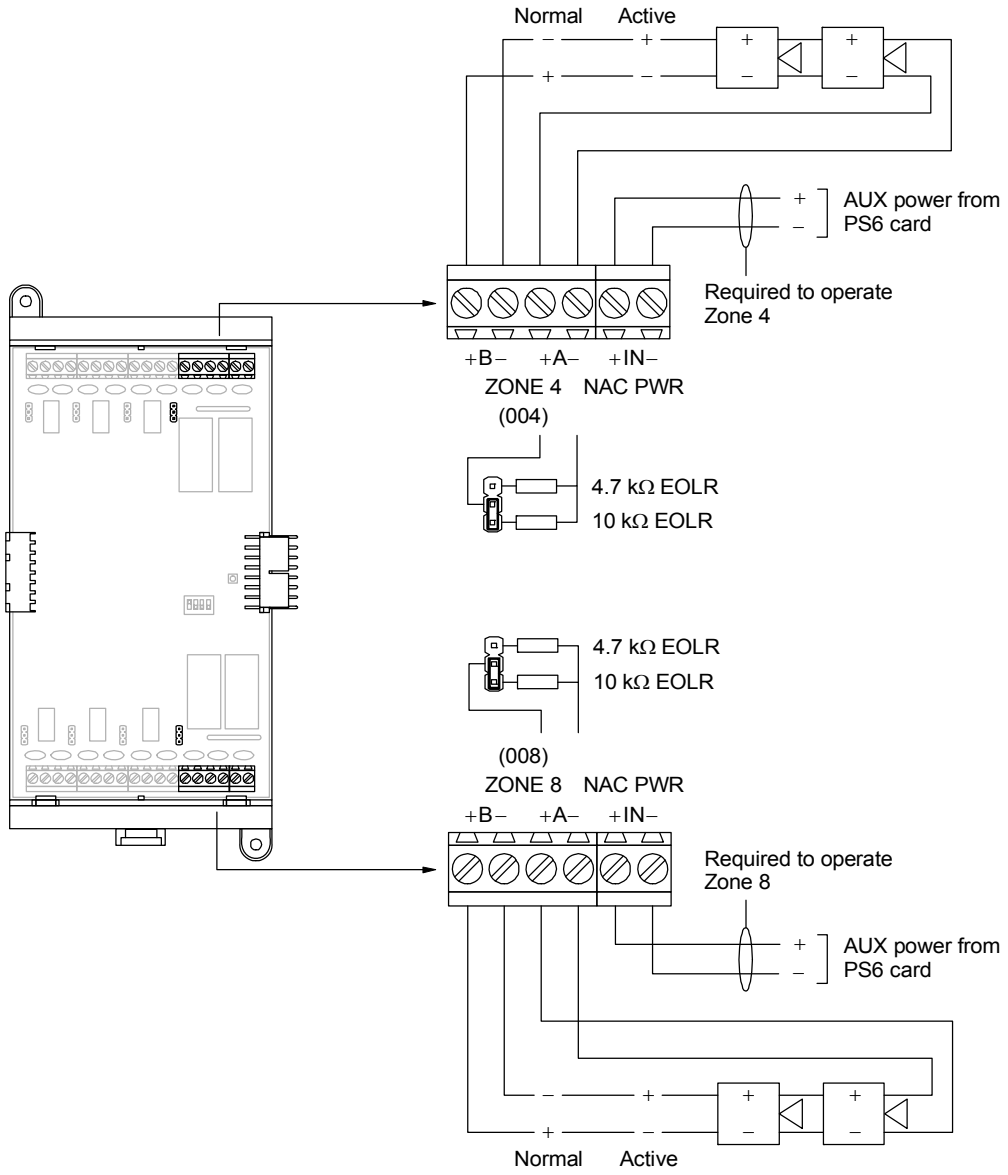


Figure 3-15: ZA8-2 card NAC wiring

In the normal state (off):

- A short circuit activates a trouble event with this event message: TROUBLE SHORT
- A short circuit activates a trouble event with this event message: TROUBLE OPEN

In the active state (on):

- AUX power from the PS6 card is connected directly to the circuit by way of the riser input terminals (NAC PWR IN)
- Output signal polarity is reversed and circuit supervision is suspended

Notes

- Notification appliance circuits will not turn on if the circuit is shorted
- A short placed across an NAC when it is active also shorts the AUX power output connected to its riser input terminals.

  To meet UL requirements, you must use the configuration utility to program a trouble response that provides protection from AUX power short circuits. For more information, see "AUX power short circuit protection" in the configuration utility's online help.

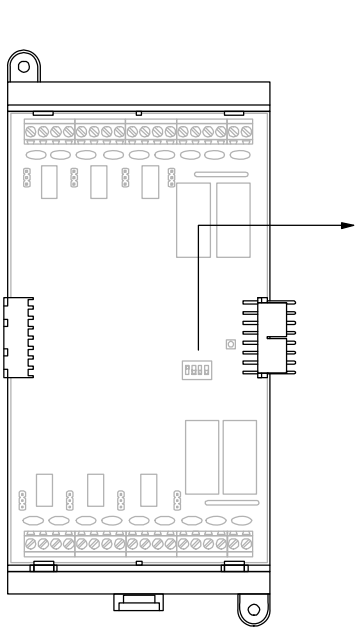
You can use these device types to configure ZA8-2 card NACs:

- Comm Alm Out (default for Zone 4)
- Audible
- Visual (default for Zone 8)
- 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 3-16.



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 3-16: ZA8-2 card address switch settings

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

ZR8 Relay Card

Description

The ZR8 card, see Figure 3-17, provides eight programmable relays. Each relay is jumper configurable for normally open or normally closed operation.

Note: Connecting ZR8 relays to an initiating device circuit (IDC) is not allowed.

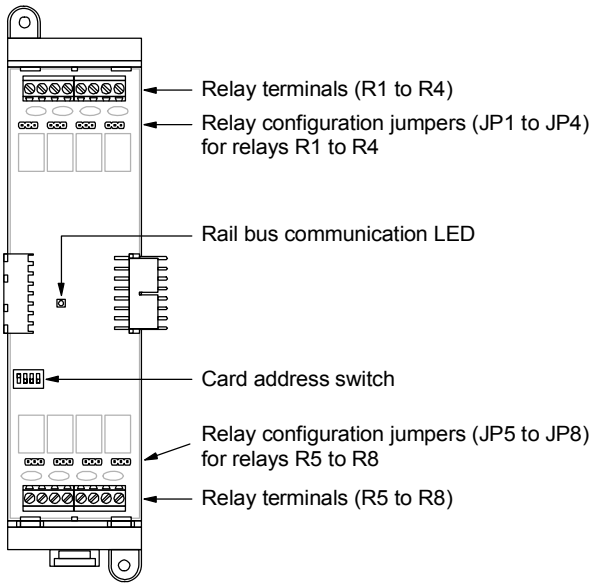


Figure 3-17: ZR8 card, front view

Specifications

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

Operating voltage: 24 VDC
Current requirements
- Standby current: 28 mA (plus 18 mA per energized relay)
- Alarm current: 28 mA (plus 18 mA per energized relay)

Operating environment
- Temperature: 0 to 49°C (32 to 120°F)
- Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

Relay outputs

Figure 3-18 shows the terminal block connections for each relay.

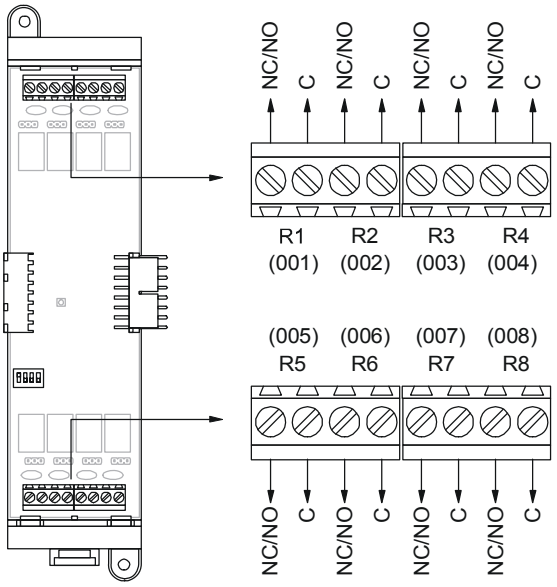
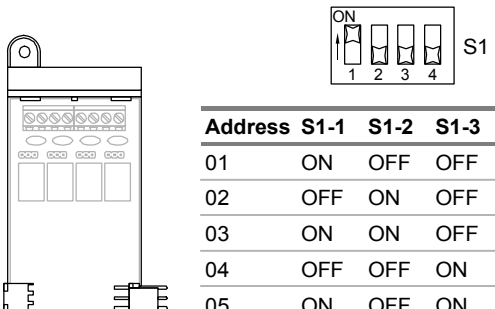


Figure 3-18: ZR8 card wiring

Address switch settings

You can configure the ZR8 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: ZR8 card address switch settings

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

Jumper settings

Jumpers JP1 through JP8, see Figure 3-20, 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.

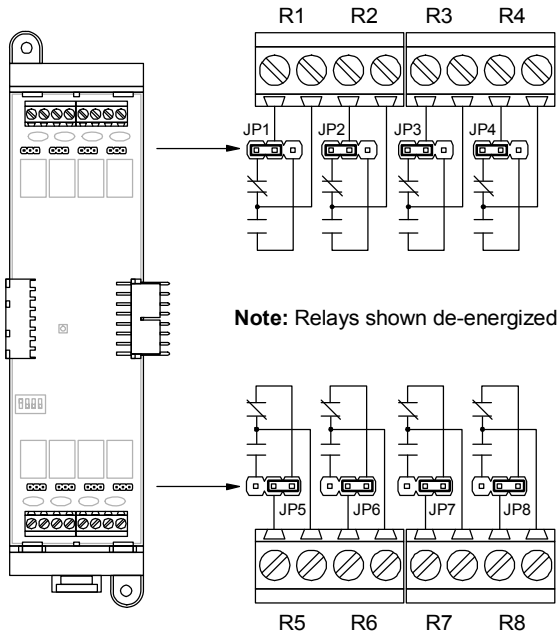


Figure 3-20: ZR8 card jumpers

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, Figure 3-21, provides two telephone line connections for transmitting system status changes to one or two compatible digital alarm communicator receivers (DACRs) over the public switched telephone network. The DLD card can transmit status changes in Contact ID and 4/2 formats to eight subscriber accounts.

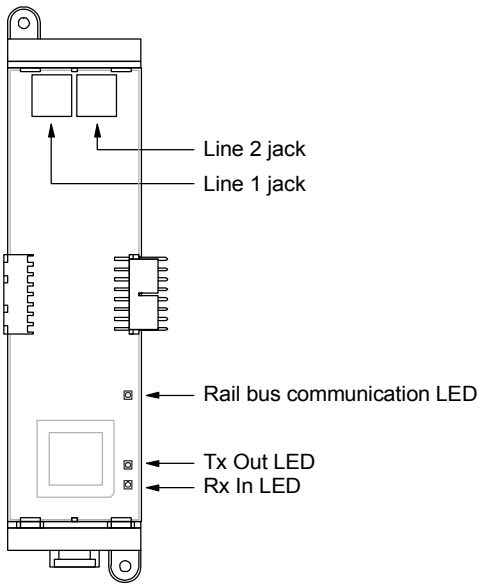


Figure 3-21: DLD card, front view

Specifications

Footprint: Single space
Ground fault impedance: 10 kΩ
Operating voltage: 24 VDC
Current requirements
- Standby: 13 mA
- Dialing: 27 mA

Operating environment
- Temperature: 0 to 49°C (32 to120°F)
- Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

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 and can't be changed.

AutoCID feature

The AutoCID (automatic Contact ID) feature provides a predefined set of dialer strings for transmitting status changes to Contact ID subscriber accounts. The DLD card transmits a predefined dialer string 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 dialer transmits custom dialer responses first. If there isn't a custom dialer response programmed, the dialer transmits the default message. If a default message is not programmed, the dialer transmits the predefined dialer string.

The predefined Contact ID dialer strings are listed below.

Alarm events

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 events

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 events

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 (SIGA devices only)	310	Card no.	Device no.
DLD Line 1 ground fault	570	14	017
DLD Line 2 ground fault	570	14	018
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. Wire the RJ-31X block as shown in Figure 3-22.

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

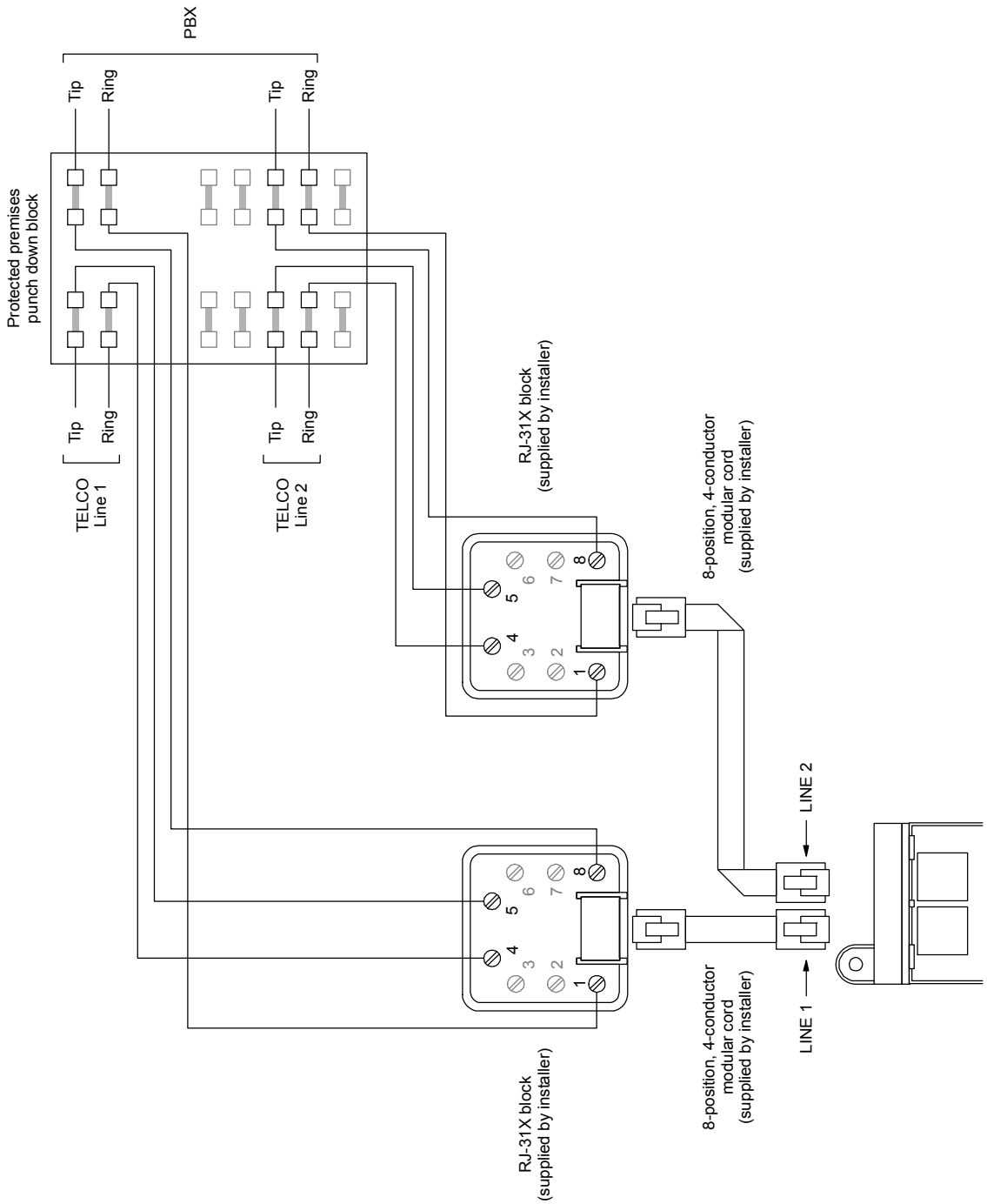


Figure 3-22: DLD card wiring

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 annunciators. The control panel requires installation of both cards while remote annunciators only require the installation of a QS-232 UART module and only then if you want to connect a printer or laptop computer to the remote annunciator.

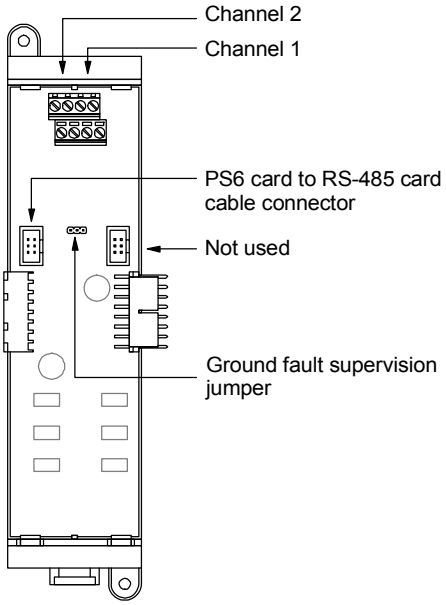


Figure 3-23: RS-485 card, front view

Specifications

Footprint: Single space (RS-485 card)
Wire size: 18 to 12 AWG (0.75 to 2.5 sq. mm)
Wire type: Twisted pair, 6 twists/ft. (20 twists/m), minimum
Circuit capacitance: 0.4 µF, max.
Circuit resistance: 100 Ω, max.
Circuit length: 3,000 ft. (914.4 m), max.
Maximum remote annunciators: 8
Ground fault impedance: 10 kΩ
Operating voltage: 24 VDC
Current requirements (RS-485 card)
- Standby current: 117 mA
- Alarm current: 121 mA

Current requirements (QS-232 UART module)
Standby current: 2 mA
Alarm current: 2 mA
Operating environment
Temperature: 0 to 49°C (32 to 120°F)
Humidity: 0 to 93% RH, noncondensing at 90°F (32°C)

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 3-24, 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 an auxiliary/remote booster supply is used to power remote annunciators.

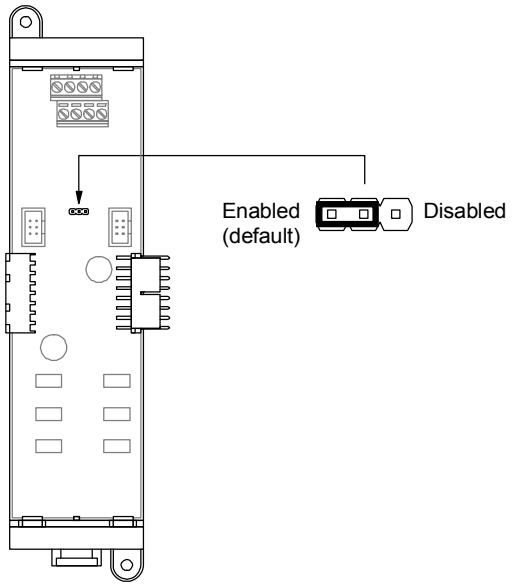


Figure 3-24: RS-485 card jumpers

Wiring

Figure 3-25 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. Use twisted pair cables.

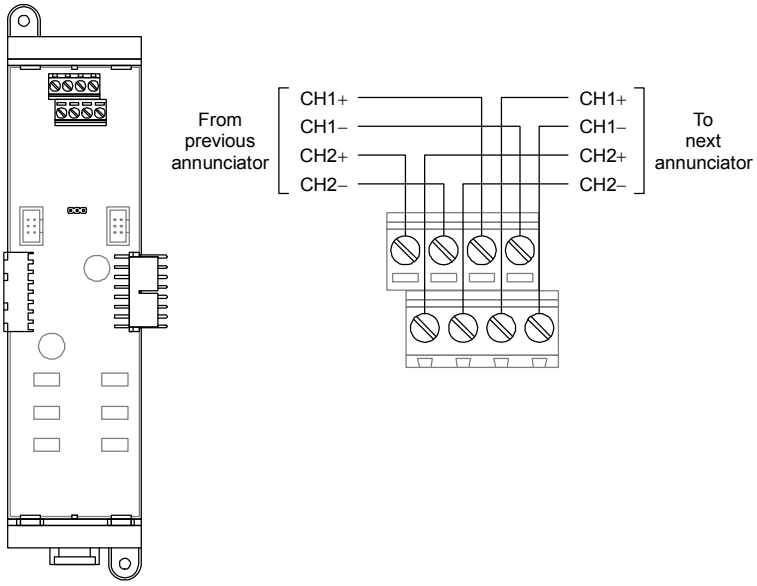


Figure 3-25: RS-485 card wiring

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 annunciator group 1, and the next is assigned to annunciator group 2.

For point annunciation and manual override controls, you must program the LED/switch cards using the configuration utility. For more information, refer to the configuration utility's online Help.

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

SL30 card

The SL30 card, see Figure 3-26, 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.

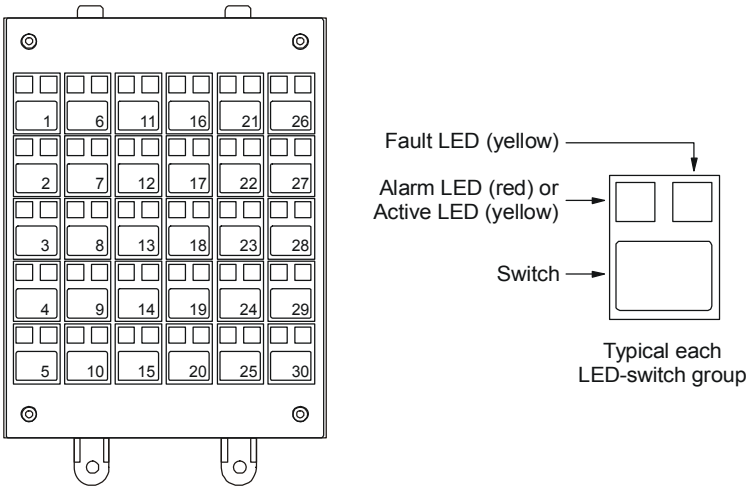


Figure 3-26: SL30 card, front view

SL30-1 card

The SL30-1 card, see Figure 3-28, 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.

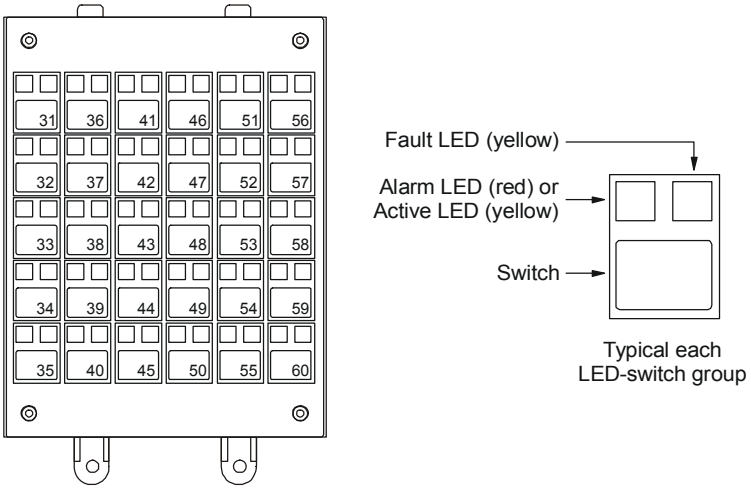


Figure 3-27: SL30-1 card, front view

SL30L card

The SL30L card, see Figure 3-28, 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.

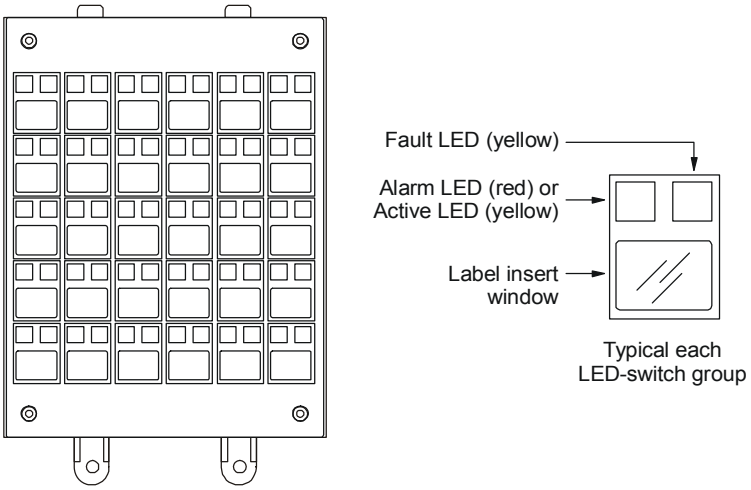


Figure 3-28: SL30L card, front view

SL20L5S

The SL20L5S card, see Figure 3-29, 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.

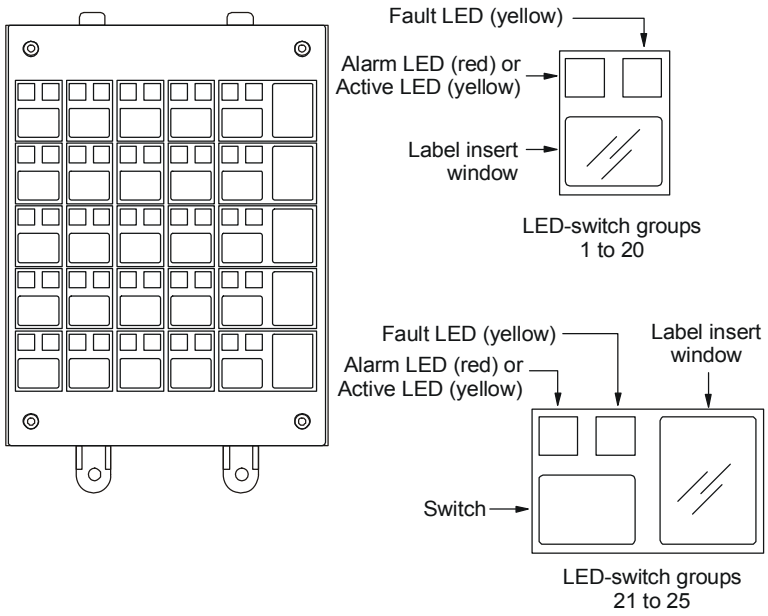


Figure 3-29: SL20L5S card, front view

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 alarm signals for zoned fire alarm systems that require the evacuation signal to identify the zone of origin. The CDR-3 provides both tone outputs for preamp amplifiers and dry contact outputs for audible notification appliance circuits (horns).

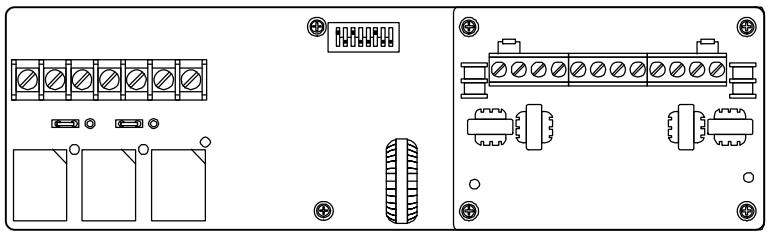


Figure 4-1: CDR-3, front view

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

Specifications

For specifications, see *CDR-3 Bell Coder Installation Sheet* (P/N 3100023).

Operation

Normal state

The CDR-3 operates in the normal state when there are no 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 event message containing a bell code. Upon entering the active state, the CDR-3:

- Switches the duration relay. 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 on the coded tone output terminals according to the code format selected by S1-4 and S1-5.

- Toggles the bell code relay 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.

After the coded signal has been repeated the selected number of rounds, the CDR-3:

- Switches the duration relay to its normal position
- Outputs an evacuation signal on the temporal tone output terminals according to the evacuation signal type selected by S1-1 and S1-2.
- Toggles the temporal relay 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
- Closes the trouble relay
- 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.

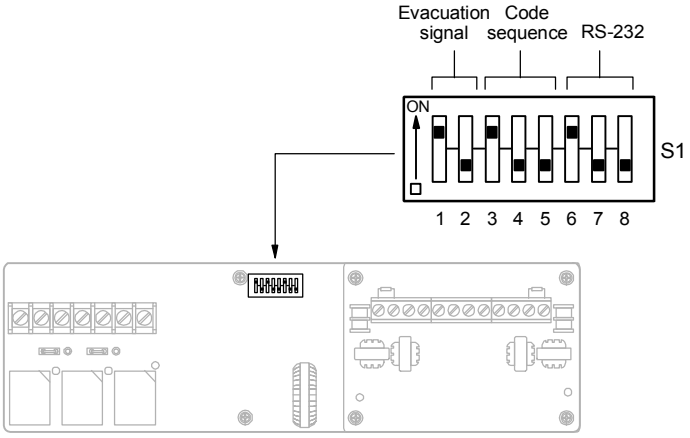
Format 2: Coded signal combines the first and second digits of the bell code. Example: A bell code of 5-5-5-5 generates a coded signal consisting of 10 pulses and a pause, then 5 pulses and a pause, and then 5 pulses and a pause.

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

S1-6	S1-7	S1-8	Description
	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.

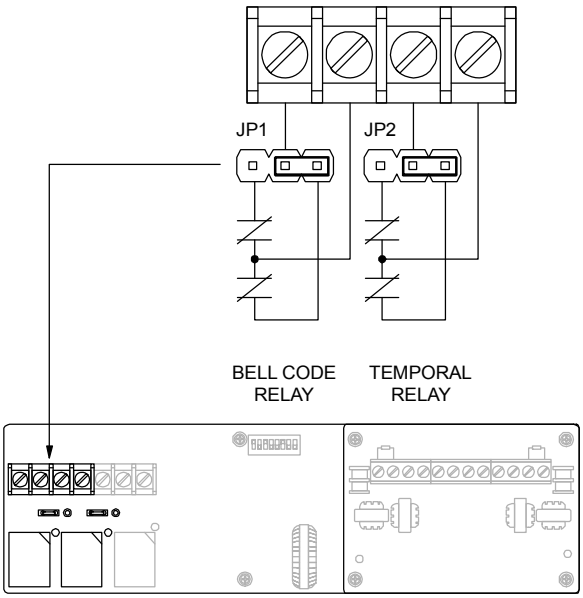


Figure 4-2: CDR-3 jumper settings

Coded alarm signaling application

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

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 CDR-3 in the MFC-A cabinet.

3. Wire as shown in Figure 4-3. Install a 10 kΩ EOLR across TB2-1 and TB2-2, and across TB2-11 and TB2-12.

Note: If a printer is also connected to the control panel, install an IOP3A isolator module.

Configuration

1. Configure the CDR-3 as follows:
   - Set S1-1 and S1-2 for the required evacuation signal, typically Temporal (3-3-3)
   - Set S1-3 for the required number of rounds, typically 4
   - Set S1-4 and S1-5 for the required format
   - Set S1-6 for No Parity
   - Set S1-7 and S1-8 for 9600 baud
2. Set JP2 on the PS6 card for *continuous* 24 volts.
3. Configure the SLIC card as follows:
   - Set JP1 so NAC 1 uses 24 volts from the rail bus
   - Configure NAC 1 as a visible device type
   - Configure NAC 2 as a common alarm output device type
4. Configure the auxiliary/booster supply to use the CDR-3. For more information, refer to the CDR-3 applications in the auxiliary/booster supply's technical reference manual.

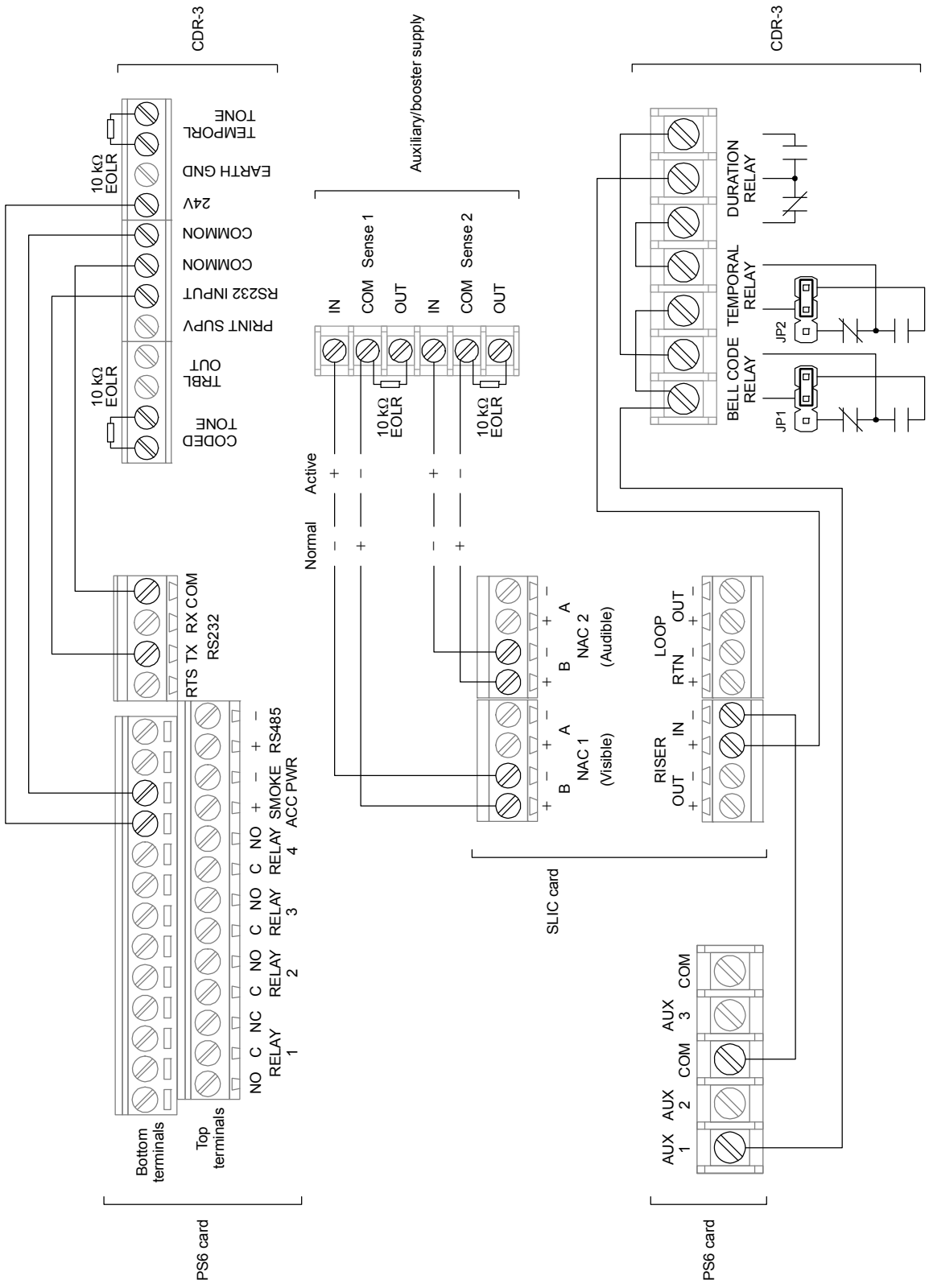


Figure 4-3: Typical CDR-3 application wiring diagram

RPM Reverse Polarity Module

Description

The RPM, see Figure 4-4, provides reverse polarity signals for use in remote station protective signaling system applications using dedicated wire pairs.

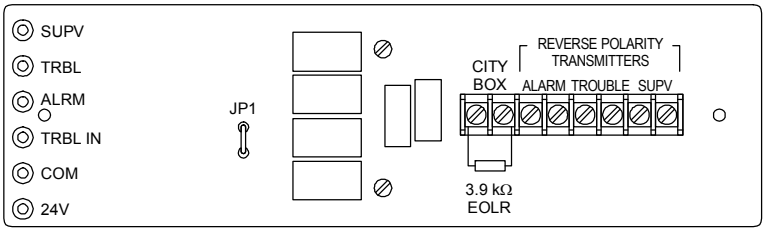


Figure 4-4: RPM, front view

You can configure the RPM as a new style or old style reverse polarity transmitter. With JP1 installed, the RPM transmits alarm, supervisory, and trouble signals over separate wire pairs (new style). Cut JP1to transmit alarm and trouble signals over the same wire pair (old style).

Note: You must use an additional relay to activate trouble signals.

Specifications

For specifications, see *RPM Reverse Polarity Module Installation Sheet* (P/N 3100430).

Remote station protective signaling system application

In a remote station protective signaling system, the control panel automatically transmits an alarm signal to the proper authorities on any alarm event. For example, to a public fire communication services center, a fire station, or similar governmental agency. You can also transmit supervisory and trouble signals to the same or different locations.

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

During normal operation, the PS6 card's common alarm and common supervisory relays are open. The common trouble relay is held in the closed position. A PAM-1 relay or equivalent provides the normally open output required by the RPM's trouble input.

On any alarm event, the common alarm relay closes, which pulls the RPM's alarm input low and reverses the alarm output's signal polarity.

On any supervisory event, the common supervisory relay closes, which pulls the RPM's supervisory input low and reverses the supervisory output's signal polarity.

On any trouble event or loss of power, the common trouble relay opens and de-energizes the PAM-1 relay (PAM-1 A in Figure 4-5), which pulls the RPM's trouble input low and reverses the trouble output's signal polarity.

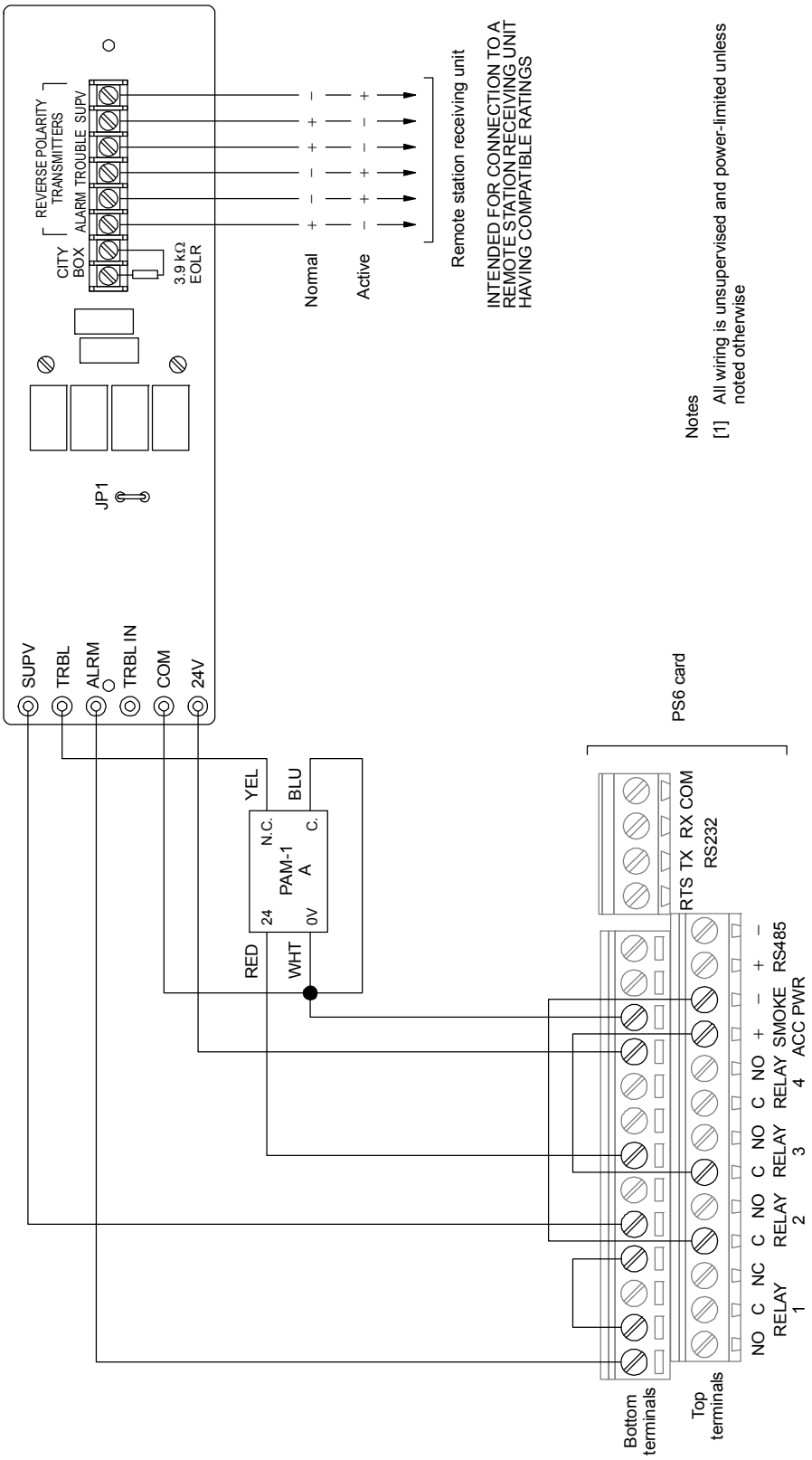


Figure 4-5: RPM wiring diagram (new style)

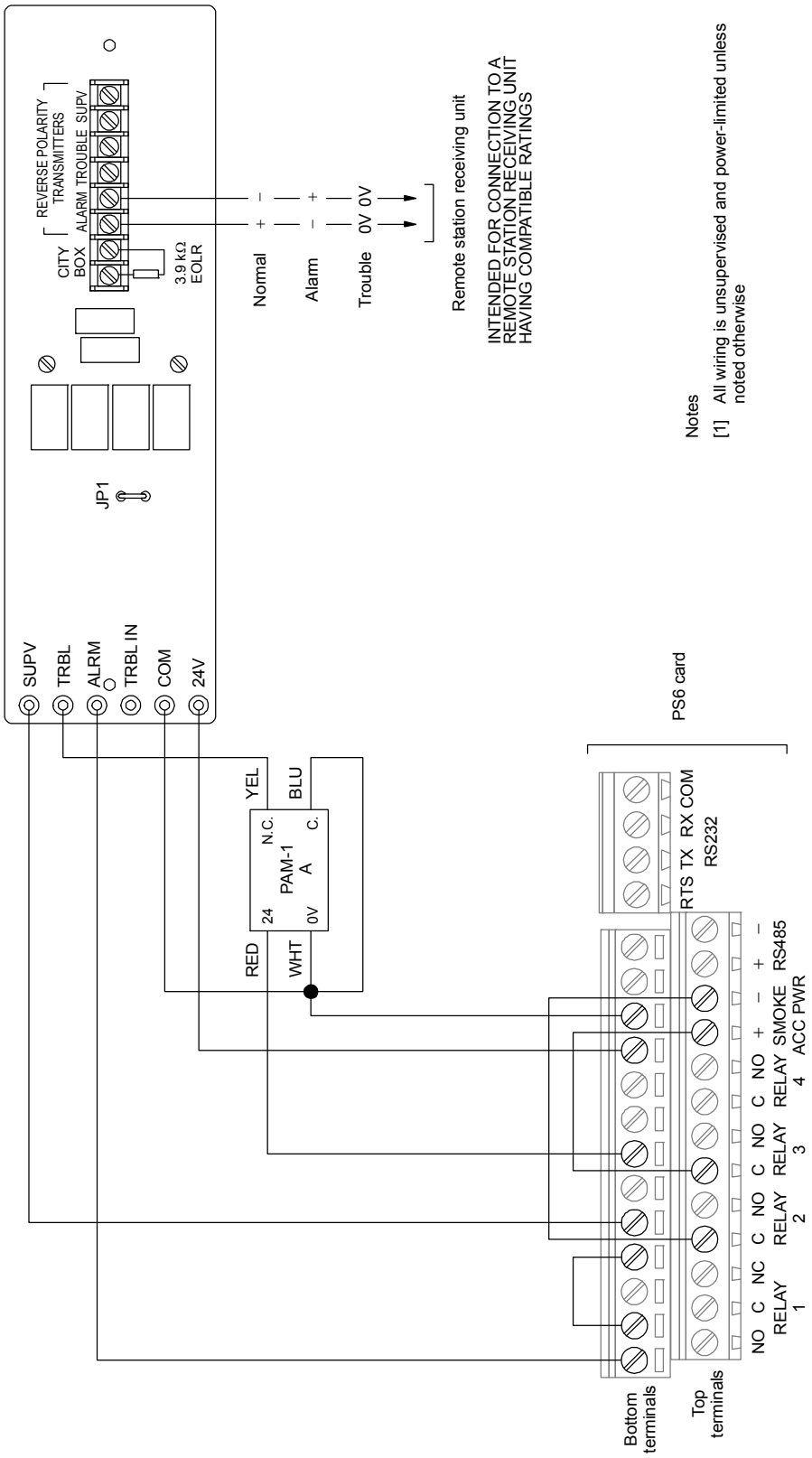


Figure 4-6: RPM wiring diagram (old style)

CTM City Tie Module

Description

The CTM City Tie Module, see Figure 4-7, provides a single municipal box connection for activating a local energy type master box connected to a public fire alarm reporting system.

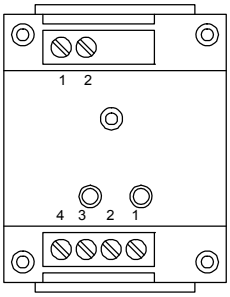


Figure 4-7: CTM, front view

Specifications

For specifications, see *CTM City Tie Module Installation Sheet* (P/N 3101025).

Auxiliary protective signaling system application

In an auxiliary protective signaling system, the control panel automatically transmits an alarm signal to the public fire communication services center by way of the municipal fire alarm system on any alarm event.

Installation

1. Install the CTM in the same room as and within three feet of the notification appliance circuit (NAC).
2. Configure the NAC as a common alarm output device type.
3. Wire the CTM as shown in Figure 4-8.

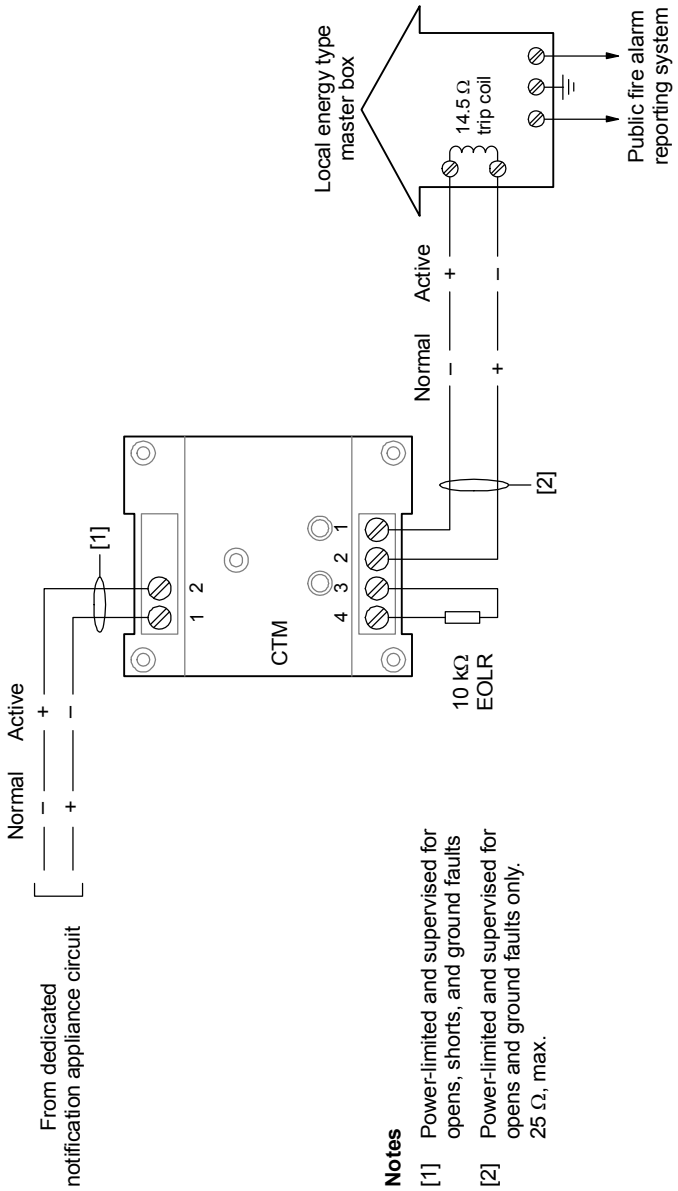


Figure 4-8: CTM application wiring diagram

IOP3A RS-232 Isolator

Description

The IOP3A, see Figure 4-9, 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 RJ-12 connector for downloading. The IOP3A should be used in all applications that require the fire alarm control panel be isolated from earth ground connections.

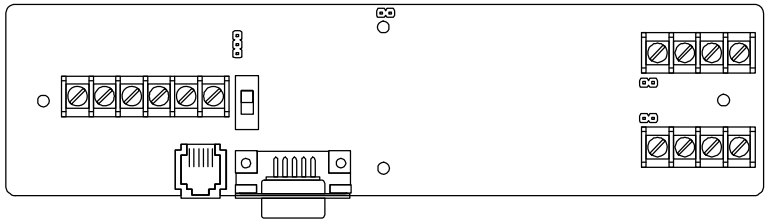


Figure 4-9: IOP3A, front view

Specifications

For specifications, see *IOP3A RS-232 Isolator Card Installation Sheet* (P/N 270758).

Jumper settings

Configure the IOP3A as shown in Figure 4-10 and described below.

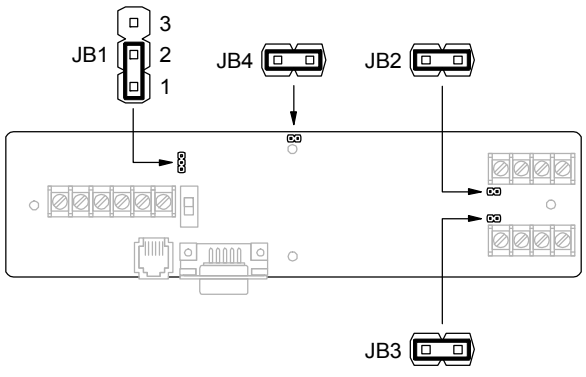


Figure 4-10: IOP3A jumper settings

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 4-11) configures the IOP3A as described below.

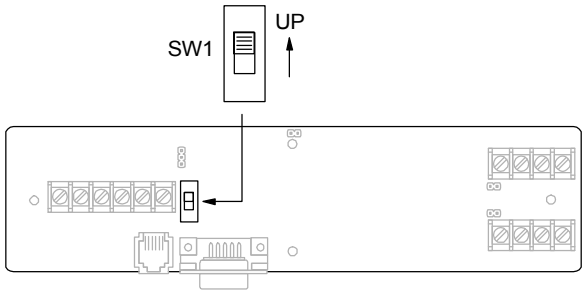


Figure 4-11: IOP3A switch settings

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 connecting a computer.	

Connecting a printer and a CDR-3 to the RS-232 port

In installations that have two peripheral devices connected to the control panel's RS-232 port, such as 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 4-12.

Note: If you use a power supply other than PS6 card, it must provide a *continuous* 24 Vdc and be UL/ULC listed for fire protective signaling systems.

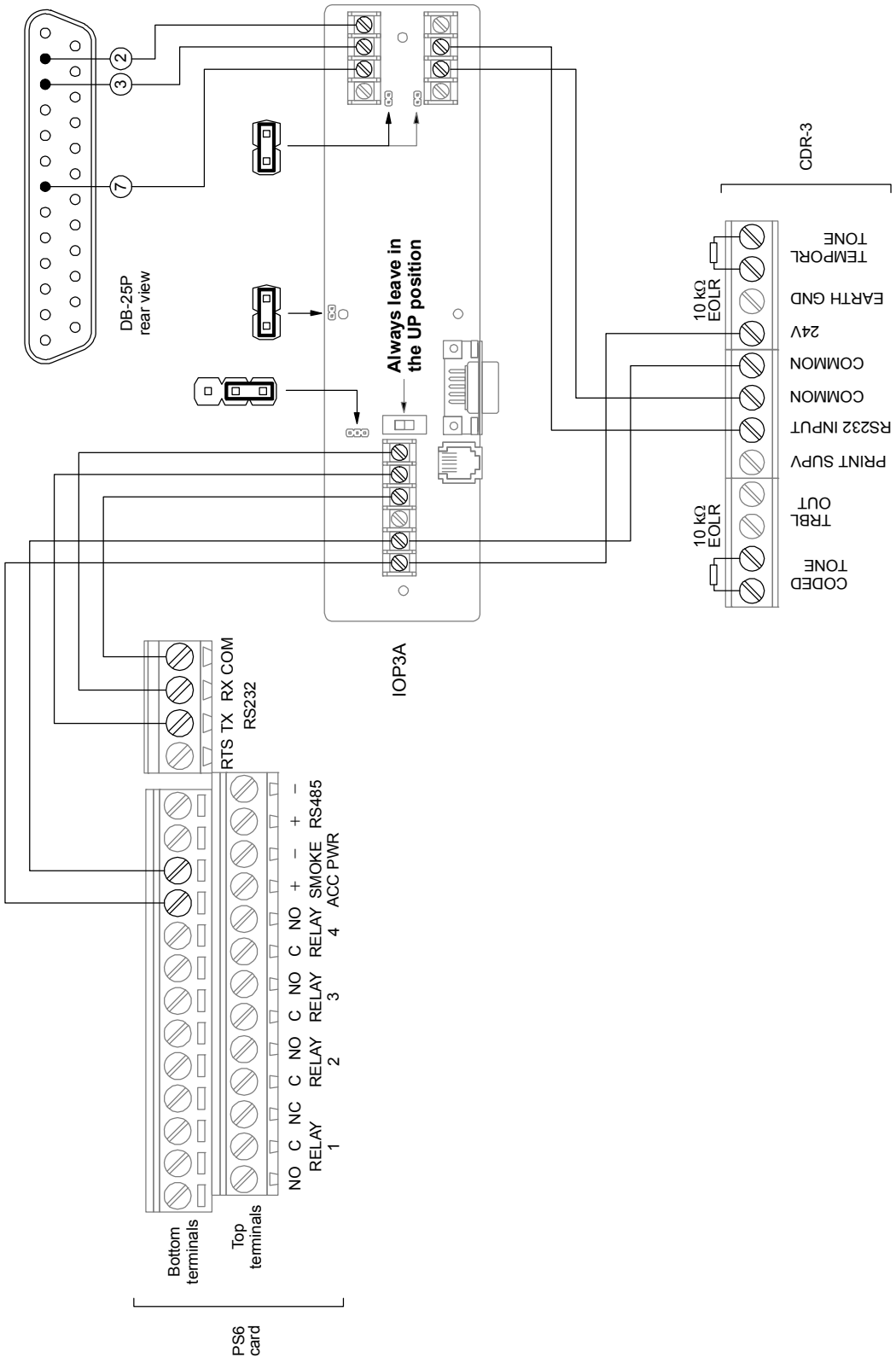


Figure 4-12: IOP3A application wiring diagram

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 control panel

Logging on to the control panel gives you access to system commands that are otherwise restricted from view. Your login password determines which commands you can use, as follows.

- For level 2 commands, enter the level 2 password
- For level 3 commands, enter the level 3 password
- For level 4 commands, enter the level 4 password

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

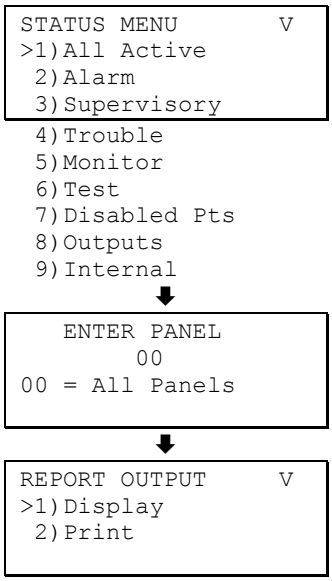
You don’t have to log on to the control panel to use level 1 commands. You don’t have to log on to the control panel to use level 2 commands if the Enable Control key is in the ON position.

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.

To log on to the fire alarm system:

1. On the Main menu, choose Login.
2. Enter your password.

Viewing status reports



The control panel provides a set of reports to help you determine the current state of the fire alarm system. The content of the status reports are as follows:

- All Active Points Status report: All points that are active (i.e., not normal)
- All Active Alarm report: All active alarm points
- All Active Supervisory report: All active supervisory points
- All Active Trouble report: All points indicating a trouble
- All Active Monitor report: All active monitor points
- All Active Test report: All points in an active service group that are active or indicating a trouble
- All Active Disabled Points report: All points that are disabled
- All Active Output report: All outputs that are active (on).
- Internal Status report: Power supply voltages and whether they are okay or bad.

You can view these reports on the LCD text display or on a local printer.

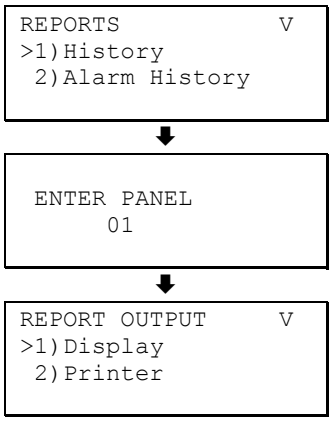
To view a status report:

1. On the Status menu, choose a report.
2. Press Enter.
3. On the Report Output menu, choose Display to view the report on the LCD text display.

   — or —

   Choose Printer to print the report.

Viewing a history report



A history report lists the time and date of each event or operator command processed by the control panel since it was first turned on or since its history was cleared. The report is structured with the most recent event or operator command listed first

You can view these reports on the LCD text display or on a local printer.

To view a history report you must first log on using level 2 password or turn the Enable Controls switch to the On position.

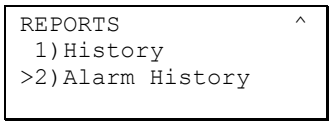
To view a history report:

1. On the Main menu, choose Reports.
2. On the Reports menu, choose History.
3. Enter the panel number (01).
4. On the Report Output menu, choose Display to view the report on the LCD text display.

   — or —

   Choose Printer to print the report.

Viewing alarm history reports



The alarm history report lists how many times the control panel has gone into alarm since the last time the alarm history counter was cleared.

To view an alarm history report:

1. On the Main menu, choose Reports.
2. On the Reports menu, choose Alarm History.

Performing a lamp test

```
TEST
>1)Lamp Test
```

The lamp test command temporarily turns on the panel buzzer, all LED indicators, and every pixel on the LCD text display.

Note: When operated from the control panel, the lamp test command only tests the control panel. When operated from a QSA-series remote annunciator, the lamp test command tests all QSA-series remote annunciators at the same time.

To perform a lamp test:

1. On the Main menu, choose Test.
2. On the Test menu, choose Lamp Test.

Silencing the panel buzzer

The panel buzzer sounds whenever an event message is received at the control panel. Pressing the Panel Silence button:

- Silences the panel buzzer on the control panel and acknowledges all current event messages
- Silences the panel buzzer on all remote annunciators

To silence the panel buzzer:

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

Notes

- Depending on your project settings, the panel buzzer may not re-sound or may re-sound automatically after 1, 2, 3, 6, 12, or 24 hours, if no new event message is received at the control panel
- Depending on your project settings, the panel buzzer may emit a short sound periodically to indicate that the system is not normal and the panel has been silenced
- The control panel will not silence the panel buzzer on remote annunciators that are not communicating. To silence the remote annunciator's panel buzzer after the trouble has been restored you must press the control panel's Panel Silence button again or press the panel silence button on the remote annunciator.

Resetting the fire alarm system

Pressing the System Reset button restores the fire alarm system to its normal state provided there are no active devices or circuits at the end of the reset cycle. If any devices or circuits are still active, audible notification appliances, if silenced, will re-sound and the panel buzzer, if silenced, will re-sound.

WARNING: The protected premises may be occupied. Do not silence alarm signals or reset the control panel unless you are authorized to do so and only after all occupants have been evacuated.

To reset the fire alarm system:

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

Silencing alarm signals

Pressing the Alarm Silence button 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's Allow Waterflow Silence option is not enabled
- When the system is configured to delay the silencing of alarm signals, in which case the Alarm Silence button may not be operational for up to five minutes after the initial fire alarm event

Silenced outputs automatically re-sound when:

- The Alarm Silence button 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.

WARNING: The protected premises may be occupied. Do not silence alarm signals or reset the control panel unless you are authorized to do so and only after all occupants have been evacuated.

To silence alarm signals:

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

Sounding an alarm

Pressing the Drill button activates all audible and common alarm devices types, and if configured, visible device types. Pressing the Drill button 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 Disable Zone and Enable Zone commands.

To disable or enable a zone you must first log on using the level 2 password or turn the Enable Controls switch to the On position.

Disabling a zone

```
DISABLE              V
>1)Zone
 2)Device
```

Use the Zone command on the Disable menu to temporarily take a zone out of service. The control panel tracks events from the disabled zone but does not process them until the zone is enabled.

To disable a zone:

1. On the Main menu, choose Disable.
2. On the Disable menu, choose Zone.
3. Select the zone from the zone list then press Enter.

   — or —

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

Enabling a zone

```
ENABLE               V
>1)Zone
 2)Device
```

Use the Zone command on the Enable menu to return a disabled zone to service.

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

To enable a zone:

1. On the Main menu, choose Enable.
2. On the Enable menu, choose Zone.
3. Select the zone from the pick list then press Enter.

   — or —

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

Disabling and enabling device addresses

Initiating device circuits have a device address. You can disable and enable device addresses from the control panel using the Disable Device and Enable Device commands.

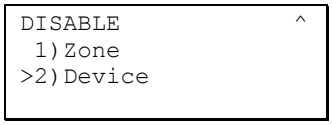
Device addresses are listed in Appendix D, “Addresses.”

Notes

- Disabling all of the points in a zone also disables the zone. Enabling all of the points in a zone a does not automatically enable the zone.
- You can’t disable device addresses for common alarm output device types
- Disabling the device address for the dialer or a dialer account deletes all event messages sent to that account before they are transmitted. The dialer still transmits the account’s test-abnormal message and any message that was in the dialer queue before the account was disabled.

To disable or enable a device address you must first log on using the level 2 password or turn the Enable Controls switch to the On position.

Disabling a device address



Use the Device command on the Disable menu to disable a device address.

To disable a device address:

1. On the Main menu, choose Disable.
2. On the Disable menu, choose Device.
3. Enter the address of the device, where: PP is 01, CC is the card number, and DDD is the device number.

Enabling a device address

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.

To enable a device address:

1. On the Main menu, choose Enable.
2. On the Enable menu, choose Device.
3. Enter the address of the device, where: PP = 01, CC = the card number, and DDD = the device number.

Switching event message routes

Event messages are configured with two message routes. Typically, the primary message route is used for daytime operation and the alternate message route is used for nighttime and weekend operation.

Typically, a time control is used to automatically switch between event message routes. You can manually switch event message routes using the Alternate Message Route and Primary Message Route commands.

To switch event message routes manually you must first log on using the level 2 password or turn the Enable Controls switch to the On position.

The default setting for both primary and alternate message routes is “All Cabinets.”

Switching from primary to alternate message routing

```
ACTIVATE MENU      ^
 1)Alt Sens
>2)Alt Msg Route
```

Use the Alt Msg Route (alternate message route) command on the Activate menu to route event messages according to their alternate message route setting instead of their primary message route setting.

To switch from primary to alternate message routing:

1. On the Main menu, choose Activate.
2. On the Activate menu, choose Alt Msg Route.

Switching from alternate to primary message routing

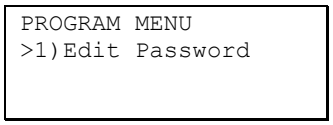
```
RESTORE MENU       ^
 1)Prm Sens
>2)Prm Msg Route
```

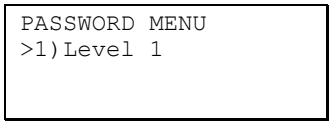
Use the Prm Msg Route (primary message route) command on the Restore menu to route event messages according to their primary message route setting instead of their alternate message route setting.

To switch from alternate to primary message routing:

1. On the Main menu, choose Restore.
2. On the Restore menu, choose 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.

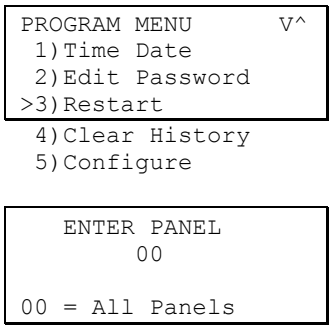
To switch alarm sensitivity thresholds manually you must first log on using the level 2 password or turn the Enable Controls switch to the On position.

The default level 1 password is 1111.

To change the level 1 password:

1. On the Main menu, choose Program.
2. On the Program menu, choose 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 you must first log on using the level 4 password.

To restart the fire alarm system:

1. On the Main menu, choose Program.
2. On the Program menu, choose Restart.
3. Press Enter.

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 "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 "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 “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 “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 “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 “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 “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.

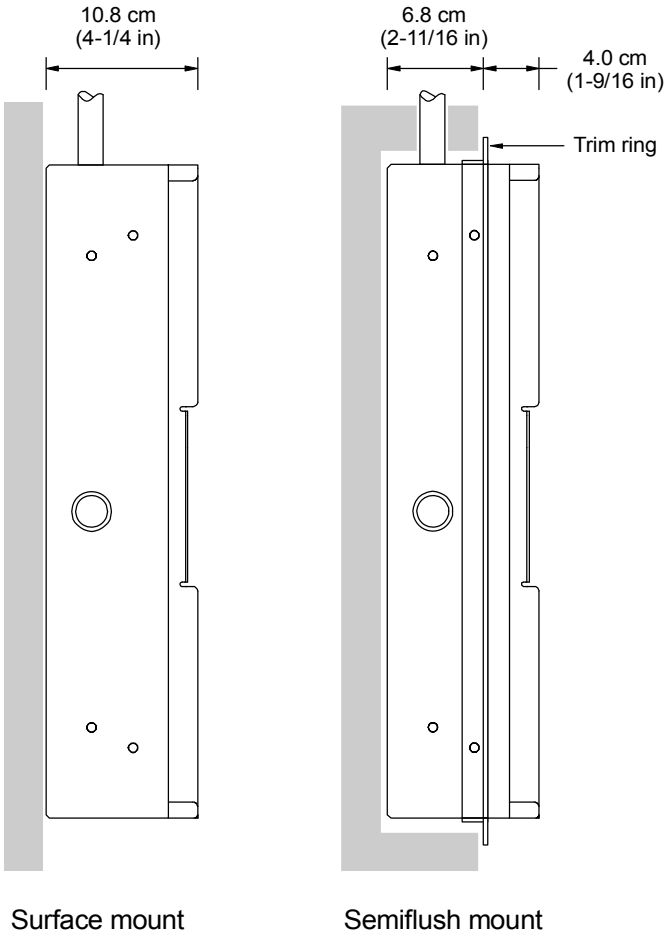


Figure 6-1: Control panel backbox mounting diagram

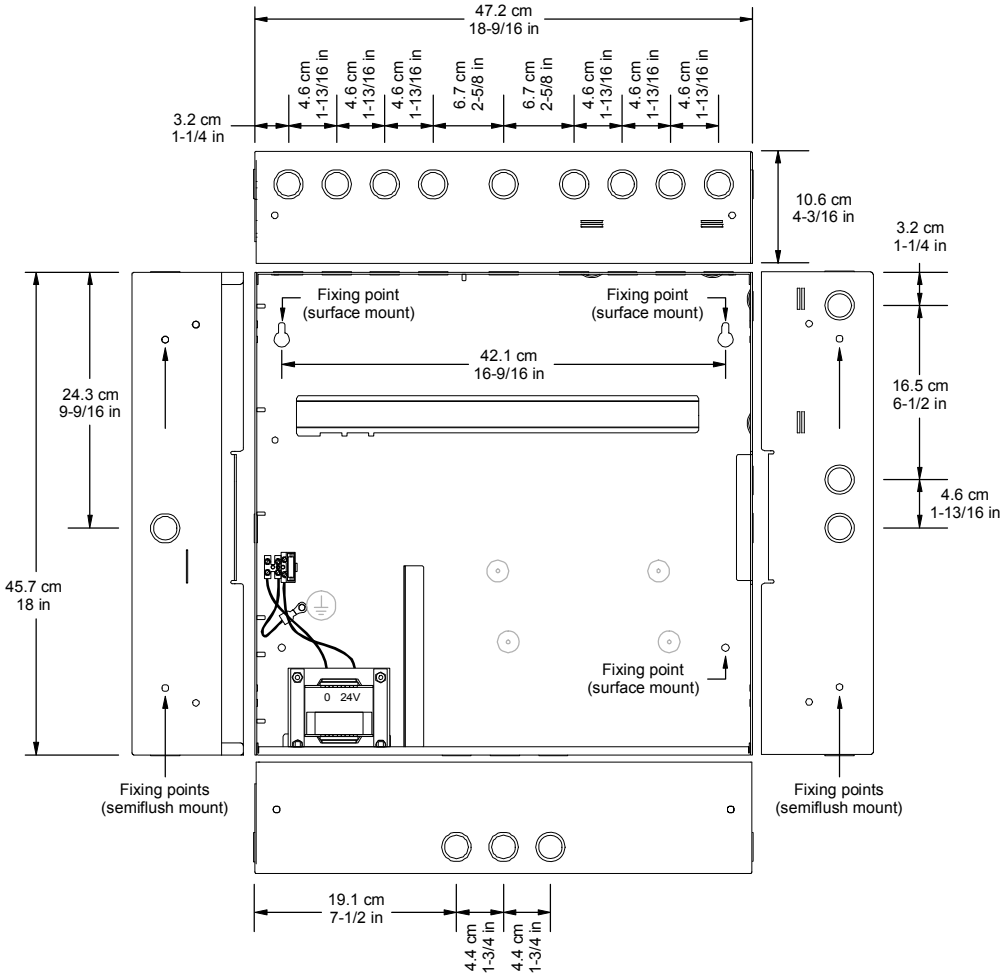


Figure 6-2: QSC-5-(G/R)-1 backbox dimensions

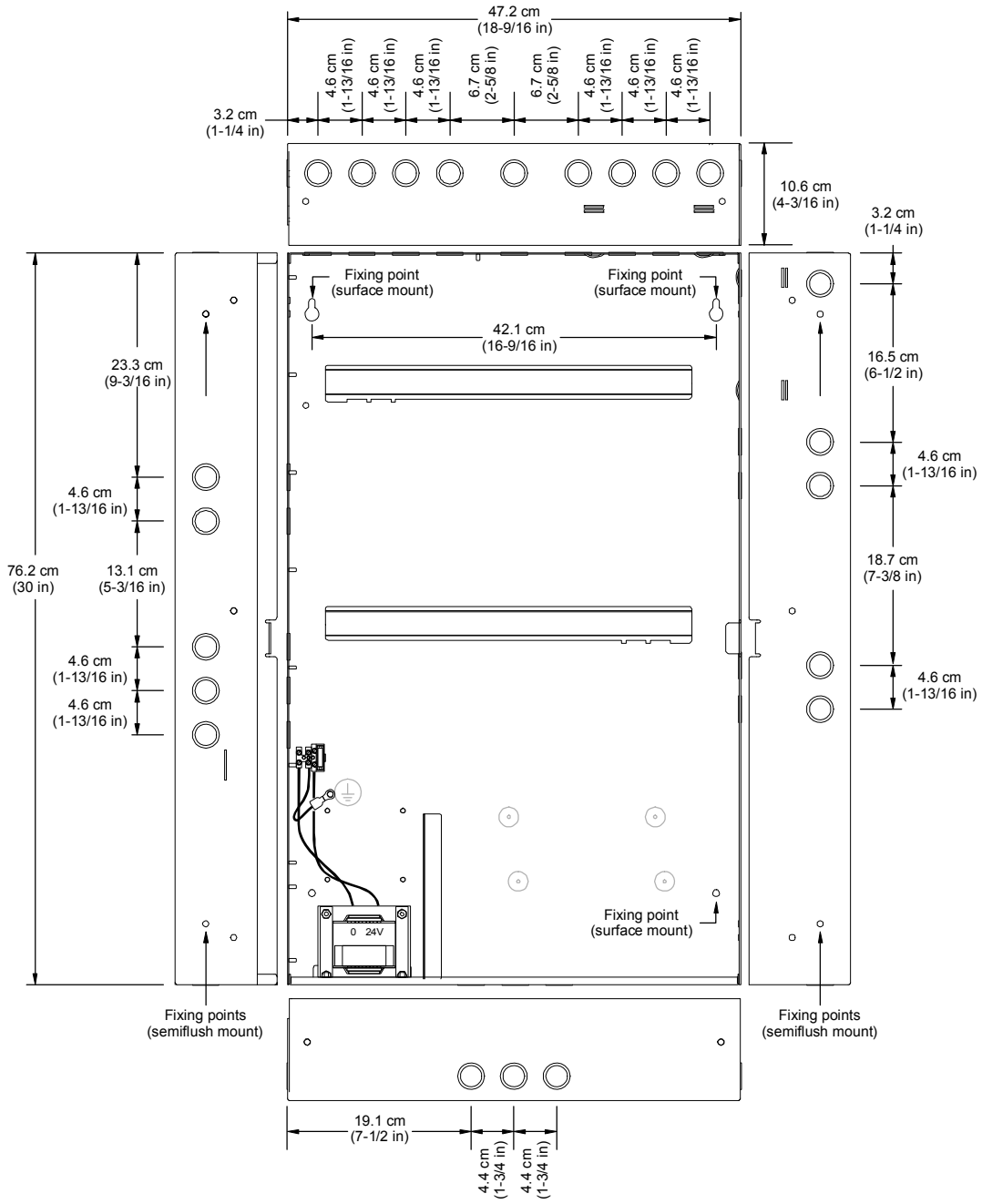


Figure 6-3: QSC-12-(G/R)-1 backbox dimensions

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.

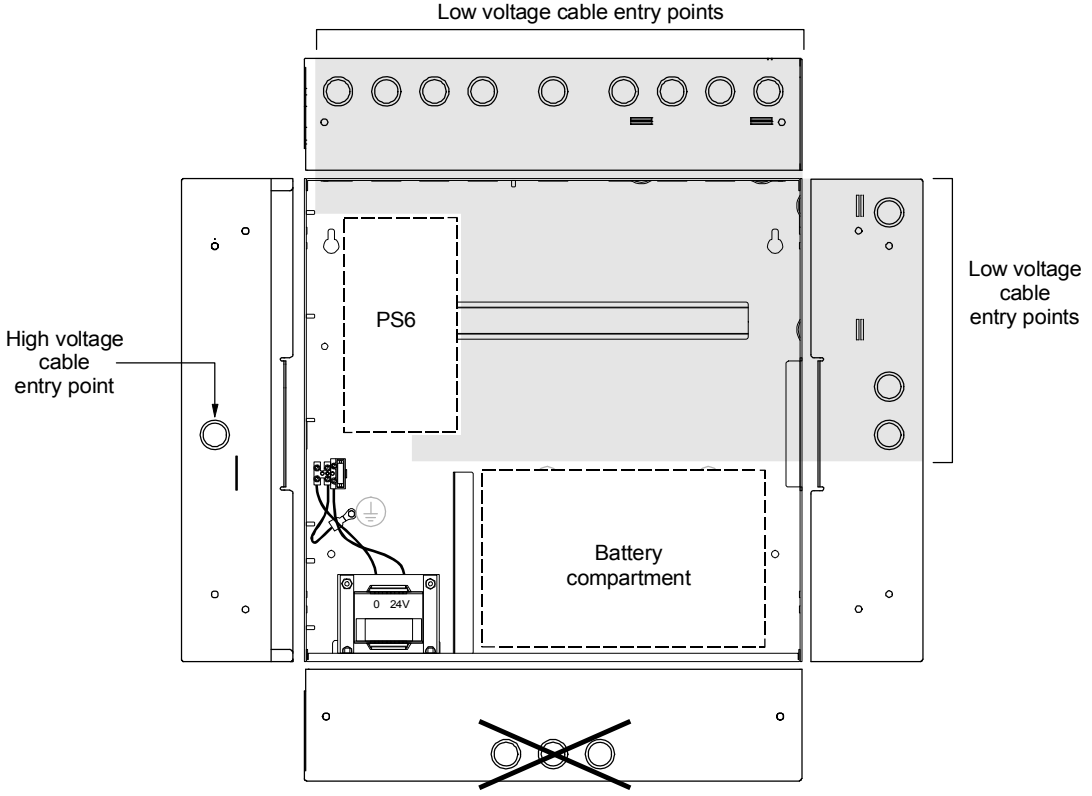


Figure 6-4: Typical cable entry locations

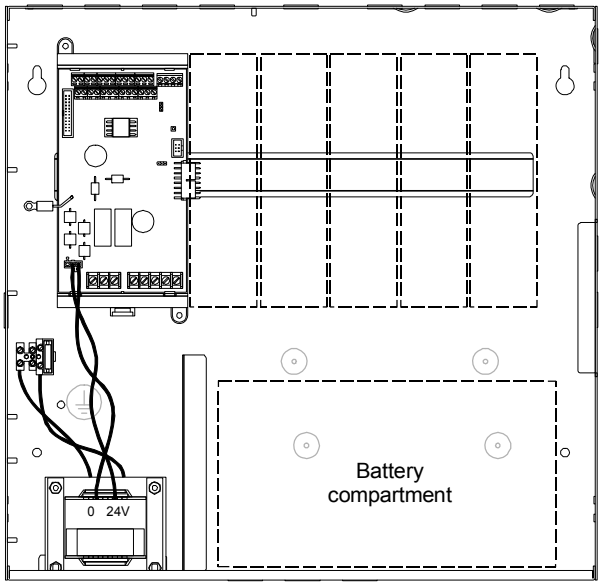
Installing panel components

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:

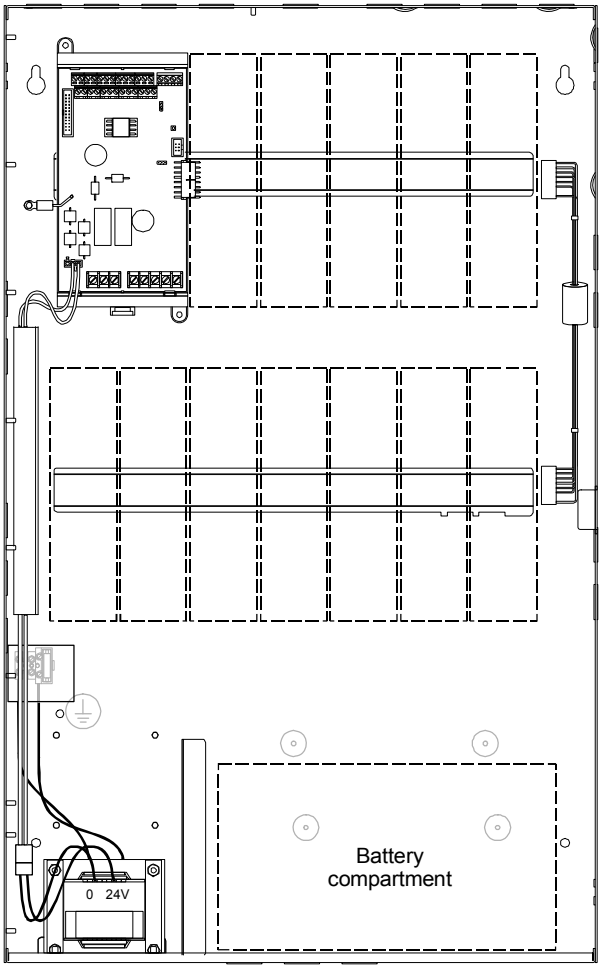
1. Install the PS6 card. For more information, see “Installing the PS6 card” later in this chapter.
2. Install the front panel. For more information, see “Installing the front panel” later in this chapter.
3. Install the RS-485 card, if used, next to the PS6 card.
4. Install all remaining option cards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



Single space cards	Double space cards
1	2
2 or 3	1
4 or 5	0



Single space cards	Double space cards
1	2
2 or 3	1
4 or 5	0

Single space cards	Double space cards
1	3
2 or 3	2
4 or 5	1
6 or 7	0

Figure 6-5: Cabinet layout diagram

Installing the PS6 card

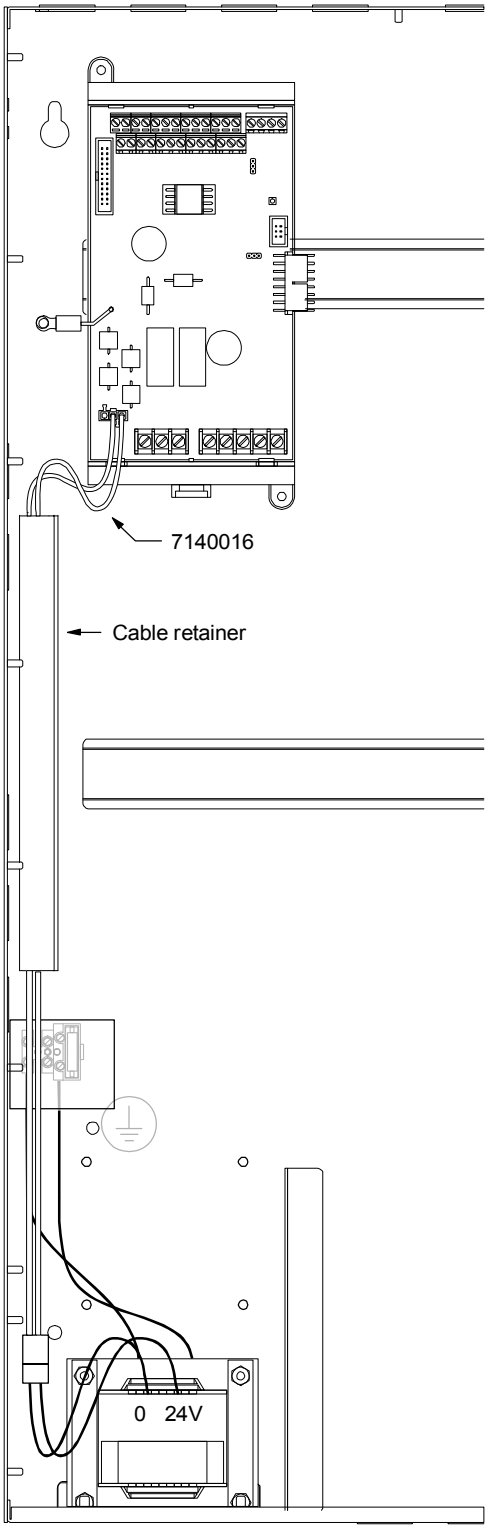
This topic describes how to install the PS6 card. When installing a PS6 card into a twelve-option cabinet enclosure you must use the transformer extension cable (P/N 7140016) to connect the transformer.

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

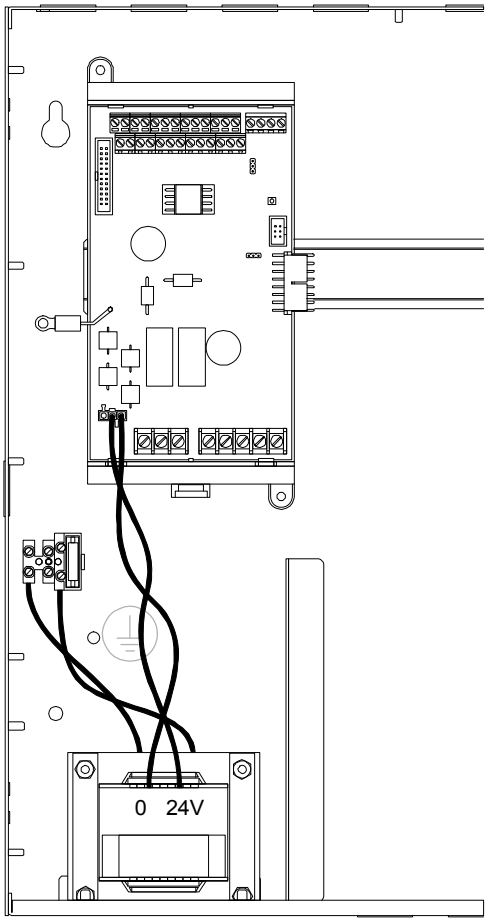
To install the PS6 card:

1. Set the PS6 card on the left end of the DIN rail as shown in Figure 6-6. 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.

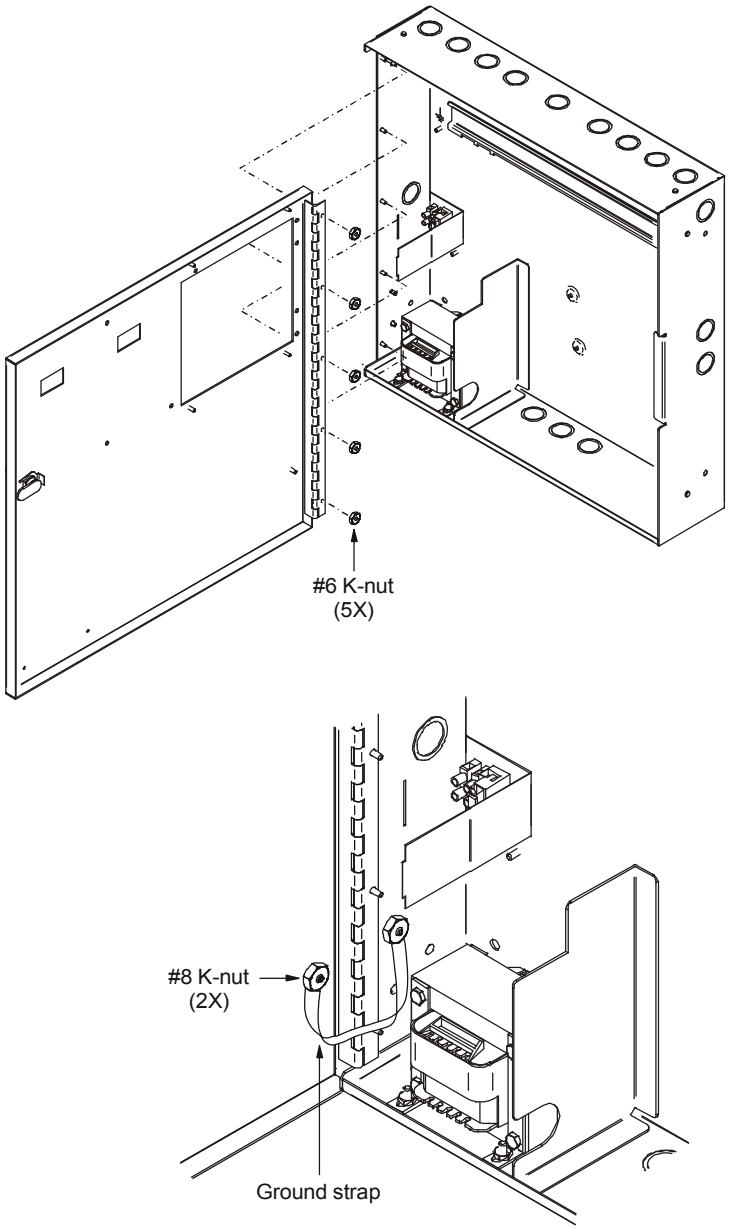


Figure 6-7: Cabinet door assembly

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.

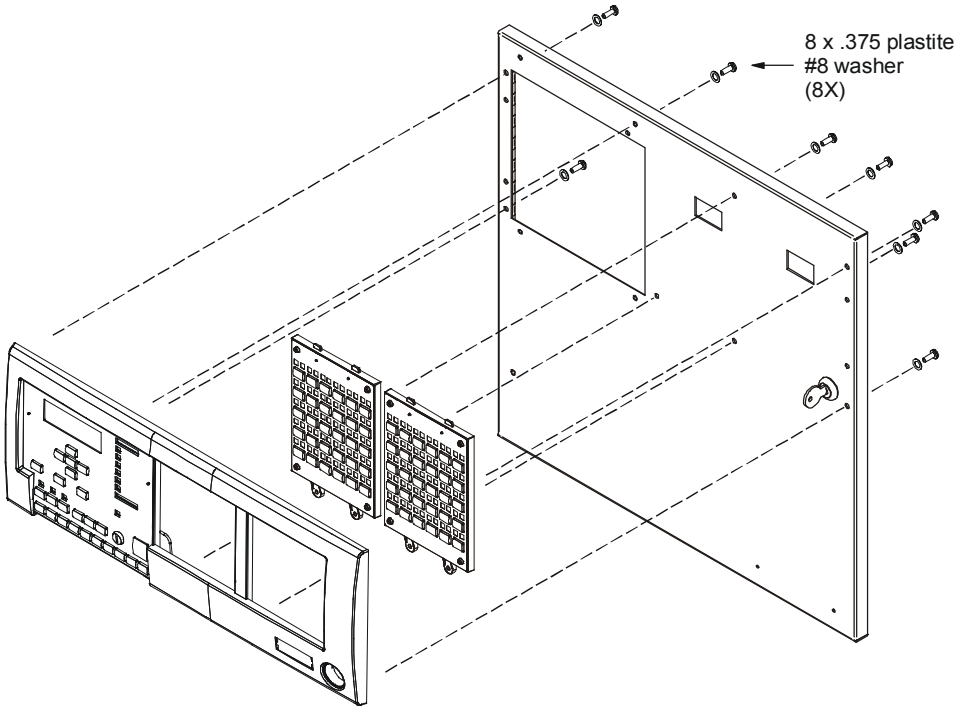
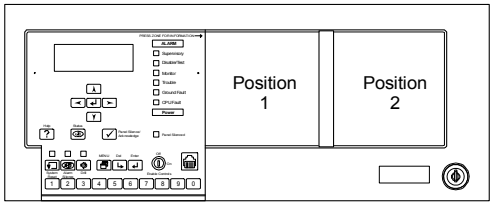


Figure 6-8: Front panel assembly

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.

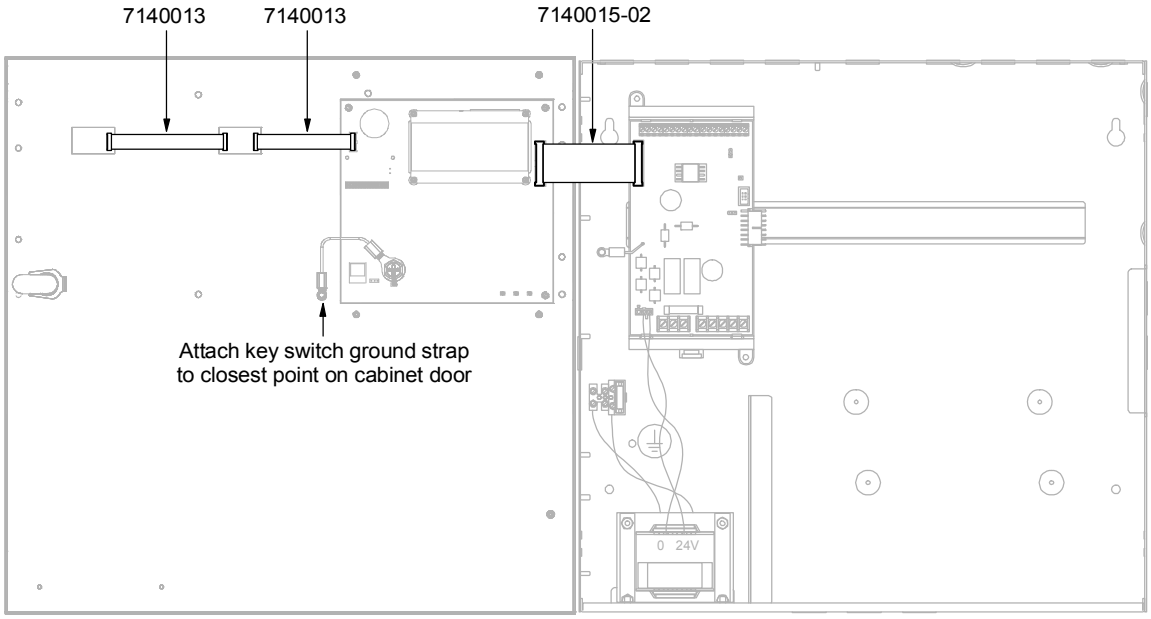


Figure 6-9: Front panel ribbon cable connections

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.

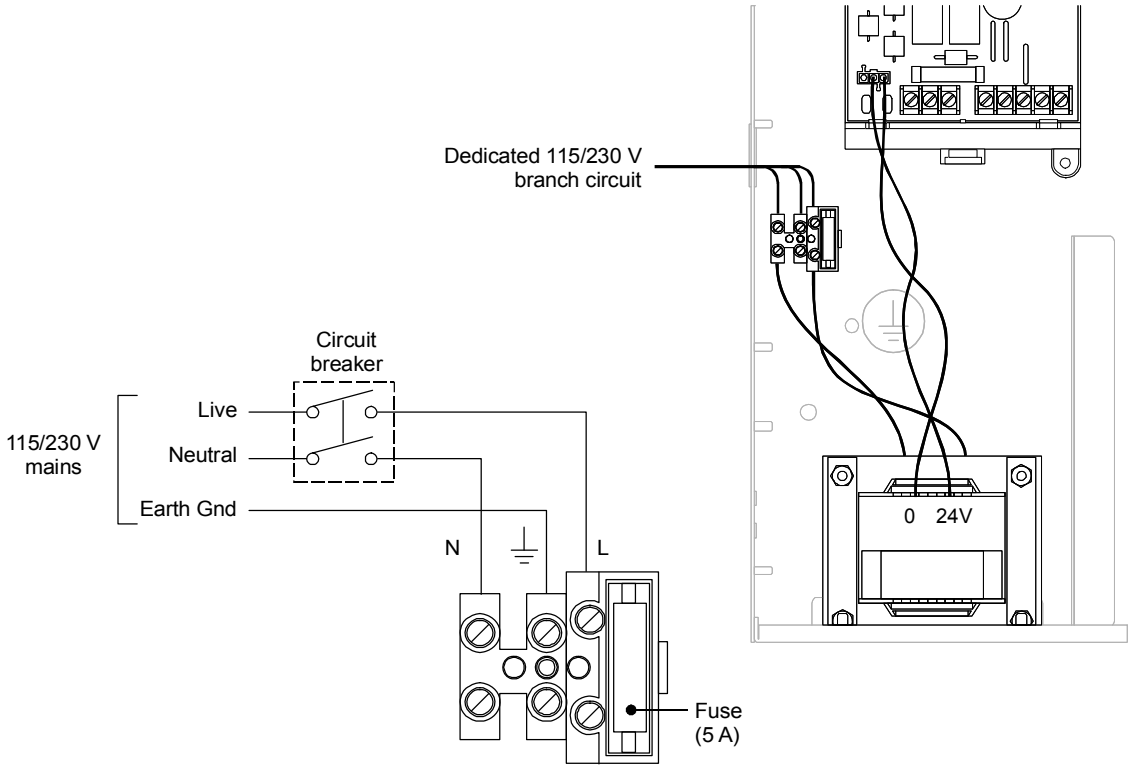


Figure 6-10: Mains AC wiring diagram

Installing standby batteries

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

The table below lists the batteries that can be installed in the cabinet. 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

Place the batteries in the cabinet as shown in Figure 6-11. Install batteries greater than 10 Ah in a compatible external battery cabinet.

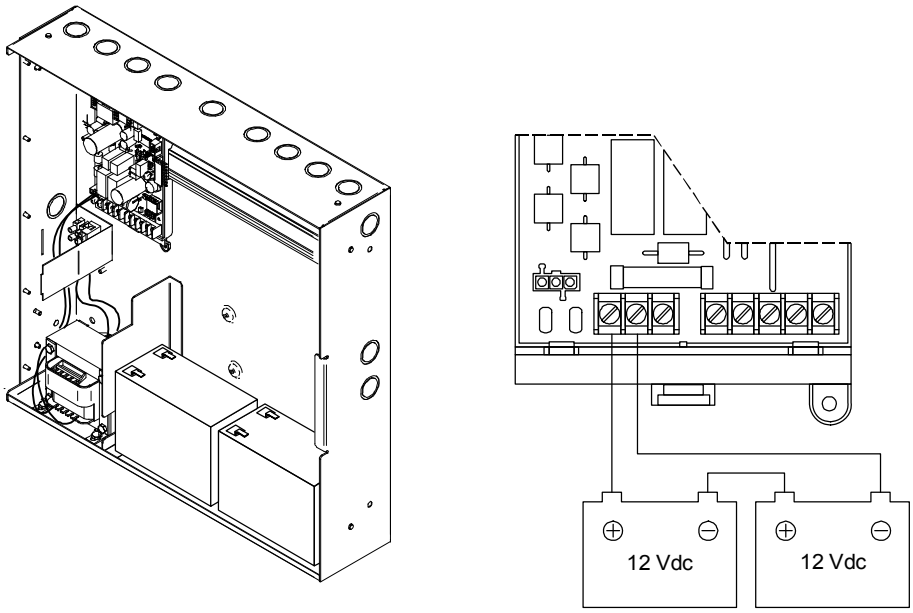


Figure 6-11: Standby battery installation

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.

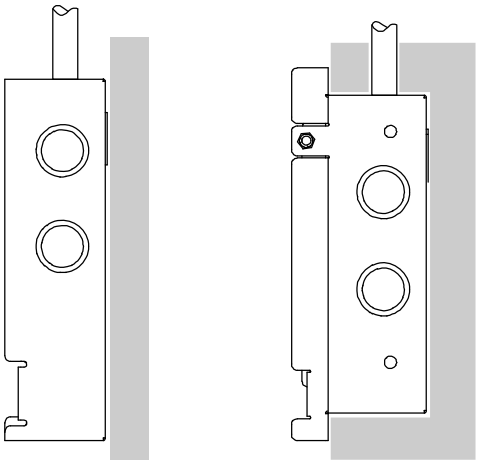
Tip: To prevent the equipment from being damaged or vandalized, stop after you have pulled the cables into the cabinet. Complete the installation only after it is safe to do so.

Mounting the backbox

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

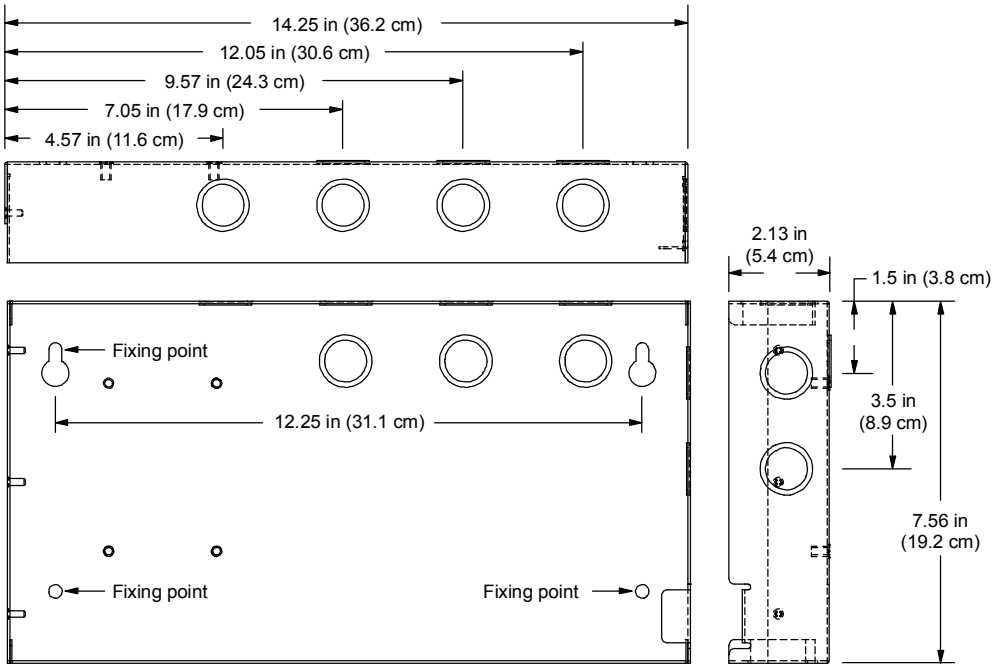
- Use fasteners that can support the full weight of the cabinet
- Tighten fasteners firmly to prevent the cabinet from vibrating
- Connect the backbox to earth ground

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

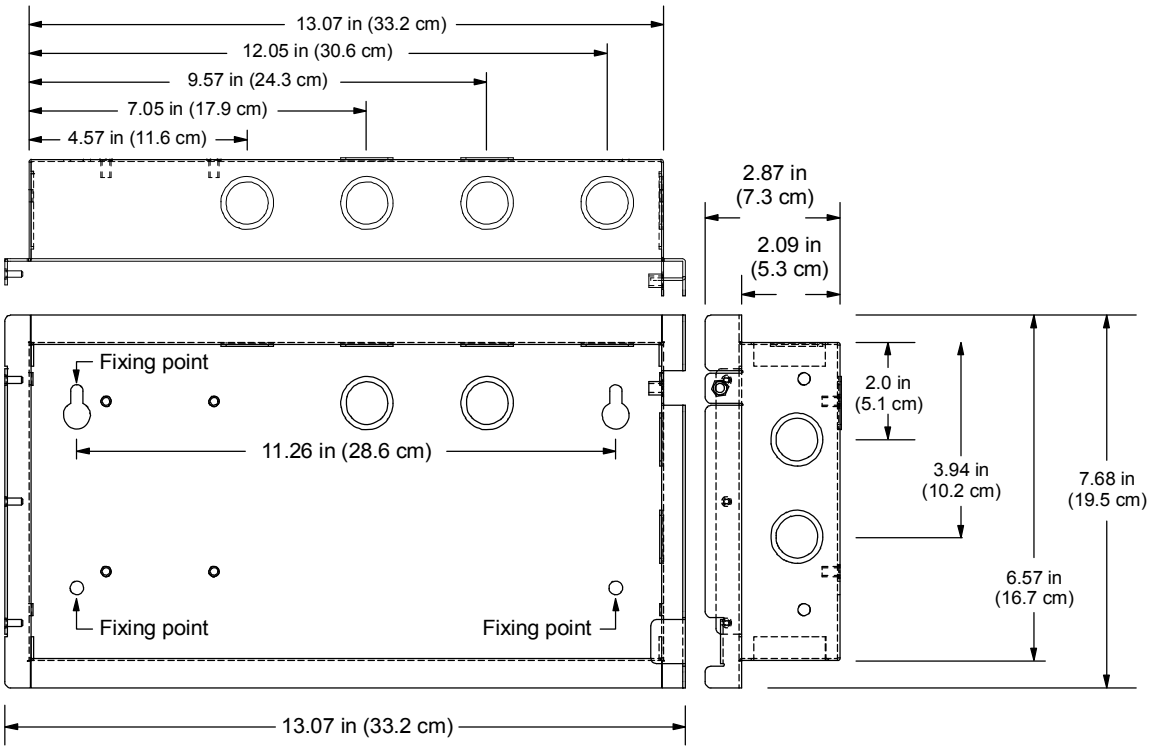


Surface mount Semiflush mount

Figure 6-12: Remote annunciator backbox mounting diagram

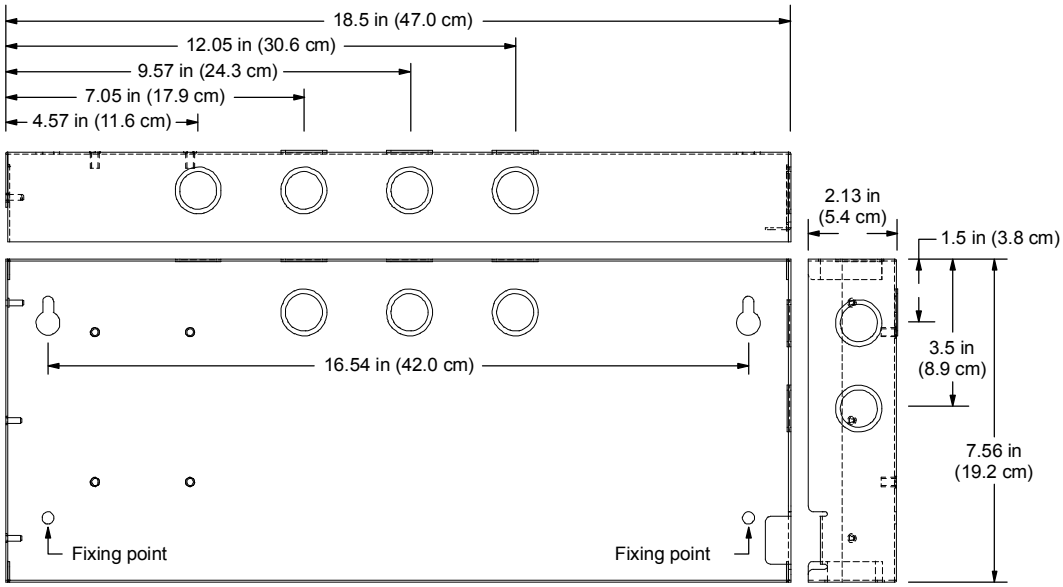


QSA-1-S

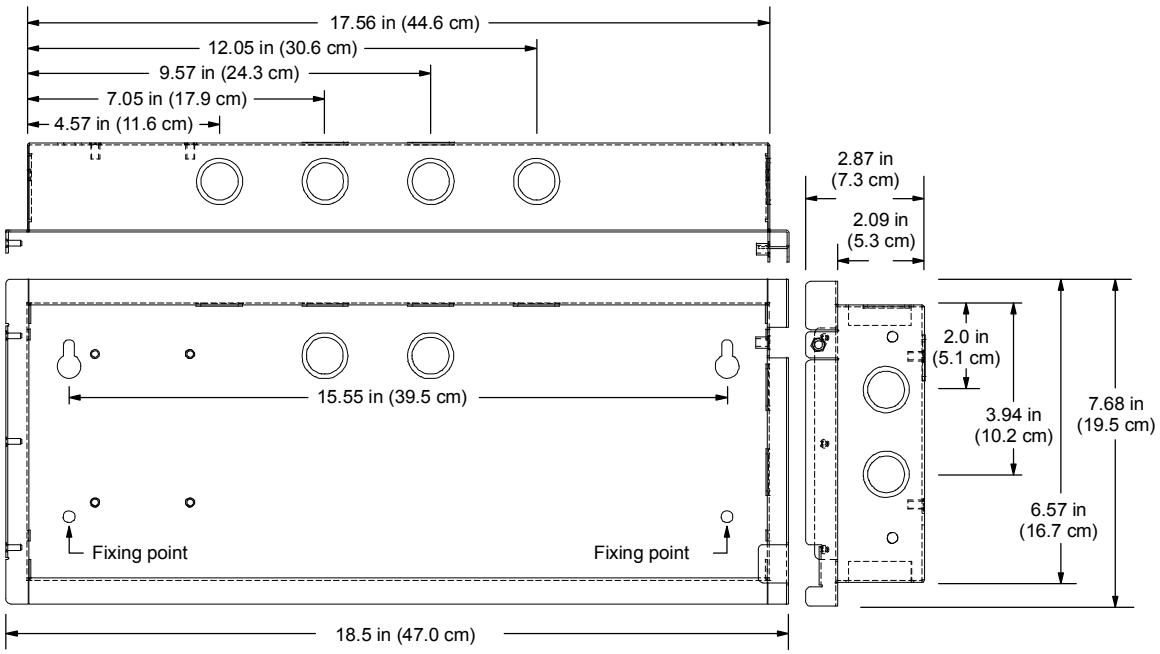


QSA-1-F

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.

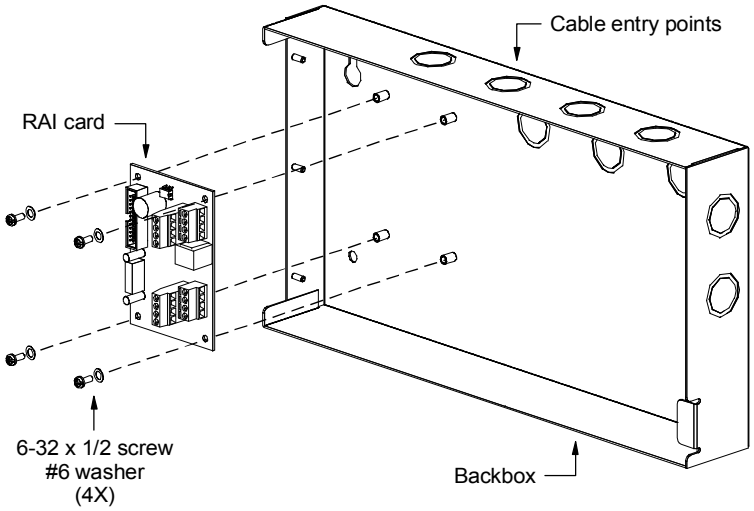


Figure 6-15: RAI card installation

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.

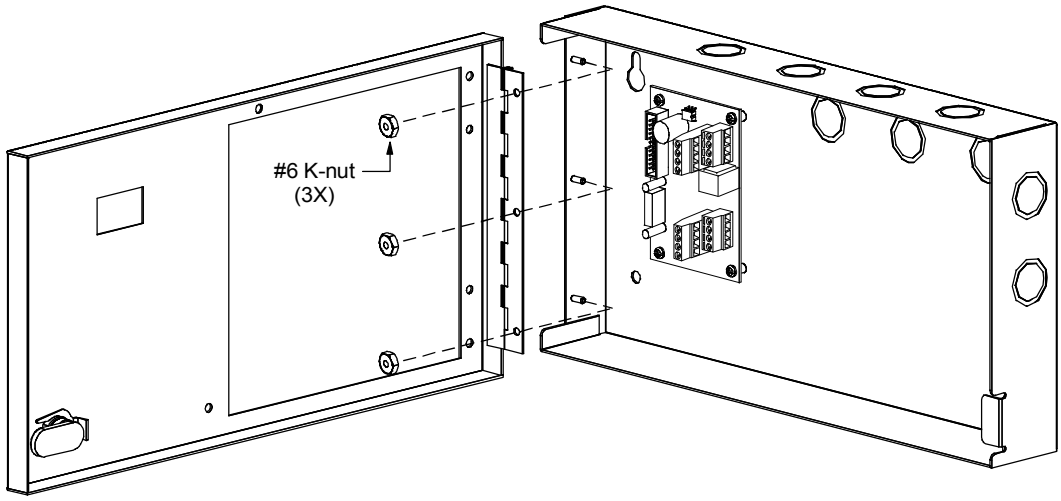


Figure 6-16: Remote annunciator door installation

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.

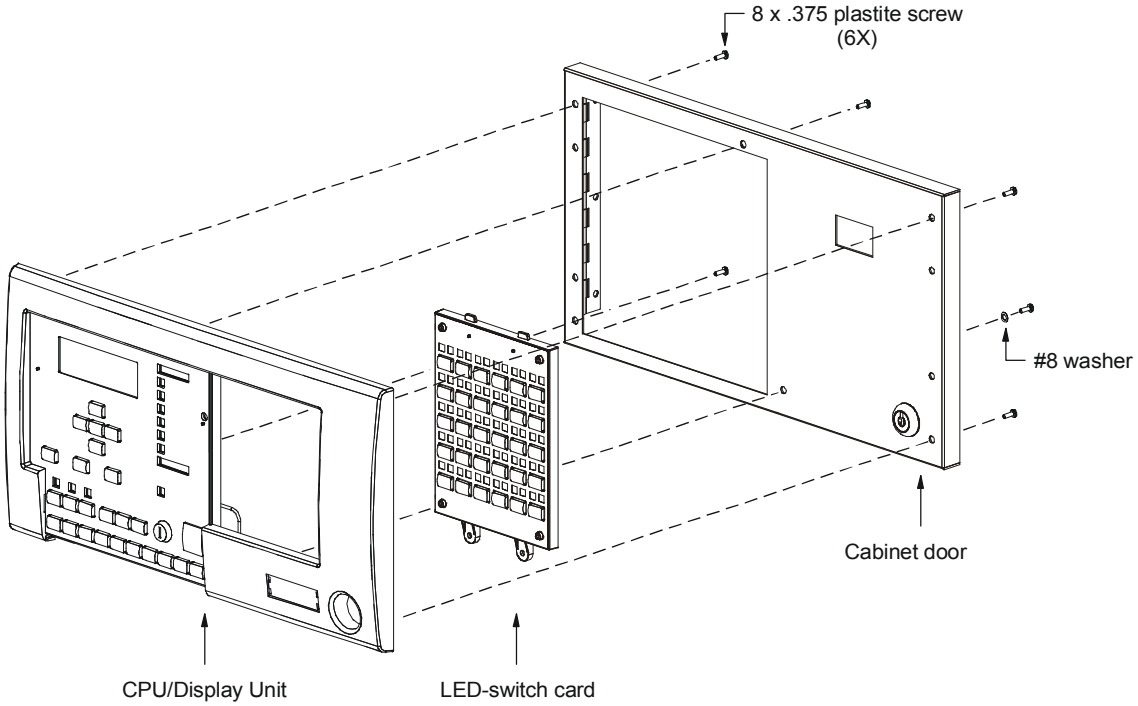


Figure 6-17: Remote annunciator CPU/Display Unit and LED/switch card installation

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

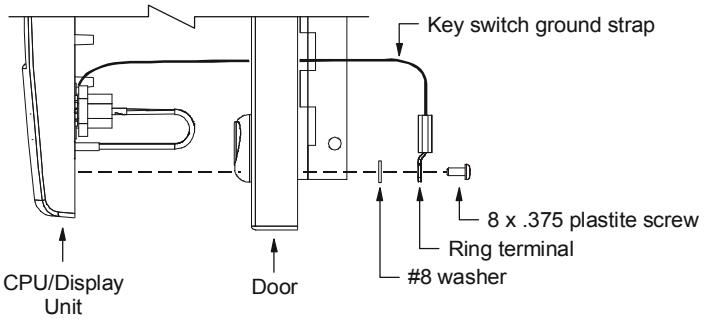


Figure 6-18: Key switch ground strap connection

Step 3: Connect the ribbon cables

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

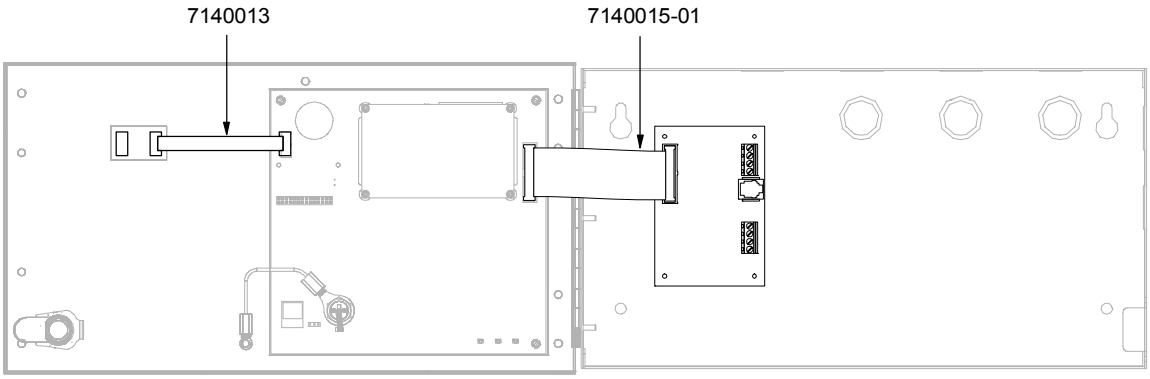


Figure 6-19: Remote annunciator ribbon cable connections

RAI card wiring

The remote annunciator requires a continuous 24 Vdc supply voltage and communicates with the control panel over the RS-485 riser.

Step 1: Connect the power cables

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

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

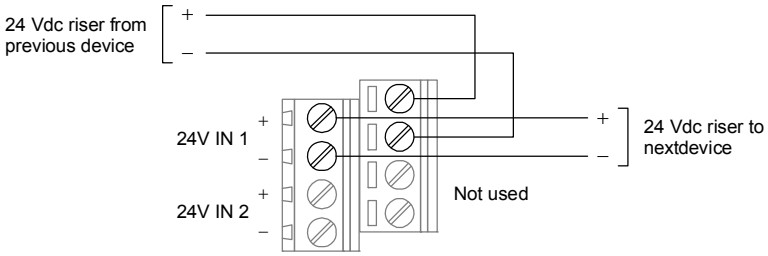


Figure 6-20: RAI card power wiring

Note: If you don't use the PS6 card smoke/accessory power output, you must use an auxiliary/booster power supply that is UL/ULC listed for fire protective signaling systems.

Step 2: Connect the RS-485 data cables

Connect the RS-485 data cables to the RAI card as shown in Figure 6-20.

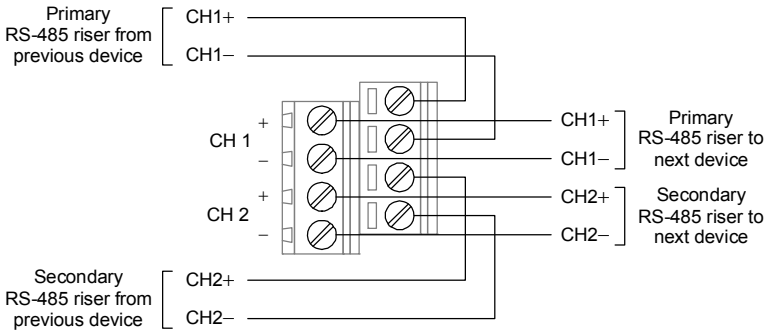


Figure 6-21: RAI card data wiring

Notes

- Do not extend the RS-485 data cables more than 3,000 ft (914.4 m) from the control panel
- Use twisted pair cables
- Secondary RS-485 riser required for Class A operation

System startup procedure

This topic provides the factory recommended startup procedure for system consisting of a control panel with DLD card and a QSA-series or SRA-series remote annunciator.

You may vary this procedure depending on your installation requirements. For example, you may disregard the instructions for remote annunciators if you don't have any or you may choose to connect the field wires one circuit at a time.

Note: This procedure requires that you have a laptop computer, the software configuration utility, and a PROGCABLE-1 download cable.

Summary

Here is a general summary of what you need to do to start the control panel:

1. Use the AutoLearn command to Initialize the control panel.
2. Retrieve (download) the CPU database from the control panel.
3. Make changes to the project. For example, add your event messages.
4. Save the project.
5. Send (upload) the project to the control panel.

After you finish you can start testing the system.

Before you begin

1. Install the PS6 card, the CPU/Display Unit, and all option cards except the DLD card. The DLD card will be installed later.

   Make sure that each option card has a unique card address.
2. Connect the field wiring. Verify that all field wiring is free of opens, shorts, and ground faults (stray voltages) before terminating them at the panel.
3. Connect mains AC (primary power).

   Do not connect the batteries (secondary power) or remote annunciators at this time. Typically, batteries are connected only after the system is operational.

Step 1: Initialize the control panel

1. Turn the control panel on.

   The control panel will display a number of trouble events depending on your hardware configuration. If this is a new installation (no CPU database), the trouble queue will also display this event:

   ```
   LCL TROUBLE
   No Database
   ```

2. Verify the CPU microcode is version 2.5 or later. If not, use the codeloader utility to upgrade the microcode to v2.5.
3. Run the AutoLearn command.

   When prompted, enter the default values for the panel setup options (01, 01, Class B) then wait while the CPU database is updated.

4. Verify the trouble queue contains the battery wiring or battery fault event.

Step 3: Retrieve the CPU database from the control panel

1. Using the download cable, connect the laptop computer to the control panel's RJ-12 jack.
2. Start the software configuration utility.
3. Retrieve the CPU database (sometimes called the actual database) from the control panel. Make sure the Retrieve System Data dialog box is set for the correct COM port before you click OK.

   The time that it takes to copy the CPU database into the configuration utility varies with the size of the system. Be patient.

4. When the control panel has finished transferring the data, click OK to process the data.
5. Save the project as *project_name* Version 01.00.00. In the Description box, type "Initial project database", or equivalent.

Step 4: Make changes to the panel's programming

Using the configuration utility:

1. Add and configure the remote annunciator.
2. Add and configure the DLD card.
3. Change the configuration of any circuits that *do not* use the default values.
4. Add event messages.

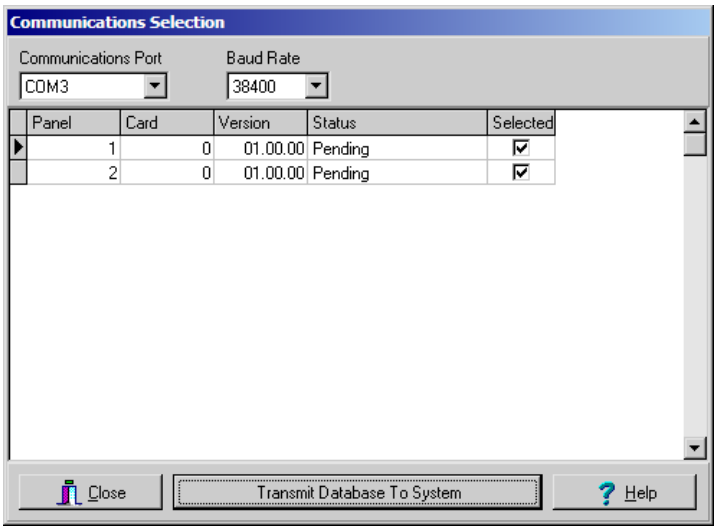
5. Create any zones, AND groups, time controls, service groups, etc.
6. Correlate inputs and outputs.
7. Save the project as *project_name* version 01.01.00 or other numbering scheme you choose to help you track your changes.

Step 4: Install the DLD card and remote annunciators

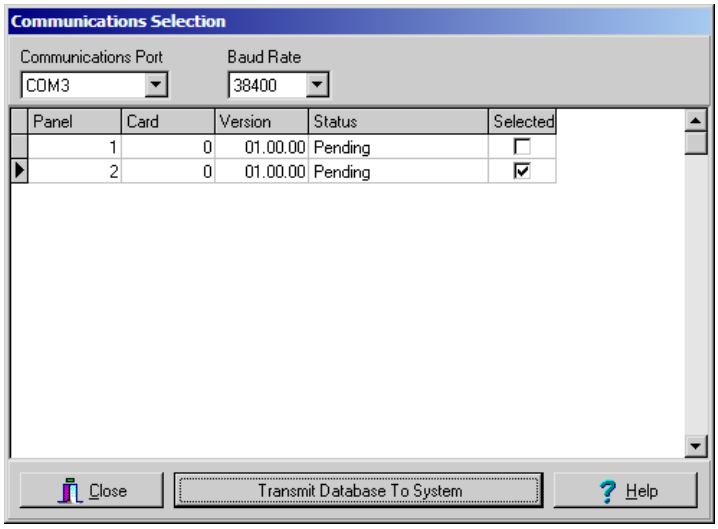
1. Turn the control panel off.
2. Install the DLD card. You may want to wait if the telephone equipment has not been installed yet.
3. Connect the remote annuciator wires to the control panel.
4. Turn the control panel on. If the remote annunciators are powered separately turn on their power.

Step 5: Send the CU database to the control panel

1. Connect the laptop computer to the control panel's RJ-12 jack.
2. Verify the project's CPU revision option is set for Versions 2.5 and Later.
3. Send the CU database (sometimes called the project or expected database) to the control panel. Make sure the Communications Selection dialog box is set for the correct COM port and Panel 1 is selected before you click the transmit button. See figure below.



After the transfer is complete the QS-CU automatically clears the Selected check box for the control panel and advances to the first remote annunciator (panel 2).



Step 6: Send the CU database to the remote annunciators

1. Connect the laptop computer to the first remote annunciator (panel 2) then upload the project database.

   If you get this error message…

   ```
   The database built is not compatible with
   the system. Choose the correct version from
   the Project Configuration Form.
   ```

   …you must use the codeloader utility to update the remote annunciator's CPU microcode to the latest version before you can continue. The control panel and the remote annunciator's CPU microcode versions must be the same.

2. Repeat for each remote annunciator installed. This is how you synchronize the databases. Do not use the control panel's Save & Sync command to synchronize the databases.

Connecting peripheral devices

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

Connecting a computer

You can connect a computer to the RS-232 terminals on the PS6 card or to the RJ-12 modular jack on the CPU/Display Unit.

To connect a computer to the PS6 card's RS-232 terminals use programming cable P/N 260097, ordered separately. See Figure 6-22.

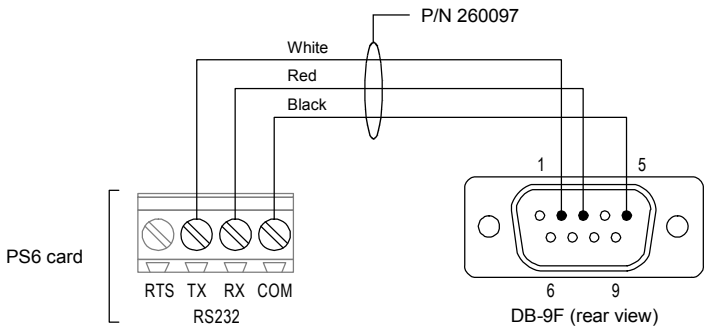


Figure 6-22: Computer connection to the RS-232 terminals

To connect a computer to the RJ-12 modular jack on the CPU/Display Unit use programming cable model PROGCABLE-1, ordered separately.

Notes

- Connecting a grounded computer to the control panel may cause a ground fault. The ground fault event message goes away when you disconnect the computer.
- Connecting a grounded computer to a control panel that already has a ground fault may cause the control panel to reinitialize without warning. Clear the control panel of all ground faults before connecting a grounded computer.

Connecting a serial printer

Figure 6-23 shows how to connect a serial printer to the RS-232 terminals on a PS6 card. Locate the printer within 20 feet 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 module.

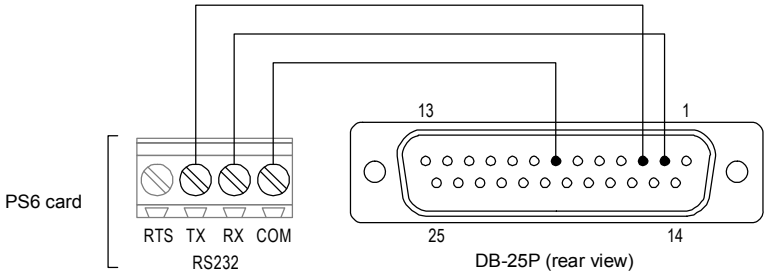


Figure 6-23: Serial printer connection diagram

Connecting auxiliary/booster power supplies

Typically, auxiliary/booster power supplies are connected to the control panel using two notification appliance circuits (NACs) and an initiating device circuit.

Refer to Figure 6-24.

Note: UL requires that you monitor secondary power sources for loss of AC power. Upon loss of AC power, the control panel must provide an audible and visible trouble signal. In addition, remote station, central station, and proprietary-type protected premises units must transmit a trouble signal off-premises.

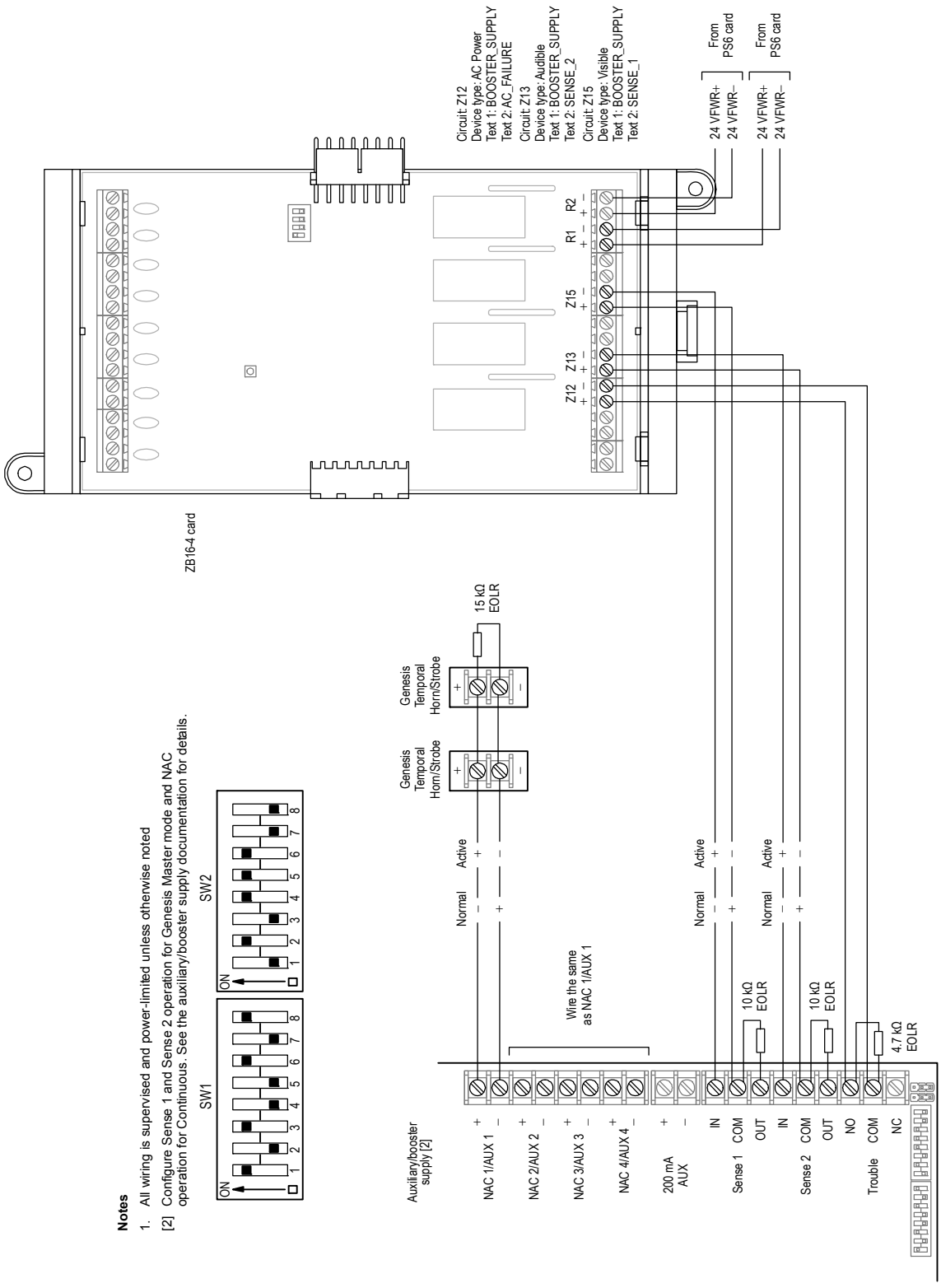


Figure 6-24: Typical booster power supply wiring

Installation requirements for UL 864 signal synchronization

Table 6-2 lists the installation requirements for systems that must meet UL 864 signal synchronization requirements.

Table 6-2: Installation requirements for UL 864 signal synchronization

Circuit	Installation requirements
ZB16-4 card notification appliance circuits (Class B NACs)	Signal synchronization is supported on a notification circuit basis only. Limit one NAC per notification zone. See Figure 6-25. Construct the NAC using a G1M or G1M-RM synchronization module, and all Genesis or all Enhanced Integrity notification appliances. Program the NACs to produce a steady (continuous) output. Configure the notification appliances for temporal (default) or steady output.
ZA8-2 card notification appliance circuits (Class A NACs)	Signal synchronization is not supported.

Note: UL 864 defines a notification zone as any area covered by notification appliances that are activated simultaneously.

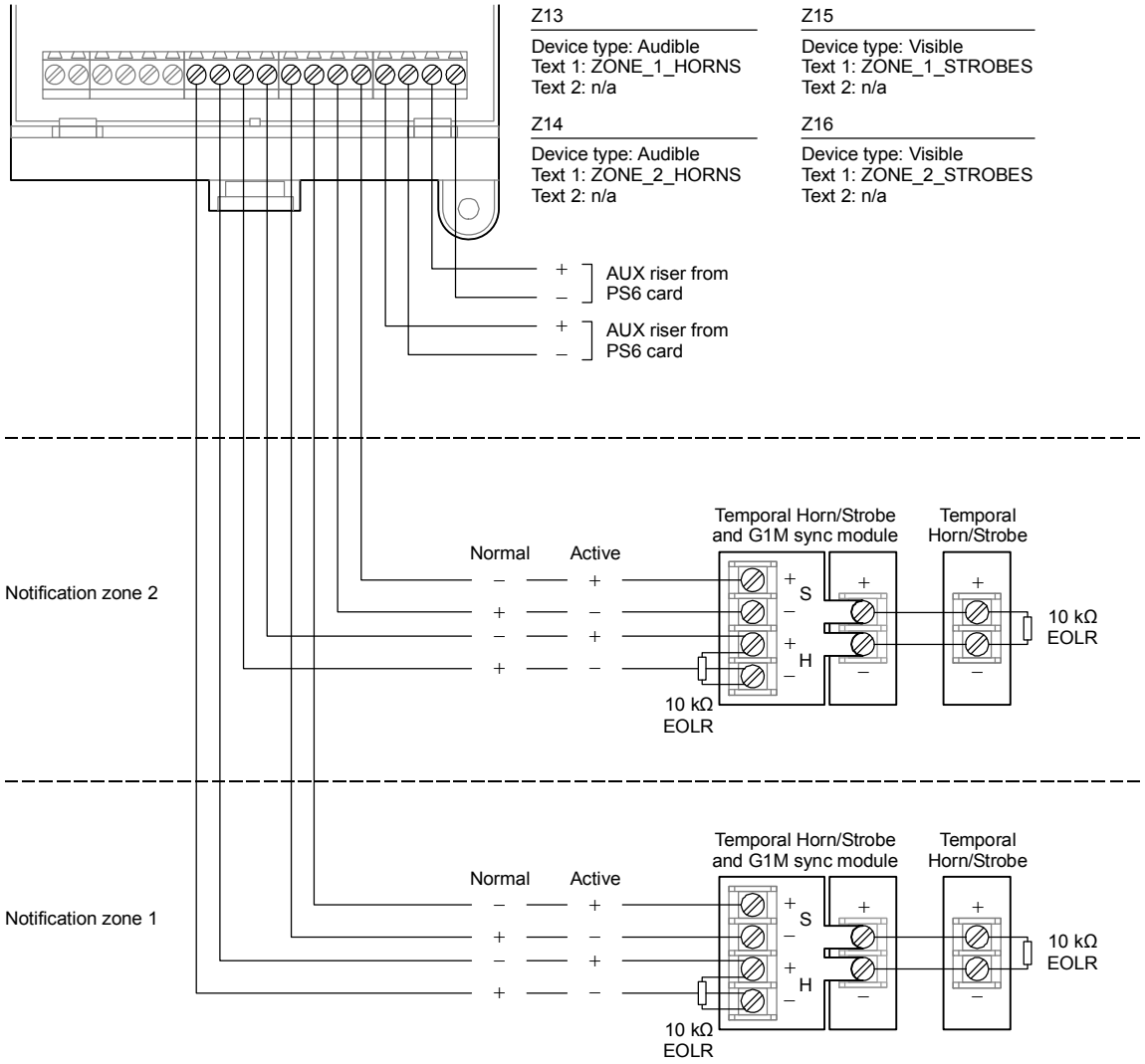


Figure 6-25: Typical ZB16-4 card NAC wiring

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

UL 864 programming requirements

NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES

This product incorporates field-programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864, certain programming features or options must be limited to specific values or not used at all as indicated below.

Programmable feature or option	Permitted in UL 864? (Y/N)	Possible settings	Settings permitted in UL 864
Panel Silence Resound	Y	Disabled 1 hour 2 hours 3 hours 6 hours 12 hours 24 hours	Disabled [1] 1 hour 2 hours 3 hours 6 hours 12 hours 24 hours
AC Power Fail Delay	Y	None 1 hour 3 hours 6 hours 12 hours	1 hour 3 hours
Inhibit Zone Resound	Y	Checked Not checked	Not checked
Event message routing	Y	All Cabinets No Cabinets User Route 1 to User Route 14	All Cabinets No Cabinets [2] User Route 1 to User Route 14 [3]
Event message display filtering: Alarm, Supervisory, and Trouble options	Y	Enabled Disabled	Enabled Disabled [4]
Delays	Y	0 to 240 seconds	0 to 240 seconds [5]
Custom dialer response: Priority option	Y	Life Safety Property System Integrity	Life Safety [6] Property [6] System Integrity [6]
Custom dialer response: Send On option	Y	Activation and Restoration Activation Only Restoration Only	Activation Only [7] Restoration Only [7]
4-state alarm IDC	N		
Alarm zone group members	Y	Alarm device types Pull device types Heat device types Verified smoke device types Water flow device types	Alarm device types [8] Pull device types Heat device types Verified smoke device types Water flow device types
Coded alarm signal	Y	0000 to 9999	Any combination that yields at least 3 pulses per round.

AND group members	Y	Alarm device types Pull device types Heat device types Verified smoke device types Water flow device types Alarm zone device types Matrix group device types	Alarm device types [8] Pull device types Heat device types Verified smoke device types [9] Water flow device types Alarm zone device types Matrix group device types
AND group device activation count	Y	1 to 16	1 to 16 [10]
Matrix group members	Y	Alarm device types Pull device types Heat device types Verified smoke device types Water flow device types	Alarm device types [8] Pull device types Heat device types Verified smoke device types [9] Water flow device types
Matrix group device activation count	Y	1 to 64	1 to 64 [10]

Notes

[1] Allowed only on control panels that transmit trouble event signals off premises

[2] Allowed only with monitor device types and switches

[3] Allowed only if user route includes the control panel

[4] Allowed only on remote annunciators

[5] Not allowed to delay the activation of alarm signals or dialer transmissions

[6] Life Safety allowed only for transmitting alarm event signals; Property allowed only for transmitting supervisory event signals; and System Integrity allowed only for transmitting trouble event signals

[7] Activation Only allowed only for transmitting event activation signals and Restoration Only allowed only for transmitting event restoration signals

[8] Allowed in alarm fire zone groups, AND groups, and matrix groups that are used to initiate the release of extinguishing agents or water except when the addressable smoke detector's primary or alternate verify property is set to a value other than None.

[9] Allowed only in alarm fire zone groups, AND groups, and matrix groups that are not used to initiate the release of extinguishing agents or water

[10] A minimum device activation count of 2 is required if the AND group or matrix group is used to initiate the release of extinguishing agents or water

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 executed when a point assigned to the output group changes to the active state.

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

Trouble Test: The set of responses 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 executed when a fire alarm detector assigned to the output group signals that its prealarm threshold has been crossed. Not used on conventional systems.

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

Verify: The set of responses executed when an initiating device circuit 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.

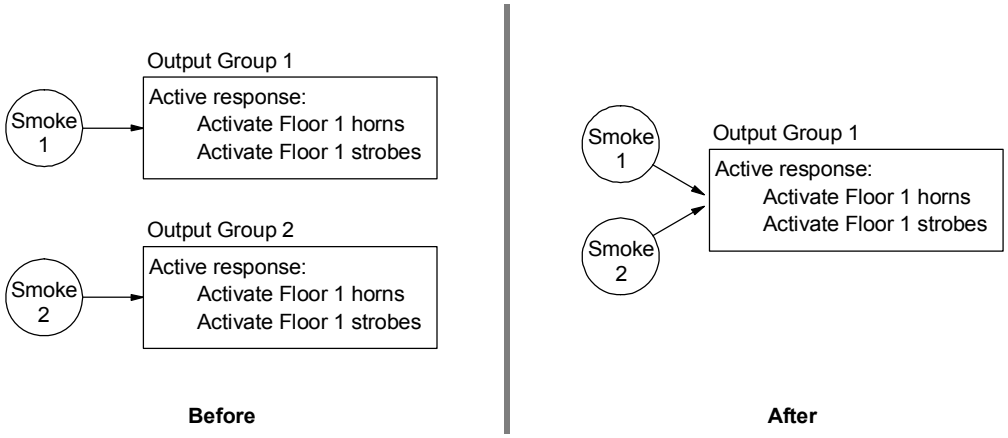


Figure 7-1: Combining common responses in the same output group

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.

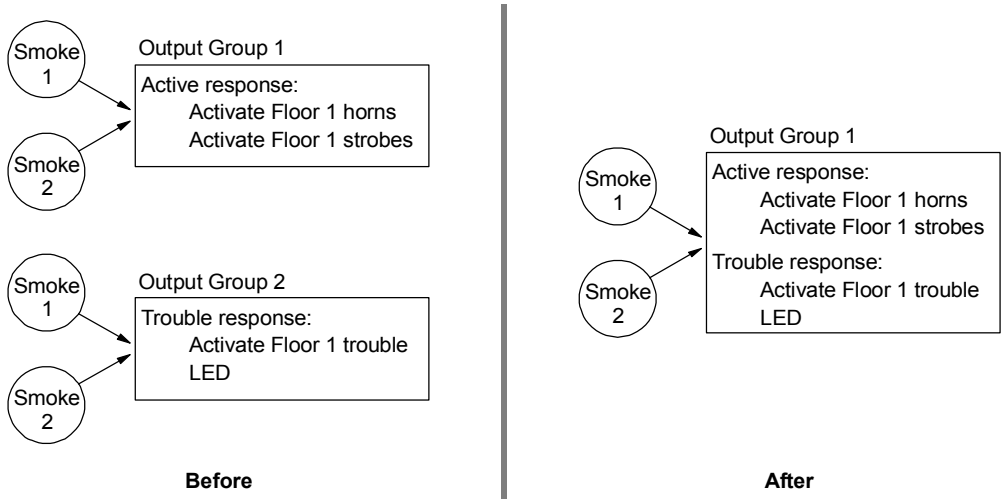


Figure 7-2: Combining response types in the same output group

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.

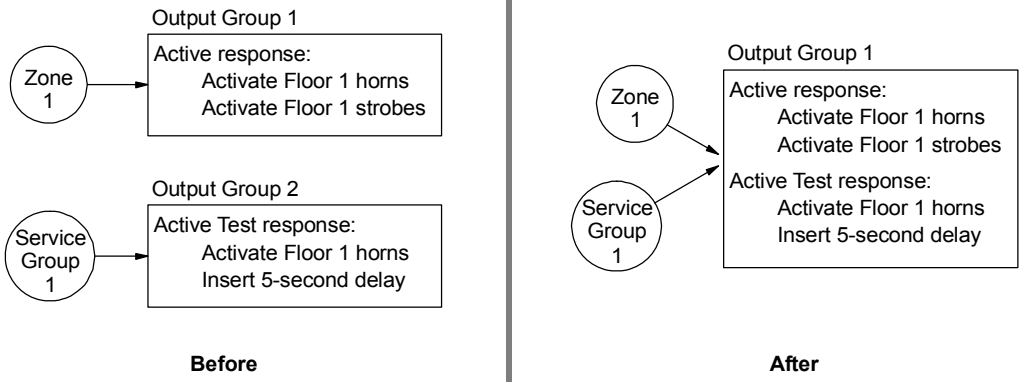


Figure 7-3: Combining mutually exclusive responses in the same output group

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.

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 (31and 32).

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

Output Group 31 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 32 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 AutoZone command

Use the AutoZone command to automatically divide the system into fire alarm zones. Zone assignments are made starting with card number 1 (CC = 01), then card number 2 (CC= 02), then card number 3 (CC = 03), and so on.

For each ZB16-4 card, the zone configuration process creates twelve fire alarm zones. Zone member assignments are listed in the table below.

Zone number	Members
Zone n+1	IDC input circuit Z1
Zone n+2	IDC input circuit Z2
Zone n+3	IDC input circuit Z3
Zone n+4	IDC input circuit Z4
Zone n+5	IDC input circuit Z5
Zone n+6	IDC input circuit Z6
Zone n+7	IDC input circuit Z7
Zone n+8	IDC input circuit Z8
Zone n+9	IDC input circuit Z9
Zone n+10	IDC input circuit Z10
Zone n+11	IDC input circuit Z11
Zone n+12	IDC input circuit Z12
Note: *n* equals the last zone number assigned for the previous card.	

For each ZA8-2 card, the zone configuration process creates six fire alarm zones. Zone member assignments are listed in the table below.

Zone number	Members
Zone n+1	IDC input circuit Zone 1
Zone n+2	IDC input circuit Zone 2
Zone n+3	IDC input circuit Zone 3
Zone n+4	IDC input circuit Zone 5
Zone n+5	IDC input circuit Zone 6
Zone n+6	IDC input circuit Zone 7
Note: *n* equals the last zone number assigned for the previous card.	

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 device types

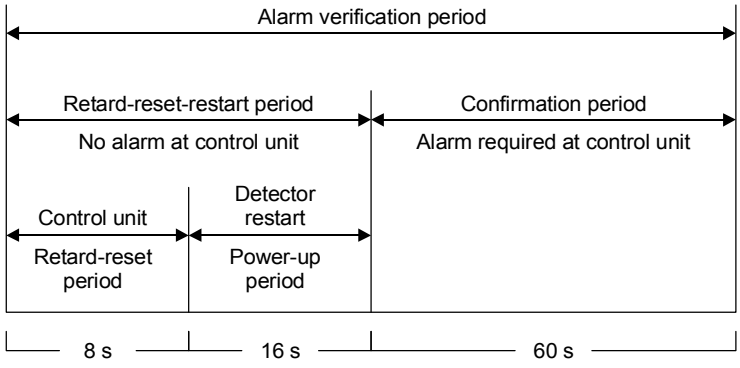
Alarm device types are assigned to initiating device circuits (IDCs) used to activate alarm signals. The alarm device types that you can assign are described below.

Alarm Active: Device type typically assigned to IDCs connected to two-wire smoke detectors. You can also assign this device type to IDCs connected to dry contact devices. Alarm active device types initiate alarm events and this event message: ALARM ACTIVE

Alarm Verify: Device type assigned to IDCs connected to two-wire smoke detectors that you want verified before initiating an alarm event.

When smoke is first detected, alarm verify device types initiate a monitor event and this event message: ALARM VERIFY. If smoke is still present at the end of the alarm verification period, alarm verify device types initiate an alarm event and this event message: ALARM ACTIVE.

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.



Heat Alarm: Device type typically assigned to IDCs connected only to heat detectors. Heat device types initiate alarm events and this event message: HEAT ALARM.

Pull Station: Device type typically assigned to IDCs connected only to pull stations. Pull station device types initiate alarm events and this event message: PULL STATION.

Waterflow: Device type typically assigned to IDCs connected only to waterflow switches. Waterflow device types initiate alarm events and this event message: WATERFLOW.

Supervisory device types

Supervisory device types are assigned to initiating device circuits (IDCs) used to activate supervisory signals. The supervisory device types that you can assign are described below.

Latch Supv: Device type typically assigned to IDCs connected to supervisory switches other than control valve supervisory switches. You can also assign this device type to IDCs connected to conventional duct smoke detectors.

Latching supervisory device types initiate supervisory events with this event message: LATCH SUPV. Latching supervisory device types restore only after the condition that initiated them is restored and the panel is reset.

Latch Tamper: Device type typically assigned to IDCs connected to control valve supervisory switches, such as an OS&Y valve supervisory switch.

Latching tamper device types initiate supervisory events with this event message: LATCH TAMPER. Latching tamper device types restore only after the condition that initiated them is restored and the panel is reset.

Note: The personality code of addressable IDCs connected to duct smoke detectors must be set to active latching.

Supervisory: Device type typically assigned to IDCs connected to supervisory switches other than control valve supervisory switches. You can also assign this device type to conventional IDCs connected to duct smoke detectors.

Supervisory device types initiate supervisory events with this event message: SUPERVISORY. Supervisory device types automatically restore after the condition that initiated them is restored.

Tamper: Device type typically assigned to IDCs connected to control valve supervisory switches, such as an OS&Y valve supervisory switch.

Tamper device types initiate supervisory events with this event message: TAMPER. Tamper device types automatically restore after the condition that activated them is restored.

Trouble device types

Trouble device types are assigned to initiating device circuits (IDCs) used to activate trouble signals. The trouble device types that you can assign are described below.

AC Pwr Fail: Device type assigned to IDCs connected to the trouble relay on an auxiliary/booster power supply. AC power fail device types initiate trouble events with this event message: AC POWER FAIL.

Monitor device types

Monitor device types are assigned to initiating device circuits (IDCs) used to activate monitor signals. The monitor device types that you can assign are described below.

Monitor: Device type assigned to IDCs connected to switches that monitor the operation of ancillary system functions. For example, fan feedback switches.

Monitor device types initiate monitor events with this event message: MONITOR. Monitor device types are nonlatching. They automatically restore after the condition that activated them is restored.

Output device types

Output device types are assigned to notification appliance circuits (NACs) and relays. The output device types that you can assign are described below.

Common alarm output: Device type assigned to NACs connected to horns, strobes, or both. You can also assign this device type to controls for ancillary equipment in applications that require circuit supervision. Common alarm output device types:

- Turn on automatically with any alarm event. Programming is not required.
- Turn off automatically when Alarm Silence is pressed
- Turn on automatically when Drill is pressed
- Can’t be disabled

Abbreviated: COMM ALM OUT

Audible: Device type typically assigned to NACs connected only to horns. Audible device types:

- Must be programmed to turn on
- Turn off automatically when Alarm Silence is pressed
- Turn on automatically when Drill is pressed

- Can be disabled

Dry contact: Device type assigned to addressable relays and to ZR8 card relays connected to controls for ancillary equipment in applications that don't require circuit supervision. Dry contact device types:

- Must be programmed to turn on or off
- Do not turn off when Alarm Silence is pressed, unless programmed to do so
- Do not turn on when Drill is pressed, unless programmed to do so
- Can be disabled

Supervised output: Device type typically assigned to NACs connected to controls for ancillary equipment in applications that require circuit supervision. Supervised output device types:

- Must be programmed to turn on
- Do not turn off when Alarm Silence is pressed, unless programmed to do so
- Do not turn on when Drill is pressed, unless programmed to do so
- Can be disabled

Abbreviated: SUPER OUTPUT

Visual: Device type typically assigned to NACs connected to strobes. Visual device types (also called Visible device types):

- Must be programmed to turn on or off
- Do not turn off automatically when Alarm Silence is pressed, unless configured to do so
- Do not turn on automatically when Drill is pressed, unless configured to do so
- Can be disabled

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: 32 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 1,195 objects

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 and level 4 passwords 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 “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.

Configuring the system

To configure the system, follow the procedure below. In addition, refer to Figure 7-4. System options are described in Table 7-2. A complete list is provided in Table 7-3.

Table 7-2: System options

Option	Description
Facility Name	Text displayed on the LCD when the control panel is normal. Typically, the name of the protected premises.
Inst Company	The name of the company that installed the fire alarm system (i.e., your company's name.) Used for record-keeping purposes only.
Phone Number	The installing company's phone number. Used for record-keeping purposes only.
Programmer	The name of the person who programmed the fire alarm system. Used for record-keeping purposes only.
ALM/RST Inhib	The amount of time you must wait after an alarm event before you can silence alarm signals or reset the control panel. Possible values: None, 1, 3, or 5 minutes Default: None
AC Power Dly	The amount of time the control panel waits before transmitting AC power fail events off premises. Possible values: None, 1, 3, 6, or 12 hours Default: 3 hours.

To configure the system:

1. On the Configure menu, choose System then on the Config System menu:
   - To enter text for the banner and other labels, choose User labels
   - To change the value of alarm signal/reset inhibit, choose ALM/RST Inhib on the ALARM/RESET Inhib menu:

     Choose 1, 3, or 5 minutes.

     — or —

     Choose None to disable the alarm signal/reset inhibit feature.
   - To change the value of AC power delay, choose AC Power DLY then on the AC Power Delay menu:

     Choose 1, 3, 6, or 12 hours.

     — or —

Note: To meet UL 864 requirements, set the AC Power Dly option for either 1 or 3 hours.

Choose None to disable the AC power delay feature.

- To quit and return to the Configure menu, choose Exit then on the Exit menu:

  Choose Save Edits to save your changes.

  — or —

  Choose NO Save to quit without saving your changes.

2. On the User Labels menu:
   - To enter the text you want displayed when the panel is normal, choose Facility Name then enter the text. To enter text you must use a compatible bar code scanner.
   - To enter your company's name, choose Inst Company
   - To enter the phone number of the person to contact about the control panel, choose Phone Number
   - To enter the name of the person to contact about the system's programming, choose Programmer
   - To quit and return to the Configure menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

Table 7-3: 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
Trouble Reminder	Disabled	Disabled
Automatic Alarm Signal Silence	Disabled	Disabled
Alarm Signal Silence/Reset Inhibit [1]	Disabled	Disabled
Panel Silence Resound	24 hours	24 hours
AC Power Trouble Delay [1]	3 hours	3 hours
User labels [1]	No text	No text

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

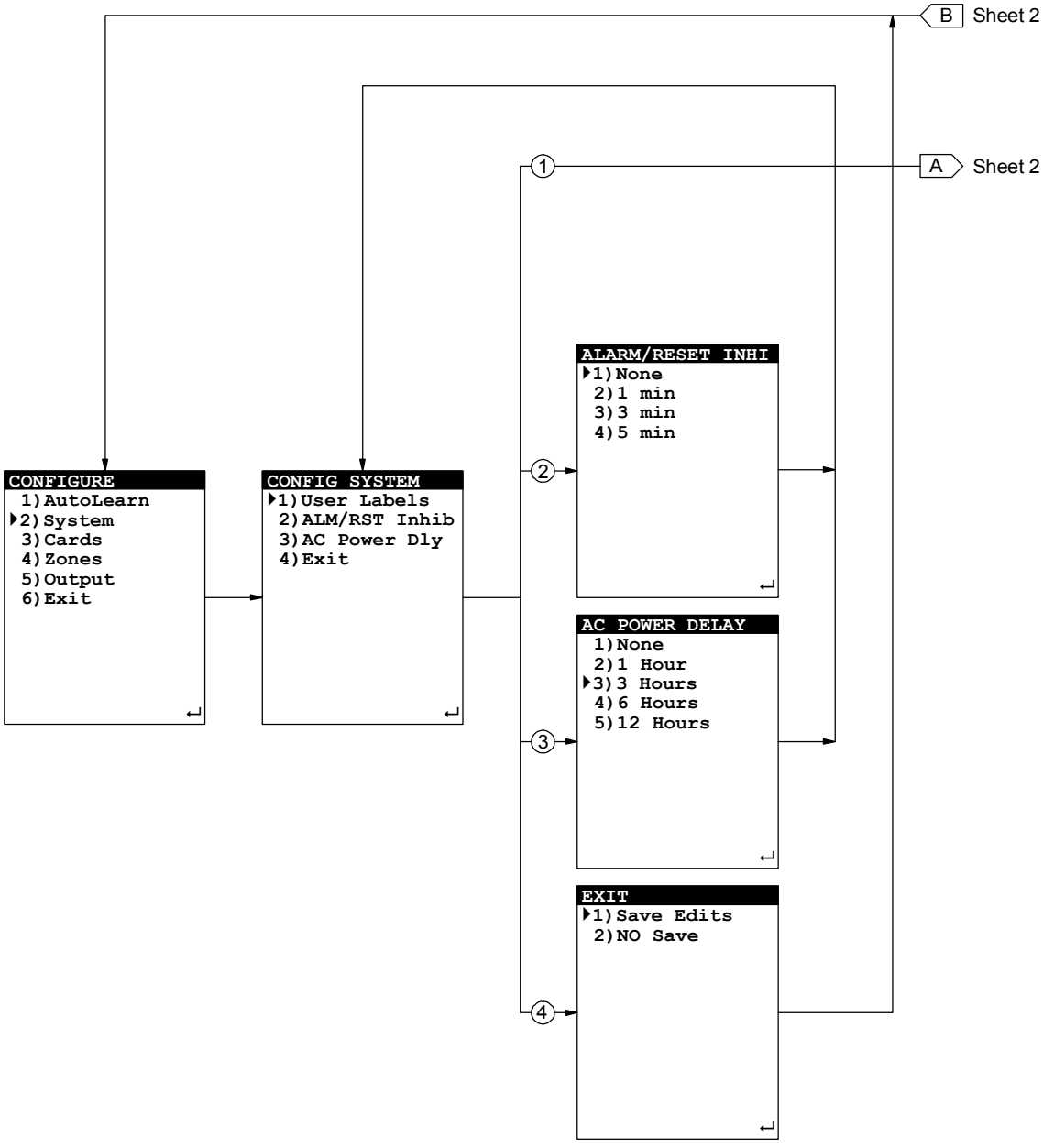


Figure 7-4: System configuration diagram (sheet 1 of 2)

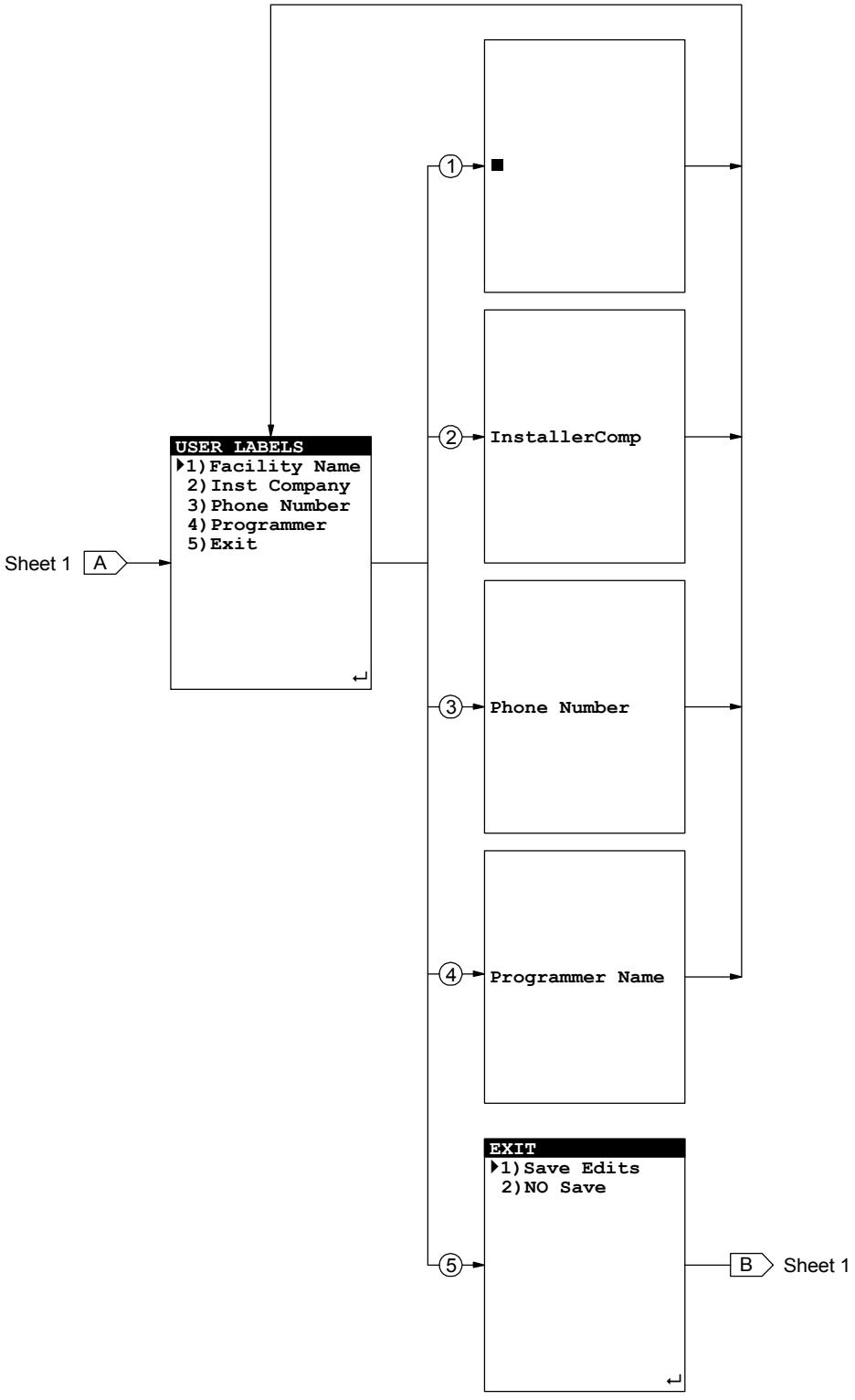


Figure 7-4. System configuration diagram (sheet 2 of 2)

Configuring ZB16-4 cards

To configure a ZB16-4 card, follow the procedure below. In addition, refer to Figure 7-5. ZB16-4 card options are described in Table 7-4.

Table 7-4: ZB16-4 card options

Option	Description
Text Message	Text displayed as part of a circuit's event message. Typically, the text provides a location description. Default: No message
Device Type	Determines the circuit's function (initiating device circuit or notification appliance circuit). It also determines the circuit's behavior. For example, if an initiating device circuit, the type of event initiated when the circuit is activated. Default (circuits 001 to 012): Alarm Active Default (circuits 013 to 014): Comm Alm Out Default (circuits 015 to 016): Visual For more information, see the topic "Device type descriptions" earlier in this chapter.

To configure a ZB16-4 card:

1. On the Configure menu, choose Cards then on the Edit Cards menu:
   - To configure a new ZB16-4 card, choose Add then enter the ZB16-4 card's address
   - To configure an existing ZB16-4 card, choose Edit then enter the ZB16-4 card's address
   - To delete a ZB16-4 card and return to the Configure menu, choose Delete then enter the ZB16-4 card's address
2. On the Trad Zone menu:
   - To configure a circuit on the ZB16-4 card, choose Circuit Num then enter the circuit's device address number
   - To quit configuring the ZB16-4 card and return to the Configure menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

3. For each circuit on the ZB16-4 card, on the Circuit Edit menu:
   - To enter the text for the circuit's event message, choose Text Message. To enter text you must use a compatible bar code scanner.
   - To change the circuit's device type, choose Device Type, select a device type from the list, then press Enter. The list contains only the device types that are valid for the circuit.
   - To quit configuring the circuit and return to the Trad Zone menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

Caution: Changing a circuit's device type after you have programmed the system can have adverse effects. For example, in a zoned system, if you change the circuit from an alarm device type to a supervisory device type automatically removes the circuit from the zone. Likewise, changing a circuit from an audible device type to an alarm device type automatically removes the circuit from any output groups.

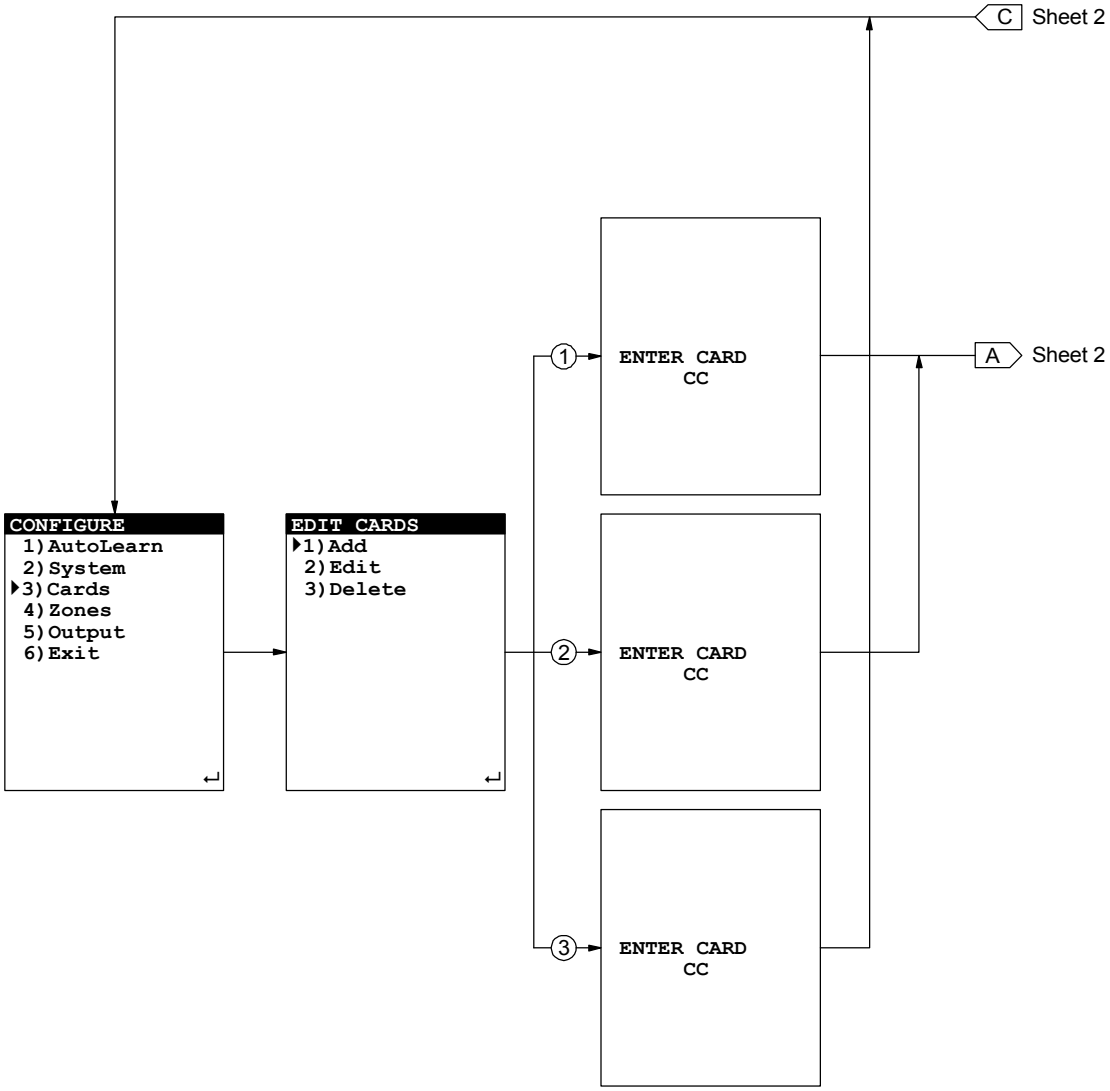


Figure 7-5: ZB16-4 card configuration (sheet 1 of 3)

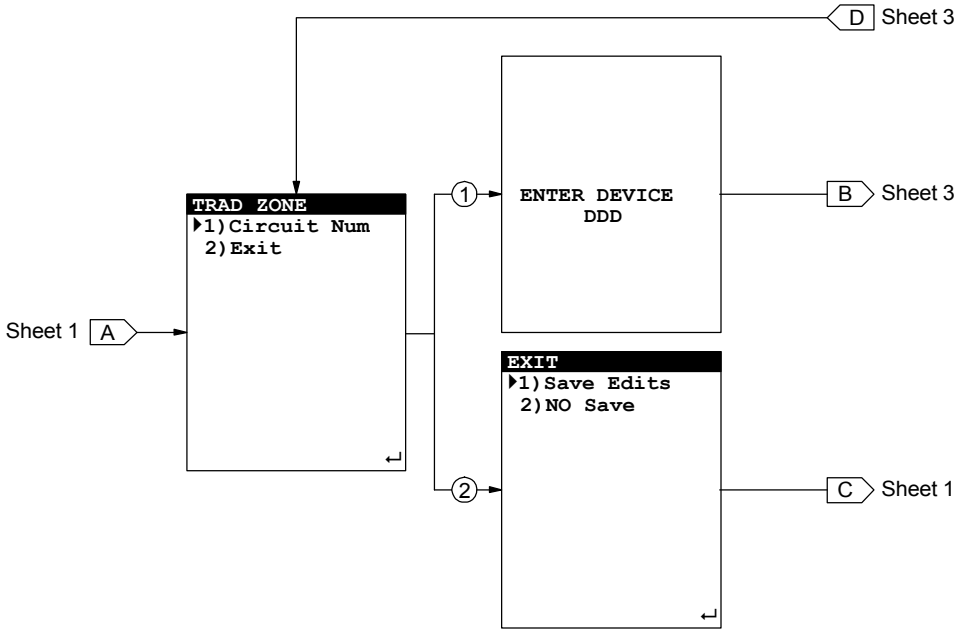


Figure 7-5: ZB16-4 card configuration (sheet 2 of 3)

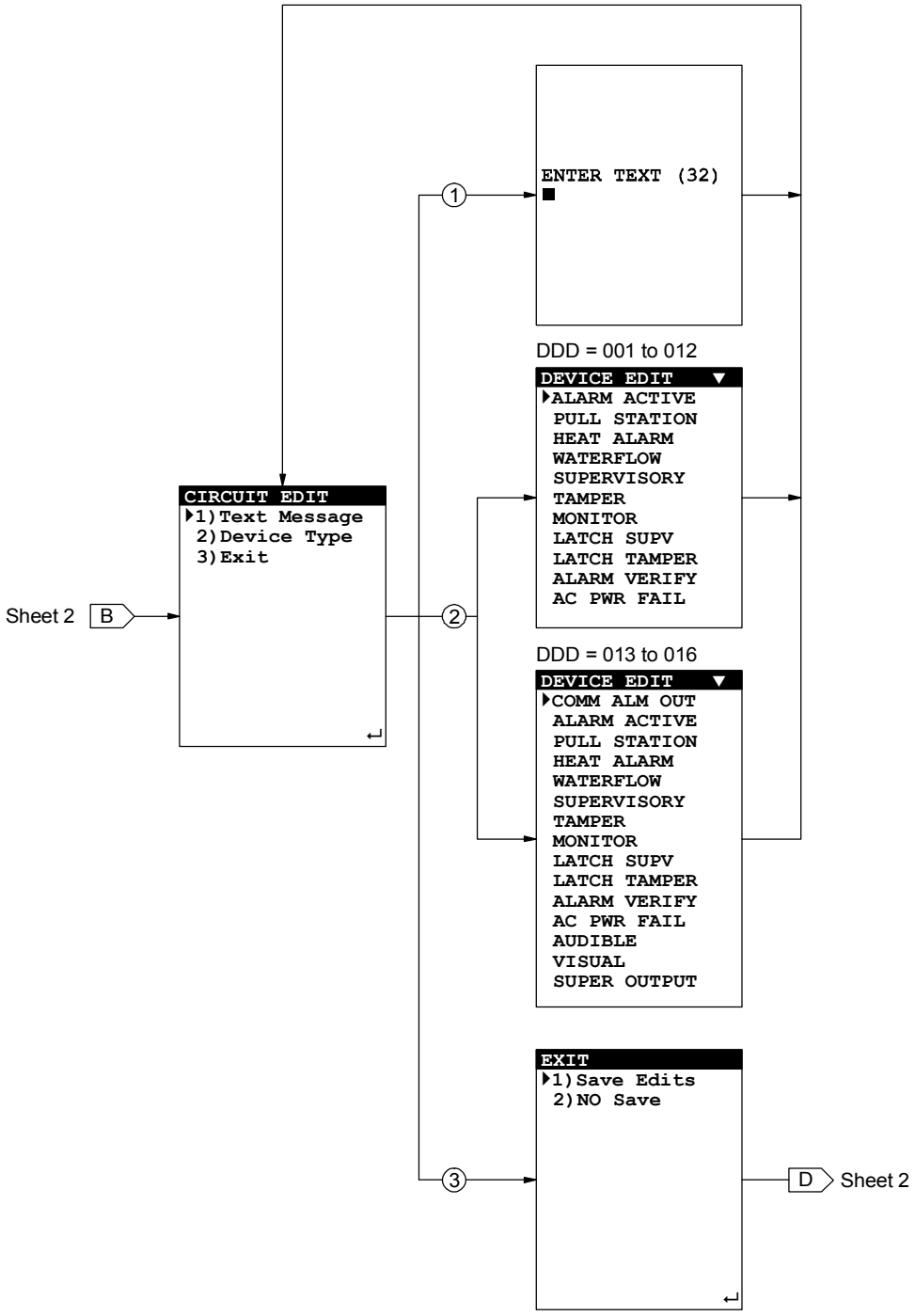


Figure 7-5: ZB16-4 card configuration (sheet 3 of 3)

Configuring ZA8-2 cards

To configure a ZA8-2 card, follow the procedure below. In addition, refer to Figure 7-6. ZA8-2 card options are described in Table 7-5.

Table 7-5: ZA8-2 card options

Option	Description
Text Message	Text displayed as part of a circuit's event message. Typically, the text provides a location description. Default: No message
Device Type	Determines the circuit's function (initiating device circuit or notification appliance circuit). It also determines the circuit's behavior. For example, if an initiating device circuit, the type of event initiated when the circuit is activated. Default (circuits 001 to 003): Alarm Active Default (circuit 004): Comm Alm Out Default (circuits 005 to 007): Alarm Active Default (circuits 015 to 016): Visual For more information, see the topic "Device type descriptions" earlier in this chapter.

To configure a ZA8-2 card:

1. On the Configure menu, choose Cards then on the Edit Cards menu:
   - To configure a new ZA8-2 card, choose Add then enter the ZA8-2 card's address
   - To configure an existing ZA8-2 card, choose Edit then enter the ZA8-2 card's address
   - To delete a ZA8-2 card and return to the Configure menu, choose Delete then enter the ZA8-2 card's address
2. On the Trad Zone menu:
   - To configure a circuit on the ZA8-2 card, choose Circuit Num then enter the circuit's device address number
   - To quit configuring the ZA8-2 card and return to the Configure menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

3. For each circuit on the ZA8-2 card, on the Circuit Edit menu:

   - To enter the text for the circuit's event message, choose Text Message. To enter text you must use a compatible bar code scanner.
   - To change the circuit's device type, choose Device Type, select a device type from the list, then press Enter. The list contains only the device types that are valid for the circuit.
   - To quit configuring the circuit and return to the Trad Zone menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

Caution: Changing a circuit's device type after you have programmed the system can have adverse effects. For example, in a zoned system, if you change the circuit from an alarm device type to a supervisory device type automatically removes the circuit from the zone. Likewise, changing a circuit from an audible device type to an alarm device type automatically removes the circuit from any output groups.

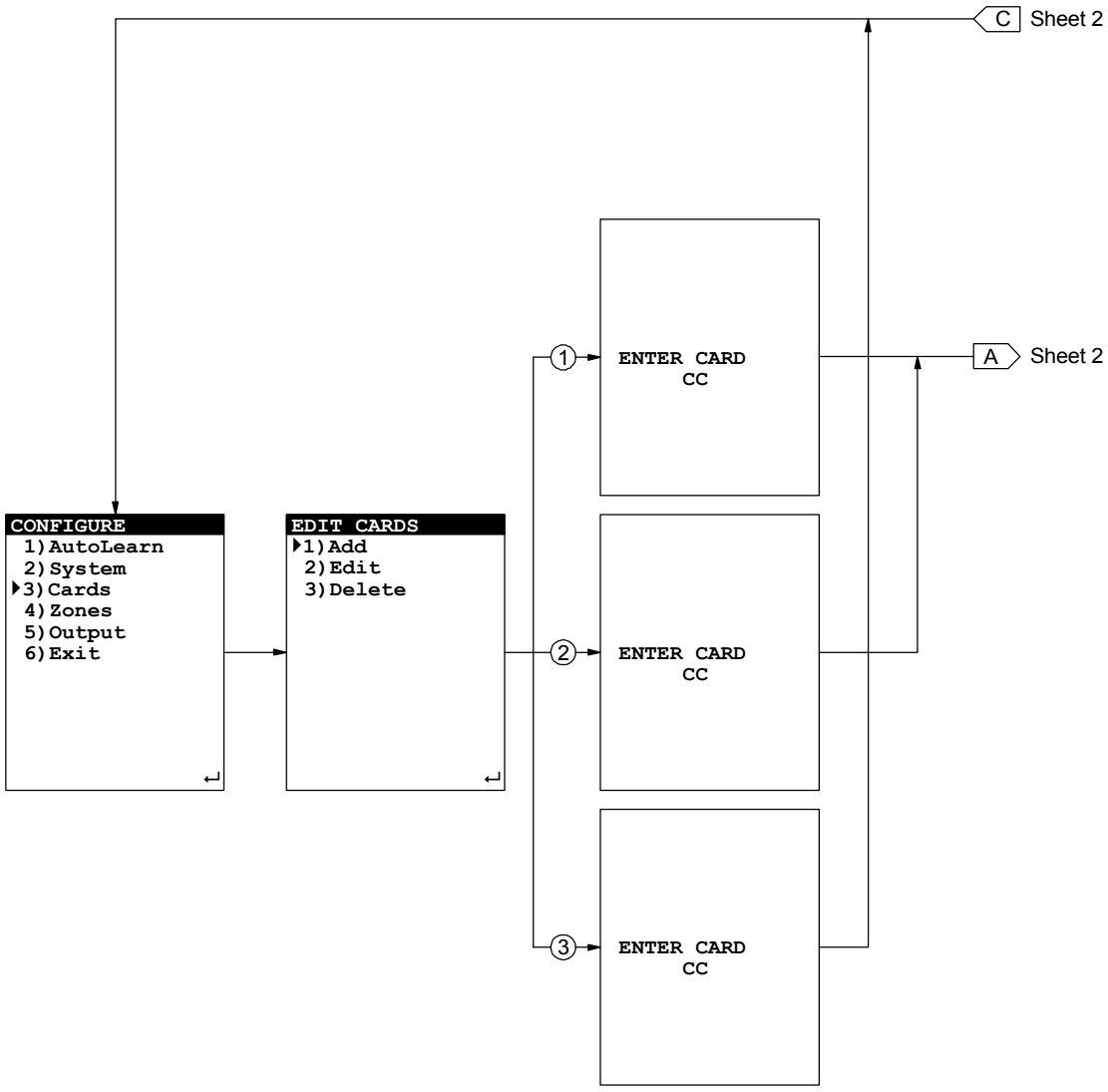


Figure 7-6: ZA8-2 card configuration (sheet 1 of 3)

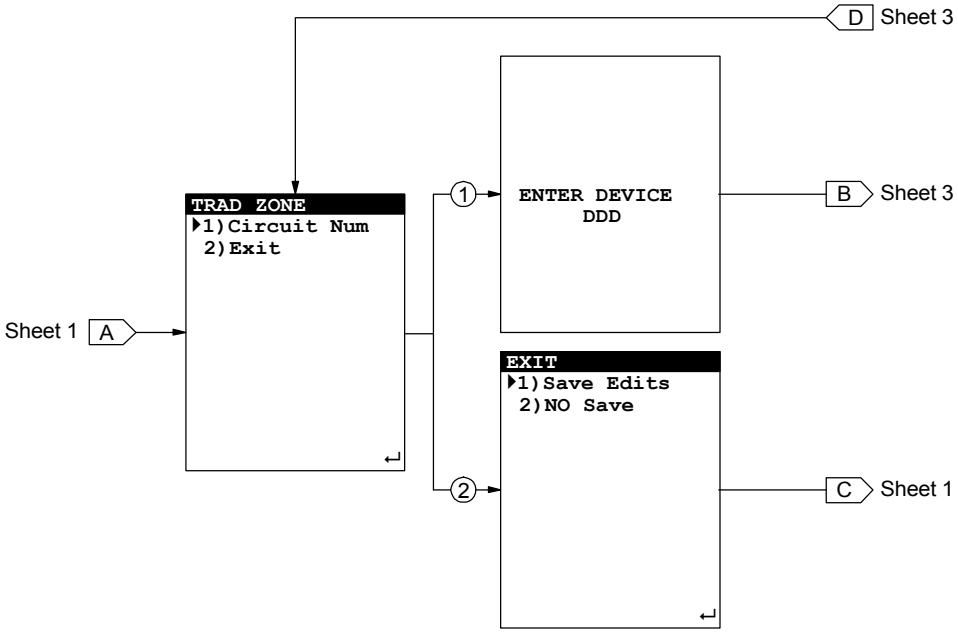


Figure 7-6: ZA8-2 card configuration (sheet 2 of 3)

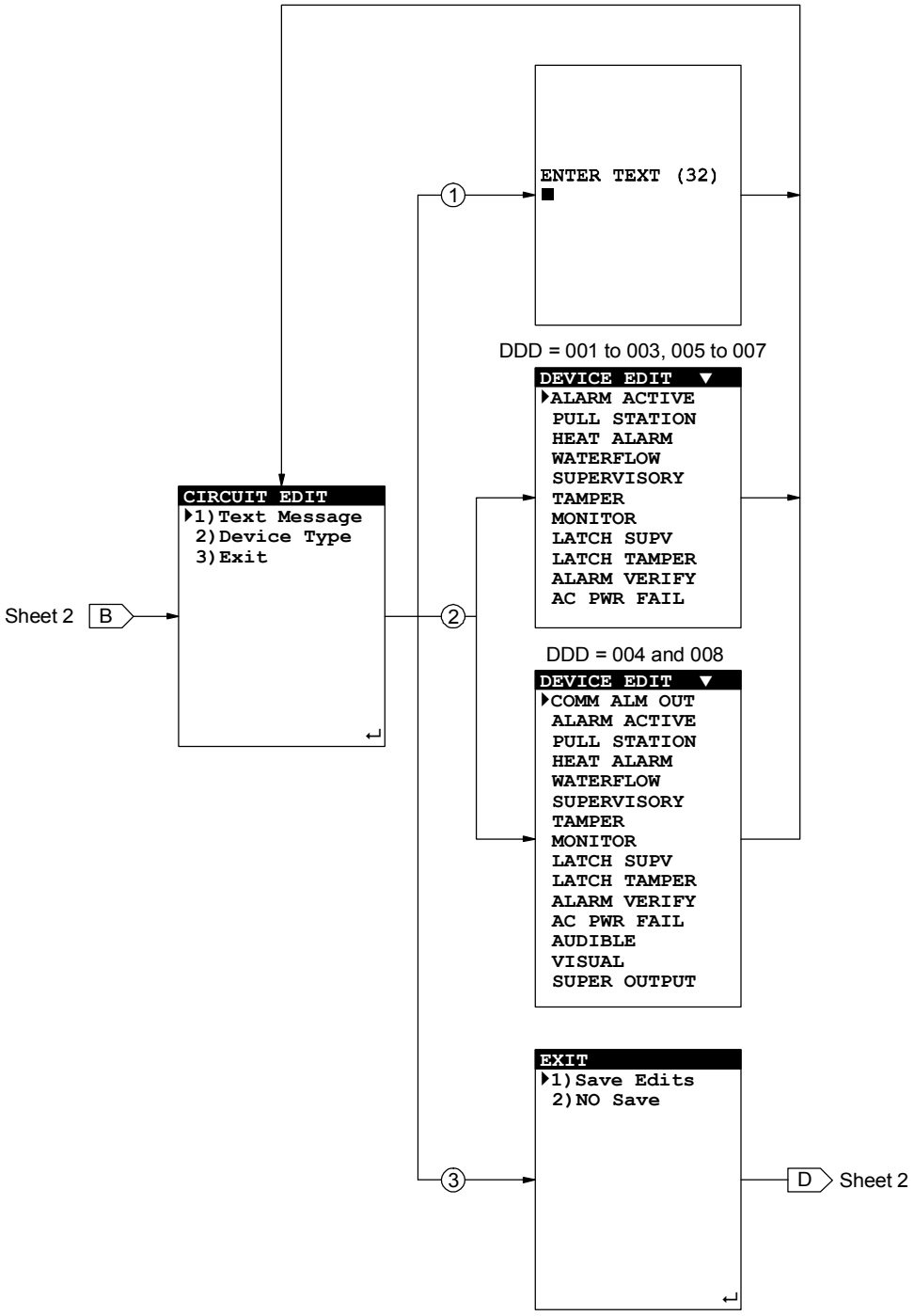


Figure 7-6: ZA8-2 card configuration (sheet 3 of 3)

Configuring DLD cards

To configure a DLD card, follow the procedure below. In addition, refer to Figure 7-7. DLD card options are described in Table 7-6.

Table 7-6: DLD card options

Option	Description
#'s of CMS	Determines the number of receivers to which the DLD card can send events Possible values: 1 or 2 Default: 1
Rcvr 1 Prim #	Designates the telephone number that you want the DLD card to use to call Receiver 1 Possible values: Up to 23 numeric characters. Do not include spaces.
Rcvr 1 Sec #	Designates the telephone number that you want the DLD card to use to call Receiver 1 if it fails to connect to using the first telephone number Possible values: Up to 23 numeric characters. Do not include spaces.
Rcvr 2 Prim #	Designates the telephone number that you want the DLD card to use to call Receiver 2 Possible values: Up to 23 numeric characters. Do not include spaces.
Rcvr 2 Sec #	Designates the telephone number that you want the DLD card to use to call Receiver 2 if it fails to connect to using the first telephone number Possible values: Up to 23 numeric characters. Do not include spaces.
Retry Count	Determines how many times the DLD card will attempt to call a receiver before indicating a trouble Possible values: 05 to 10 Default: 05
Default alarm event messages	Determines the event activation and restoration codes sent to the central station for all alarm points that are not programmed to send event messages Default: Blank
Default supervisory event messages	Determines the event activation and restoration codes sent to the central station for all supervisory points that are not programmed to send event messages Default: Blank
Default trouble event messages	Determines the event activation and restoration codes sent to the central station for all points that are not programmed to send trouble event messages Default: Blank

To configure a DLD card:

1. On the Configure menu, choose Cards then on the Edit Cards menu:
   - To configure a new DLD card, choose Add then enter the DLD card's address (14)
   - To configure an existing DLD card, choose Edit then enter the DLD card's address (14)
   - To delete a DLD card and return to the Configure menu, choose Delete then enter the DLD card's address (14)
2. On the Dialer Setup menu:
   - To change how many receivers you want the DLD card to call, choose #'s of CMS then on the Number Receive menu choose 1 or 2
   - To enter the central station reciever telephone numbers. choose CMS Phone # then on the Phone Numbers menu:

     Choose Rcvr 1 Prim # then enter the first telephone number for the first receiver.

     Choose Rcvr 1 Sec # then enter the second telephone number for the first receiver.

     Choose Rcvr 2 Prim # then enter the first telephone number for the second receiver.

     Choose Rcvr 2 Sec # then enter the second telephone number for the second receiver.

     Choose Exit to quit entering telephone numbers and return to the Dialer Setup menu.
   - To change how many times you want the DLD card to attempt to call a receiver before indicating a trouble, choose Retry Count then enter a number from 5 to 10
   - To configure receiver accounts, choose Accounts. For a detailed procedure see "Configuring receiver accounts" later in this chapter
   - To enter default alarm, supervisory, and trouble event messages, choose Default Msgs
   - To quit and return to the Configure menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

3. On Default Msgs menu:

   - To enter a default alarm event message, choose Alarm then on the MSG menu:

     Choose Account, select the account where you want to send the event message from the list, then press Enter.

     Choose Active Msg then enter the default event activation message.

     Choose Restore Msg then enter the default event restoration message.

   - To enter a default supervisory event message, choose Supervisory then perform the steps described above

   - To enter a default trouble event message, choose Trouble then perform the steps described above

   - To quit and return to the Default Msgs menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

Note: If you want the DLD card to use the predefined Contact ID strings when sending event messages to the default receiver account, do not enter values for the Active Msg and Restore Msg options.

Configuring receiver accounts

To configure a receiver account, follow the procedure below. In addition, refer to Figure 7-7. Receiver account options are described in Table 7-7.

Table 7-7: Receiver account options

Option	Description
Account #	The account's identification number. This number is assigned by the central station
Formats	The required transmission format for event messages sent to the account Possible values: 4/2 (SIA Pulse Format P3) or Contact ID Default: 4/2
Test-Normal	The event message transmitted for the 24-hour periodic test if the control panel is normal when it is time to perfom the test
Test-Abnormal	The event message transmitted for the 24-hour periodic test if the control panel is *not* normal when it is time to perfom the test
Test Time	The time to perform the 24-hour periodic test. Time is entered in 24-hour format. For example, midnight is 0000 and 1:00 p.m. is 1300.
CMS	The receiver on which the account resides Possible values: 1 (Receiver 1) or 2 (Receiver 2) Default: 1

To configure a receiver account:

1. On the Dialer Setup menu, choose Accounts then from the Accounts list:
   - To configure an existing account, choose the account number
   - To configure a new account, choose <NEW>. You can configure up to eight accounts.
2. On the Accounts menu:
   - Choose Account # then enter the account's 4-digit identification number
   - Choose Formats then on the Dialer Format menu choose the required transmission format
   - Choose Test-Normal then enter the test event message when the control panel is normal
   - Choose Test-Abnormal then enter the test event message when the control panel is *not* normal

- Choose Test Time then enter the time that you want to perform the 24-hour periodic test
- Choose CMS then on the Number Receive menu choose the receiver on which the account resides
- Choose Exit to quit configuring an account and return to the Dialer Setup menu

To delete a receiver account:

1. On the Dialer Setup menu, choose Accounts then choose the account from the Accounts list
2. On the Accounts menu, choose Delete.
3. On the Exit menu:

   Choose Save Edits delete the account and return to the Dialer Setup menu

   — or —

   Choose NO Save to return to the Dialer Setup menu without deleting the account

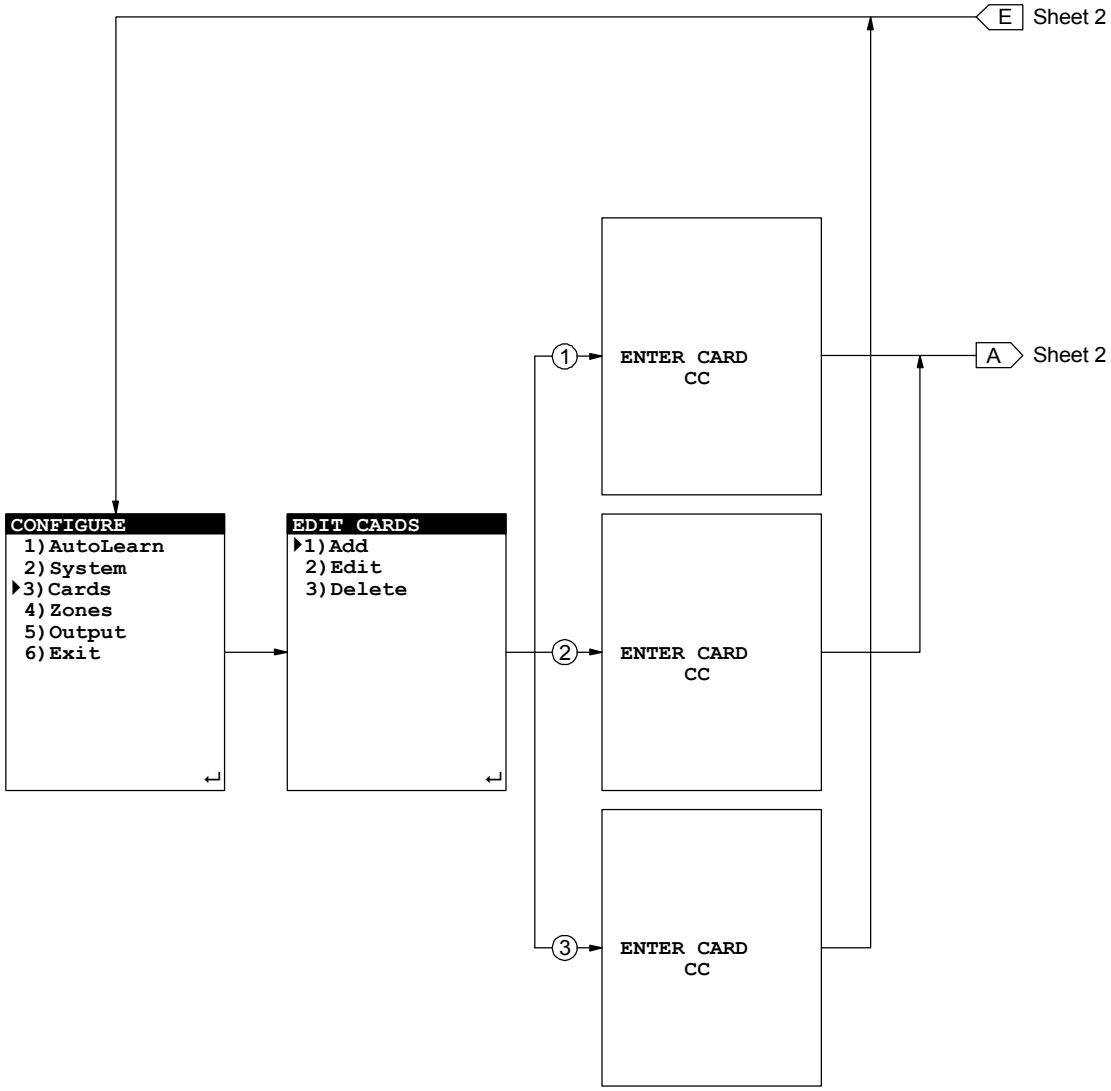


Figure 7-7: DLD card configuration (sheet 1 of 5)

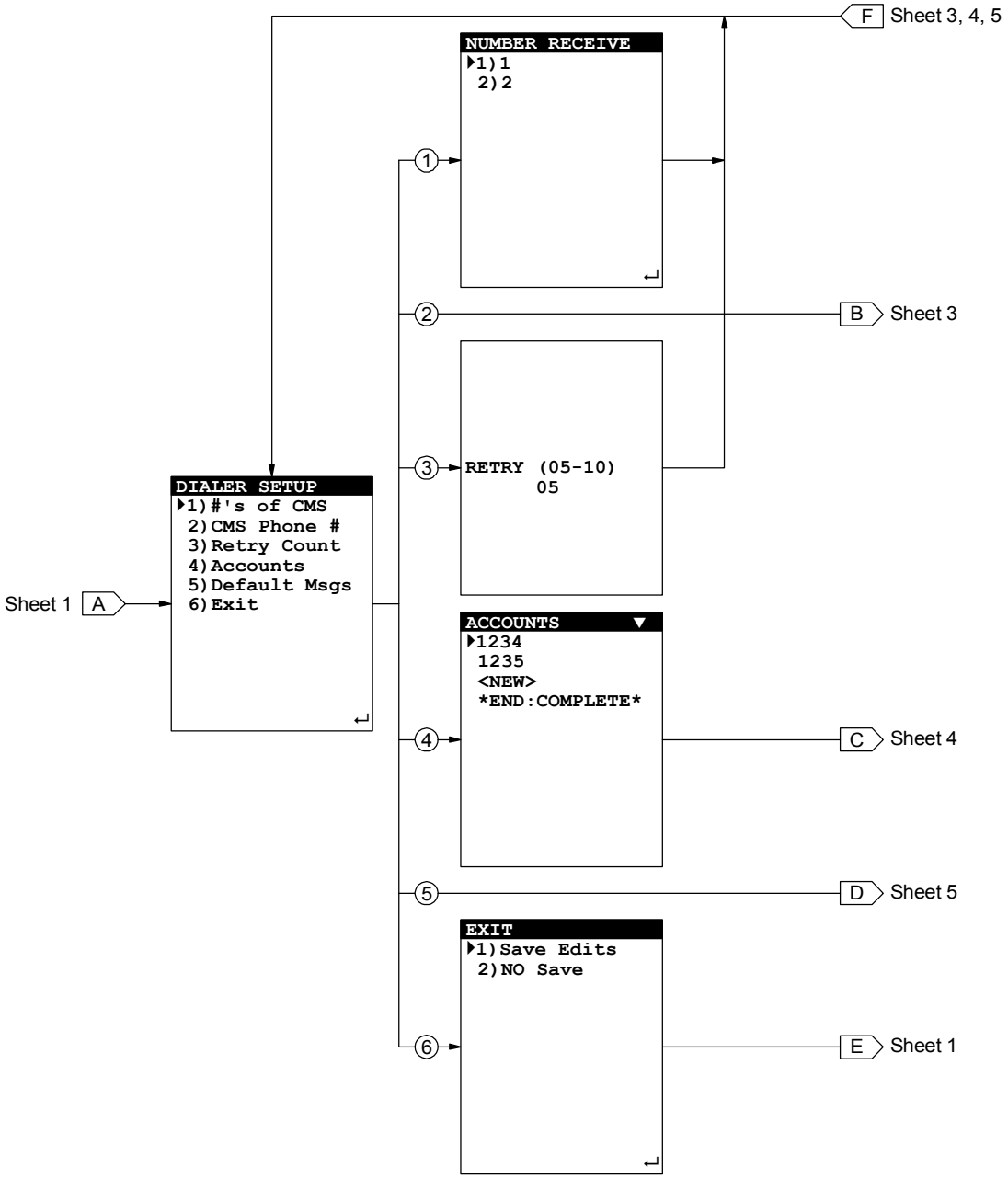


Figure 7-7: DLD card configuration diagram (sheet 2 of 5)

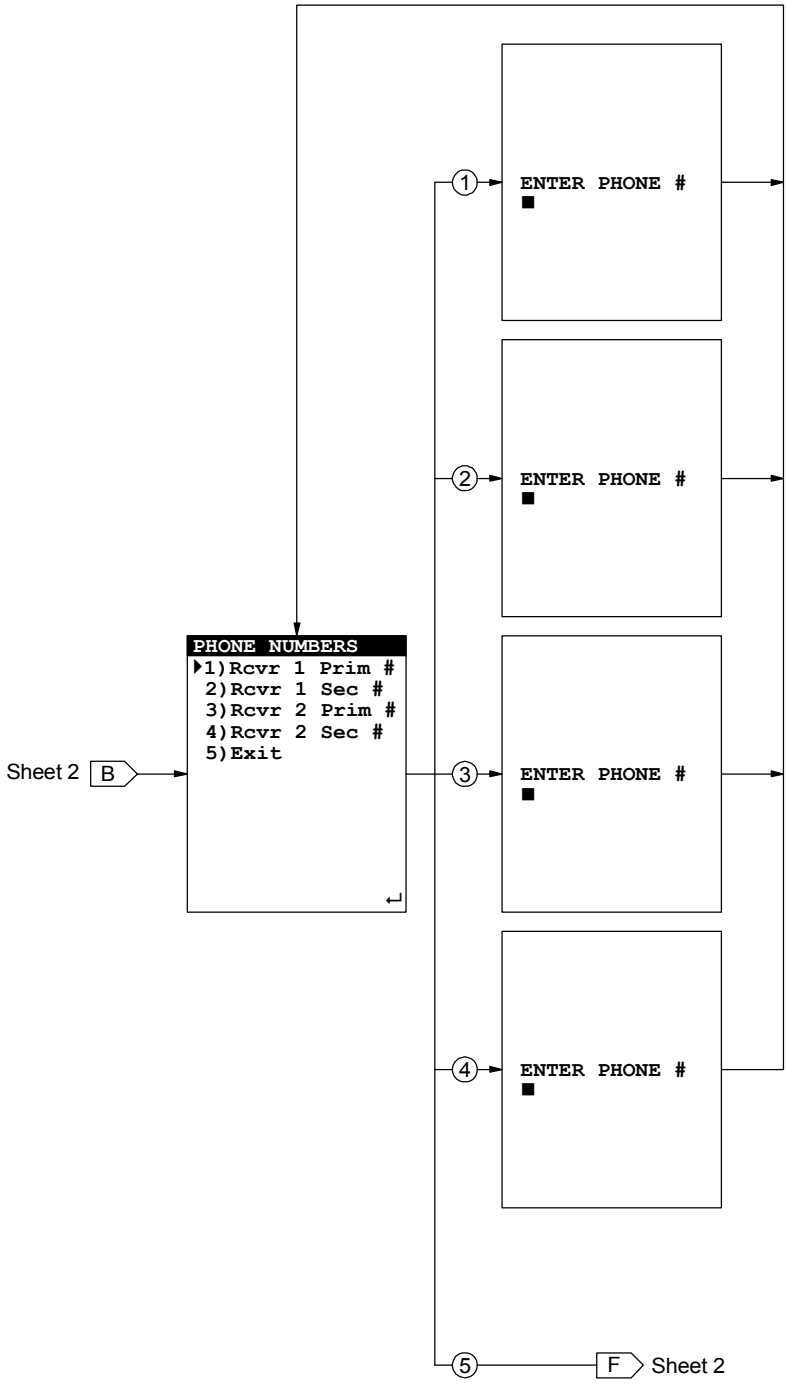


Figure 7-7: DLD card configuration diagram (sheet 3 of 5)

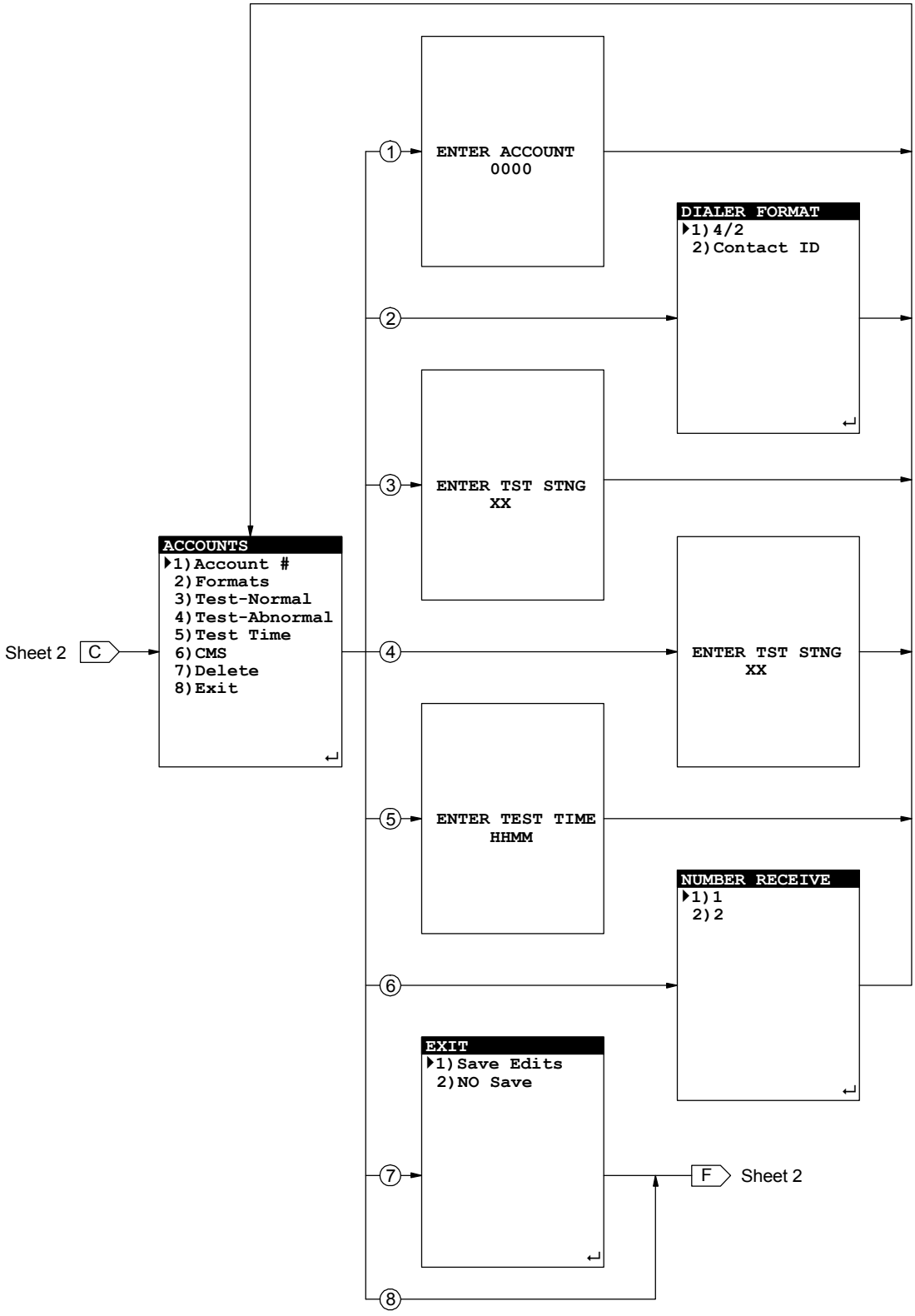


Figure 7-7: DLD card configuration diagram (sheet 4 of 5)

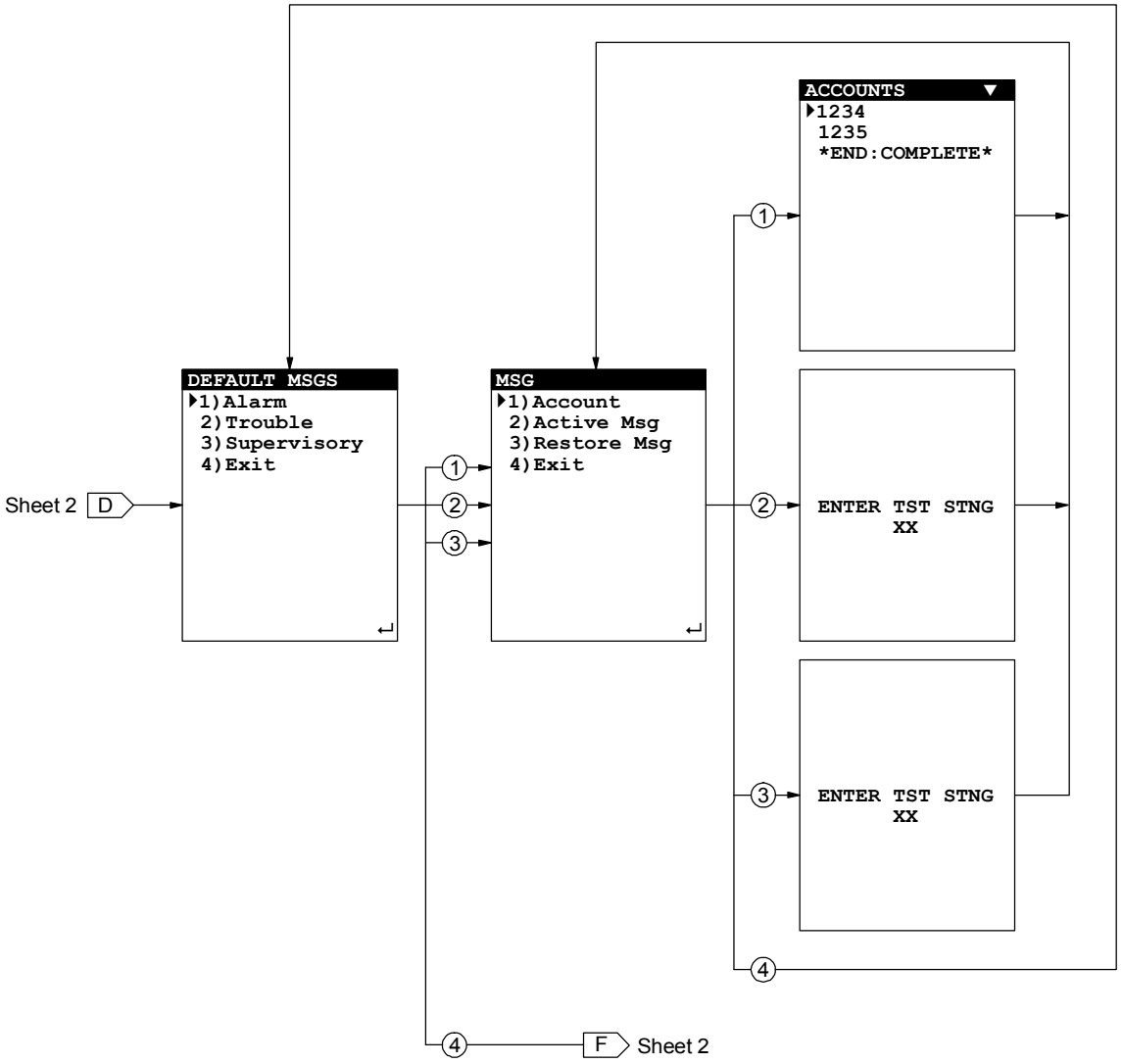


Figure 7-7: DLD card configuration diagram (sheet 5 of 5)

Configuring output groups

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.

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.

To configure an output group, follow the procedure below. In addition, refer to Figure 7-8.

To configure an output group:

1. On the Configure menu, choose Ouput then on the Edit Output menu:
   - To configure a new output group, choose Add
   - To configure an existing output group, choose Edit, select the output group from the list, then press Enter.
   - To delete an output group and return to the Configure menu, choose Delete, select the output group from the list, press Enter, then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.
2. On the Output Group menu:
   - To add or remove responses, choose Responses then on the Output Type menu:

     Choose Active to add or remove active responses.

     Choose Fault to add or remove trouble responses.
   - To view existing responses, choose Review then on the Output Type menu:

     Choose Active for the set of active responses

Choose Fault for the set of trouble responses

- To quit configuring an output group and return to the Configure menu, choose Exit then on the Exit menu:

  Choose Save Edits to save your changes.

  — or —

  Choose NO Save to quit without saving your changes.

3. On the Output Responses menu:
   - To add a response, choose Add
   - To remove a response and return to the Output Group menu, choose Remove, select a response from the list, then press Enter
4. On the Response Type menu:
   - To add a response that turns on an output (NAC, relay, or LED), choose Relay then enter the output's device address

     If the output is an addressable output, a response that turns the device on is automatically added for you.

     If the device is a conventional output, on the Response Relay menu, choose a signal pattern (on, 20 bpm, 120 bpm, or temporal.)

     On the Exit menu, choose Save Edits to save your changes and return to the Output Group menu

     — or —

     Choose NO Save to return to the Output Group menu without saving your changes
   - To add a response that transmits an event message to a central station, choose Dialer, select the receiver account number, then press Enter.
   - To add a response that adds a delay between other responses, choose Delay.
5. On the Response Dialer menu:
   - To select when to transmit the event message, choose Send On then on the Send On menu:

     Choose Activation to transmit the event message when a device is activated

     Choose Restoration to transmit the event message when a device is restored

Note: Front panel programming does not let you add a response that restores (turns off) an output.

Tip: 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.

Note: To meet UL 864 requirements, you must program an activation response and a restoration response for each event.

Note: To meet UL 864 requirements, assign the Life Safety priority only to dialer responses for alarm events, the Property priority only for Supervisory events, and the System Integrity priority only for trouble events.

- To assign a priority to the event message, choose Priority then on the Priority menu:

  Choose Life Safety to transmit the event message first. Life Safety is the highest priority and is typically assigned to alarm events.

  Choose Property to transmit the event message second. Property is the next highest priority and is typically assigned to supervisory events.

  Choose System Integr to transmit the event message last. System Integr(ity) is the lowest priority and is typically assigned to trouble events.

- To enter the event message's content, choose String then enter the 2- or 9-digit number depending on the transmission format of the selected account

- To quit adding a dialer response and return to the Output Group menu, choose Exit then on the Exit menu:

  Choose Save Edits to save your changes.

  — or —

  Choose NO Save to quit without saving your changes.

6. On the Response Delay menu:

   - To select when to insert the delay, choose Delay Type then on the Delay Type menu:

     Choose Act & Restore to insert the delay when a device is activated and when it is restored

     Choose Activation to insert the delay only when a device is activated

     Choose Restoration to insert the delay only when a device is restored

   - To enter the amount of delay, choose Delay Time, then enter a time. The time is expressed in seconds. For example a 2-minute delay is 120 seconds.

   - To quit adding a delay response and return to the Output Group menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes

     — or —

     Choose NO Save to quit without saving your changes

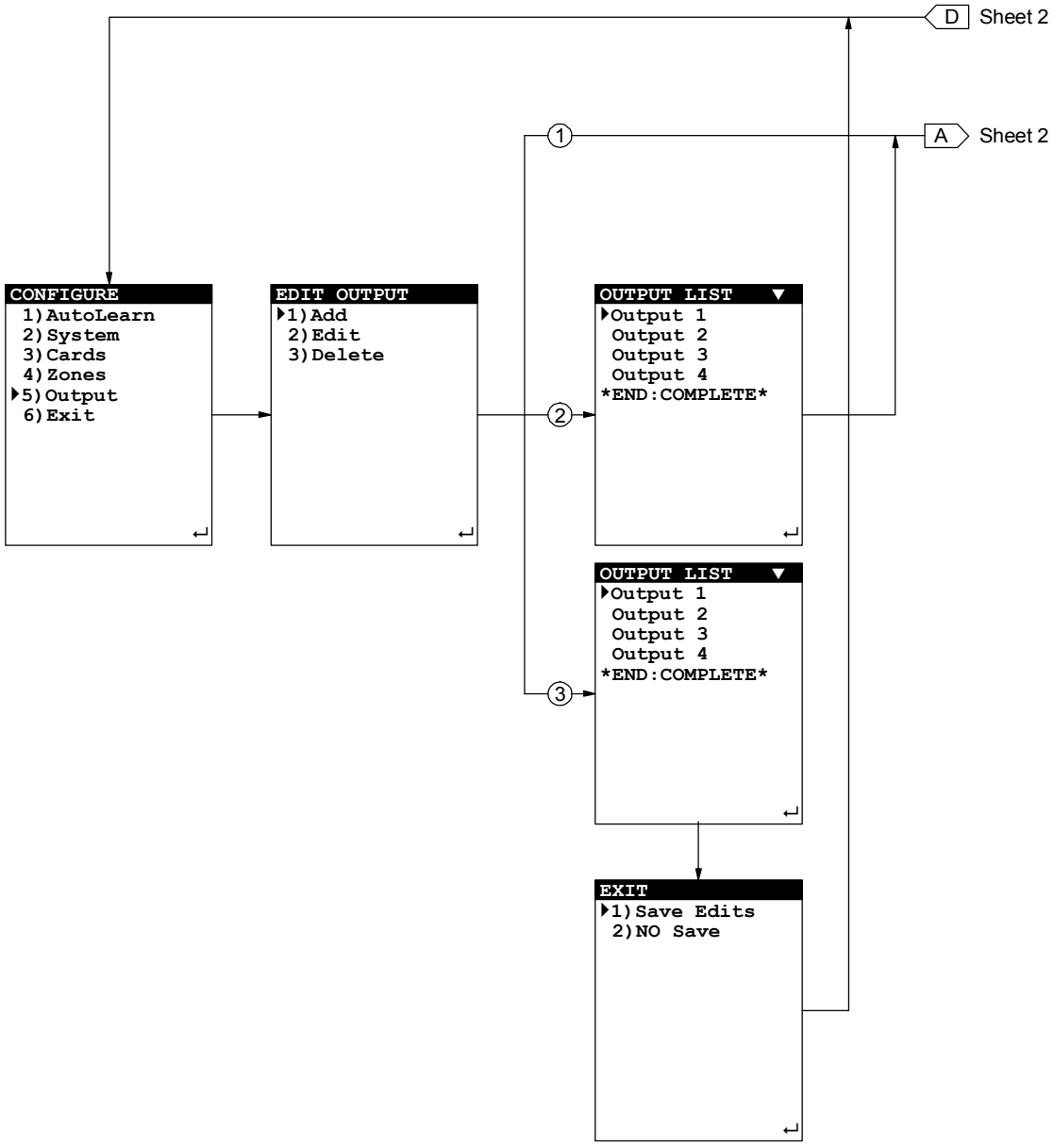


Figure 7-8: Output group configuration (sheet 1 of 6)

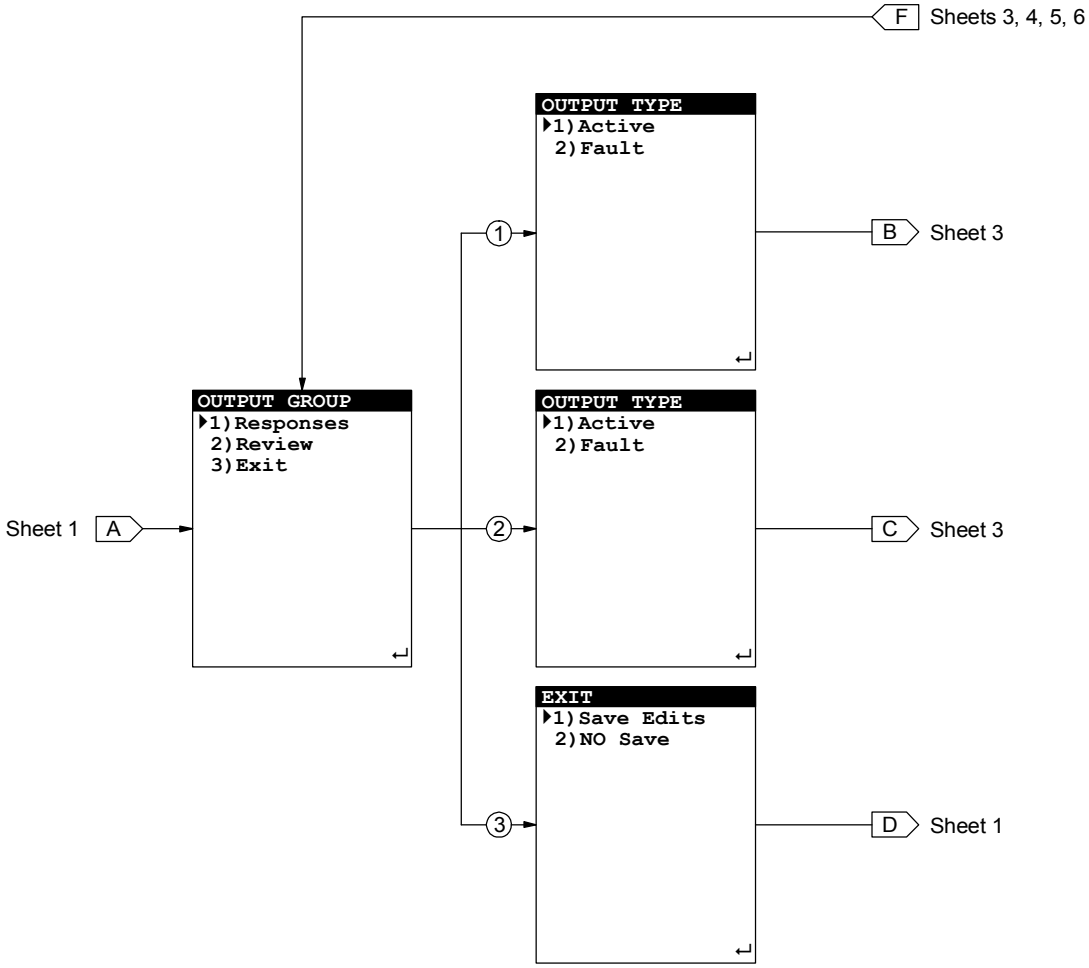


Figure 7-8: Output group configuration (sheet 2 of 6)

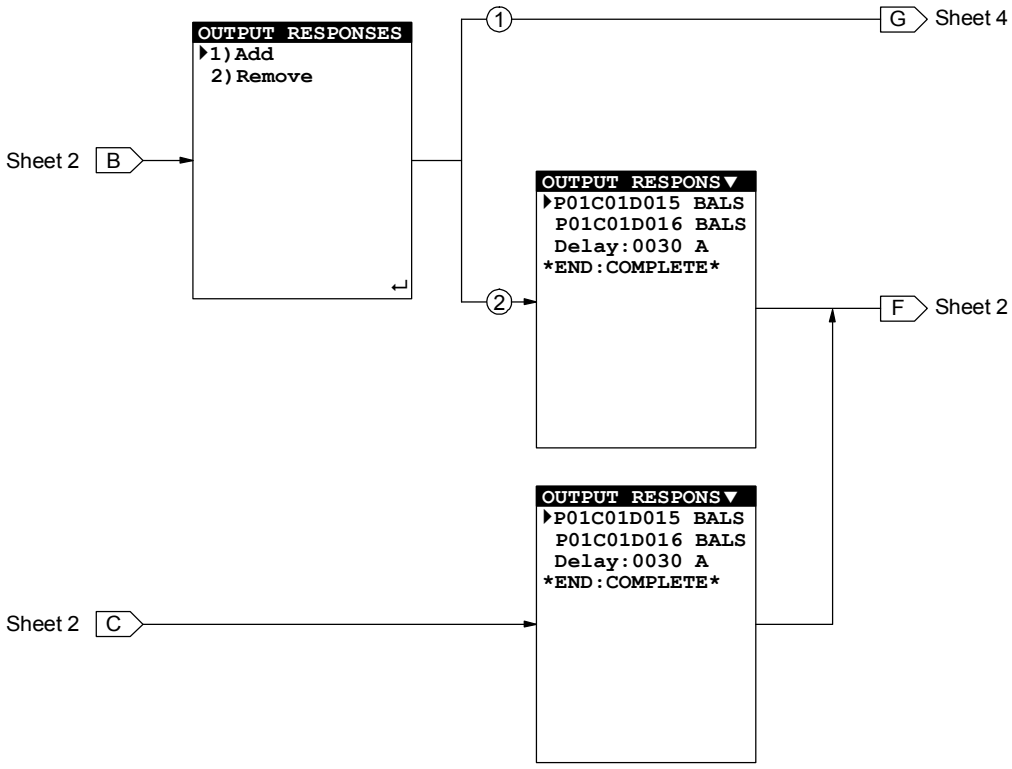


Figure 7-8: Output group configuration (sheet 3 of 6)

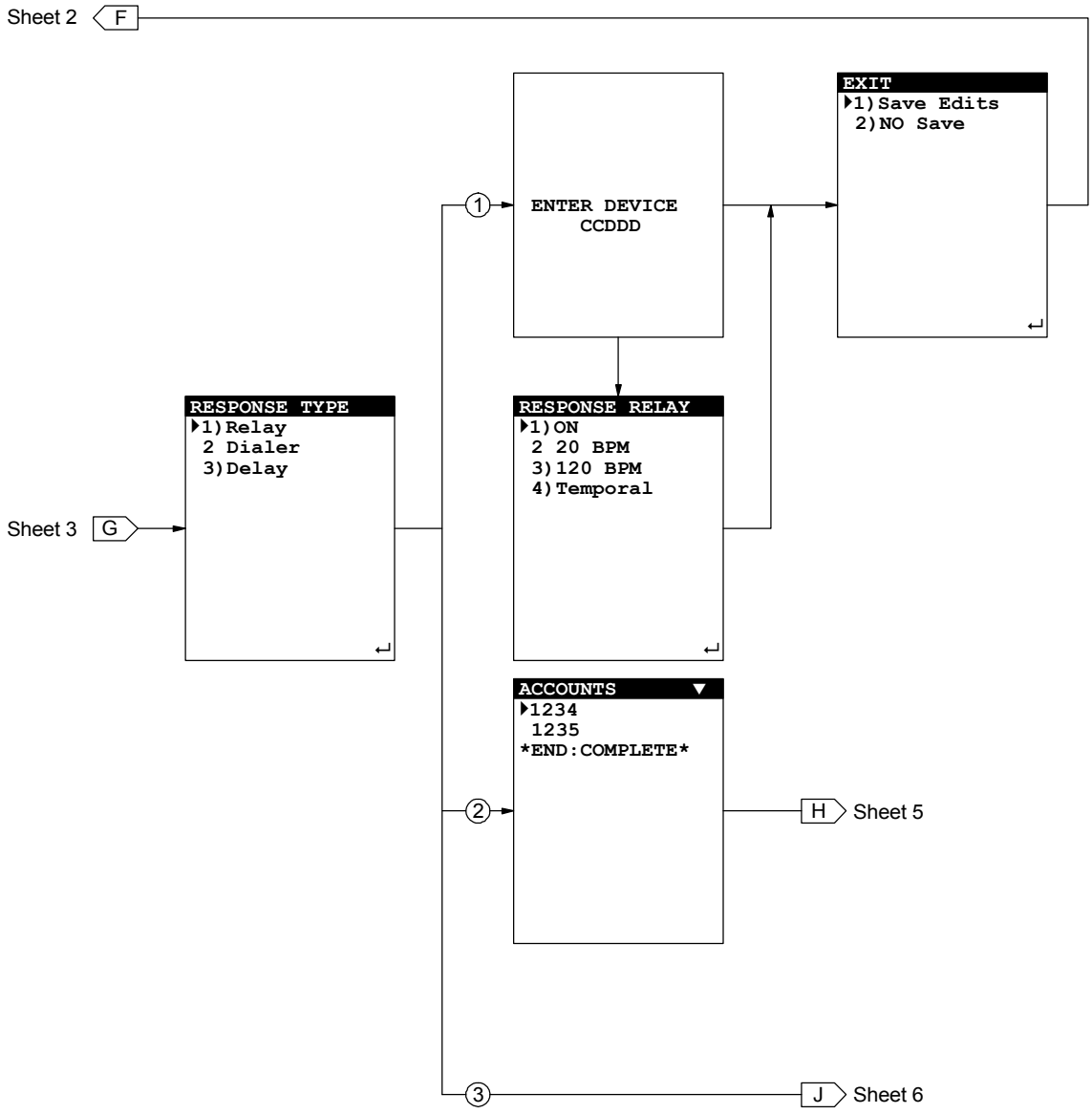


Figure 7-8: Output group configuration (sheet 4 of 6)

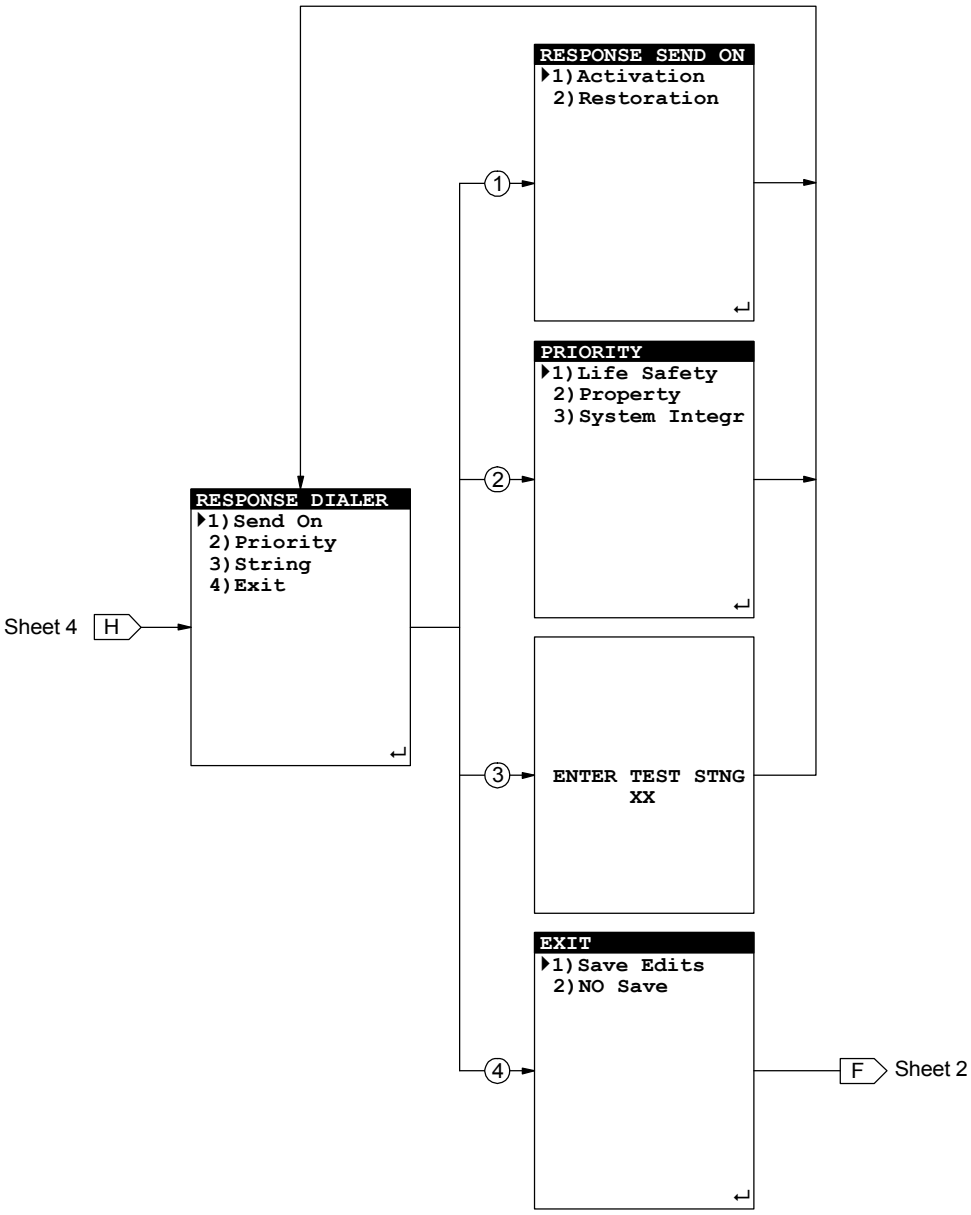


Figure 7-8: Output group configuration (sheet 5 of 6)

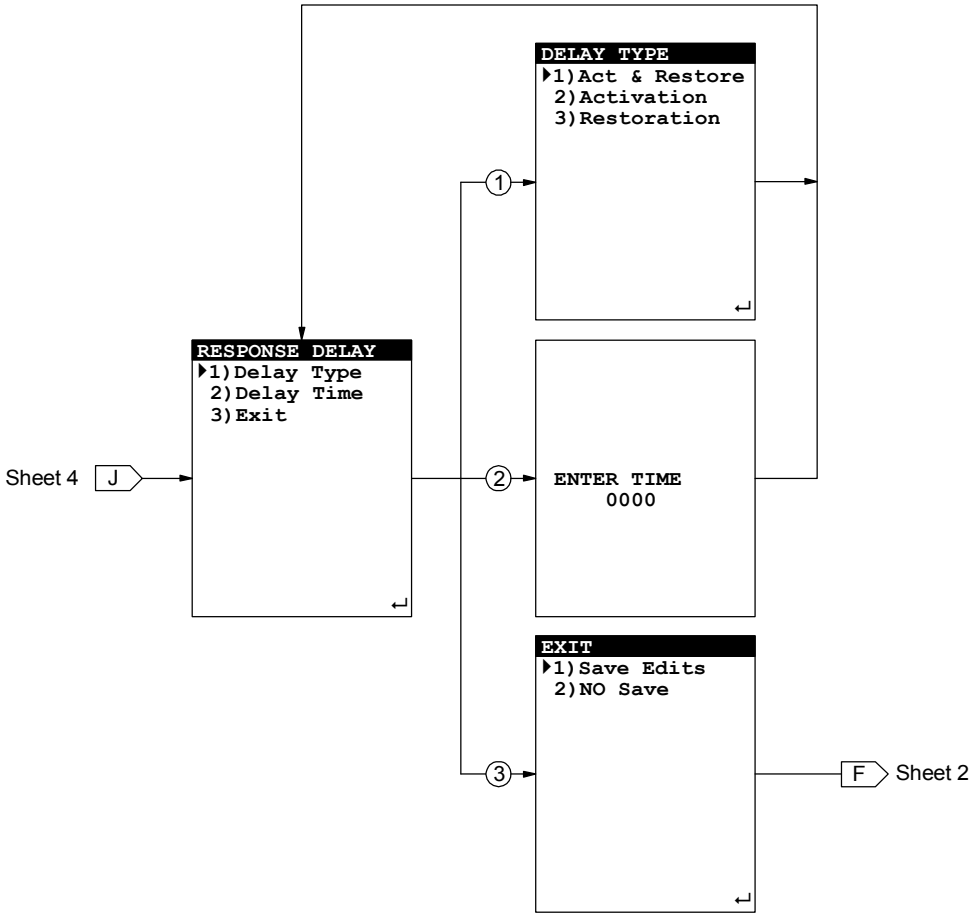


Figure 7-8: Output group configuration (sheet 6 of 6)

Table 7-8: Response code descriptions

Response code	Description
P01C[CC]D[DDD][1][2][3][4]	Response code for an output circuit, where: P01C[CC]D[DDD] is the device address, where: • [CC] is the card number (01–13) • [DDD] is the device number (001–999) [1] is the command direction, where: • B is activation and restoration • A is activation only • R is restoration only [2] is the response command, where: • N is no operation • A is Activate • E is Enable • R is Restore • I is Disable • D is Delay [3] is the response priority, where: • S is Set • A is Latch • L is Low • M is Medium • H is High [4] is the output state, where: • S is Steady • R is Restore • W is 20 bpm • F is 120 bpm • T is Temporal
P[00]C16D[DDD][1][2][3][4]	Response code for an LED, where: P01C16D[DDD] is the device address, where: • [DDD] is the device number (001–999) **Note:** A “***” represents a device number greater than 999 [1] is the command direction, where: • B is activation and restoration • A is activation only • R is restoration only [2] is the response command, where: • N is no operation • A is Activate • E is Enable • R is Restore • I is Disable • D is Delay

Table 7-8: Response code descriptions

Response code	Description
	[3] is the response priority, where: • S is Set • A is Latch • L is Low • M is Medium • H is High [4] is the output state, where: • S is Steady • R is Restore • W is Slow Blink • F is Fast Blink
Delay: [SSSS][1]	Response code for a delay, where: [SSSS[is the amount of delay in seconds (0001 to 9999) [1] is the command direction, where: • B is activation and restoration • A is activation only • R is restoration only
[ACCT][1][2][Q][EEE][GGPPP]	Response code for a Contact ID dialer string, where: [ACCT] is the receiver account number (0000 to 9999) [1] is the priority attribute, where: • L is Life Safety • P is Property • S is System Integrity [2] is the command direction, where: • B is activation and restoration • A is activation only • R is restoration only [Q] is the event qualifier, where: • 1 is for an activation event • 3 is for an restoration event [EEE] is the event code. See Appendix E for a list of Contact ID event codes. [GGPPP] is the point being reported
[ACCT][1][2][PP]	Response code for a 4/2 dialer string, where: [ACCT] is the receiver account number (0000 to 9999) [1] is the priority attribute, where: • L is Life Safety • P is Property • S is System Integrity

Table 7-8: Response code descriptions

Response code	Description
	[2] is the command direction, where: • B is activation and restoration • A is activation only • R is restoration only [PP] is the point being reported (00 to 99)
UNKNOWN	Response code for a valid response that can't be edited from the control panel. For example, a response that disables an output circuit.

Configuring zones

To configure a zone, follow the procedure below. In addition, refer to Figure 7-9. Zone options are described in Table 7-9.

Table 7-9: Zone options

Option	Description
Type	The zone's device type. The device type determines if the zone initiates an alarm, supervisory, or monitor event.
Activate LED	The LED on an LED/switch card that turns on when the zone is activated. This option is not configurable from the control panel.
Allow Trouble	Determines if the zone can initiate a trouble event. This option is not configurable from the control panel. Default: Enabled
Descriptor	The name used to identify the zone in the system command menus. This option is not configurable from the control panel. Default: ZONE Groupnnn where "nnn" is the next available zone number
Message	The text displayed as part of the zone's event message. Typically, the message text provides a location description. Default: No message
Members	The devices that make up the zone. These are the devices used to activate the zone's responses.
Output Group	The output groups that contain the responses you want the zone to activate.
Bell code	The 4-digit code used to identify the zone in a coded fire alarm system. Also called a zone code. Possible values: 0000 to 9999

To configure a zone:

1. On the Configure menu, choose Zones then on the Edit Zone menu:
   - To configure a new zone, choose Add then on the Zone Type menu choose alarm zone, supervisory zone, or monitor zone.
   - To configure an existing zone, choose Edit then select a zone from the list.
   - To delete a zone and return to the Configure menu, choose Delete, select the zone from the list, press Enter, then on the Exit menu:

     Choose Save Edits to save your changes.

— or —

Choose NO Save to quit without saving your changes.

2. On the Zone Edit menu:

   - To enter the text for the zone's event message, choose Message. To enter text you must use a compatible bar code scanner.
   - To designate which devices are members of the zone, choose Members then on the Zone Members menu:

     Choose Device Addres then enter the device's address number to add it to the zone member list.

     Choose Delete, select a device address from the zone list then press enter to delete a member.

     Choose Review to view a list of current zone members.

     Press the Del button to return to the Zone Edit menu.
   - To correlate output groups to the zone, choose Output Group then on the Output Group menu:

     Choose Add, select an output group from the list, then press Enter to assign it to the zone.

     Choose Remove, select an output group from the list then press Enter to unassign an output group.

     Choose Review to view a list of output groups currently assigned to the zone.

     Press the Del button to return to the Zone Edit menu.
   - To enter a bell code, choose Coding then enter the 4-digit code used to identify the zone
   - To change the zone's device type, choose Type then on the Zone Type menu choose a zone type.
   - To quit and return to the Configure menu, choose Exit then on the Exit menu:

     Choose Save Edits to save your changes.

     — or —

     Choose NO Save to quit without saving your changes.

Caution: The zone type option determines which devices can be zone members. Changing the zone type after you have added members to the zone automatically removes the members from the zone.

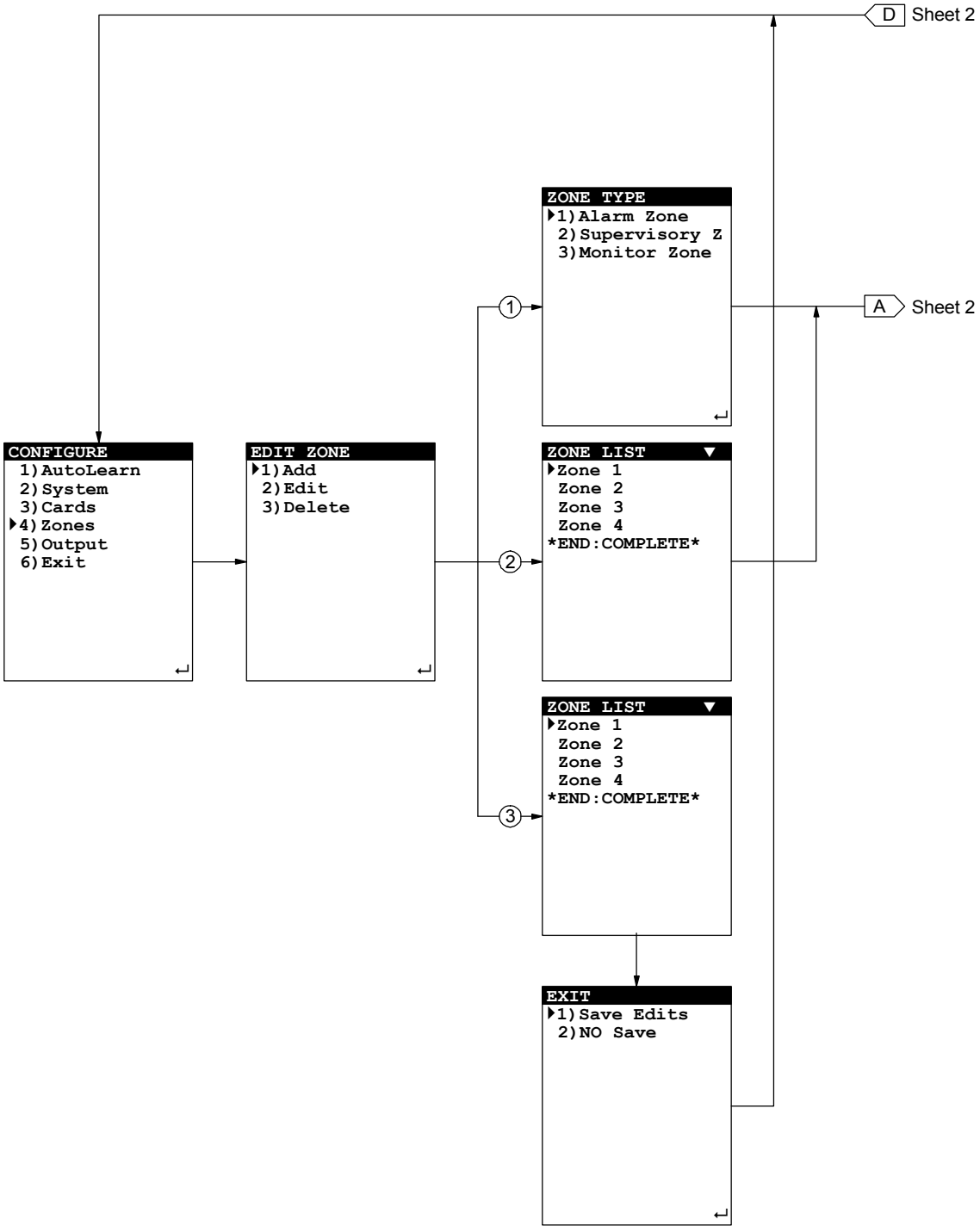


Figure 7-9: Zone configuration (sheet 1 of 4)

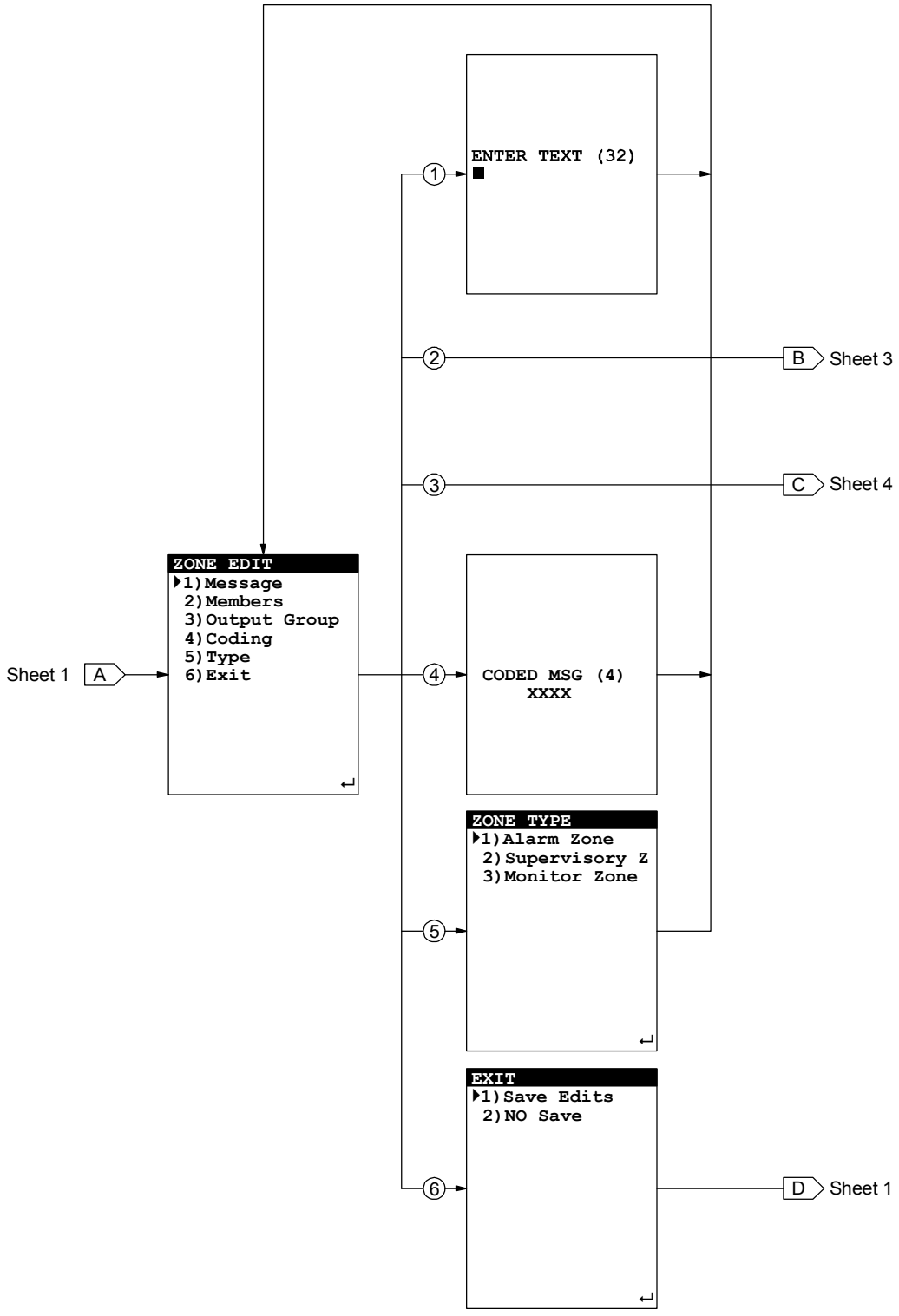


Figure 7-9: Zone configuration (sheet 2 of 4)

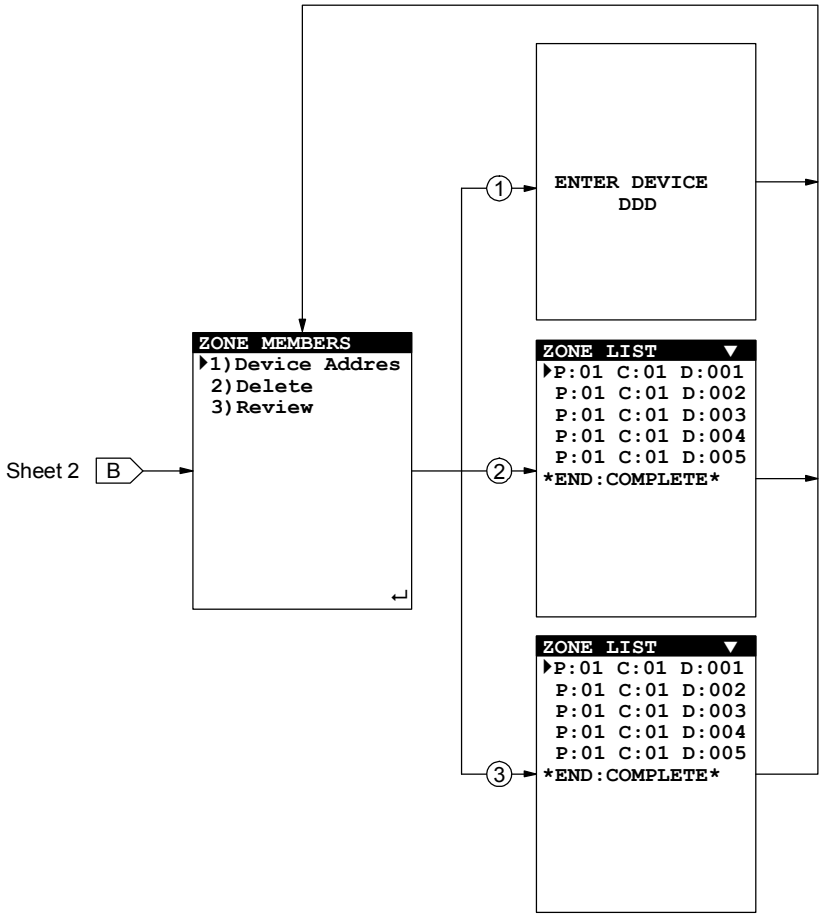


Figure 7-9: Zone configuration (sheet 3 of 4)

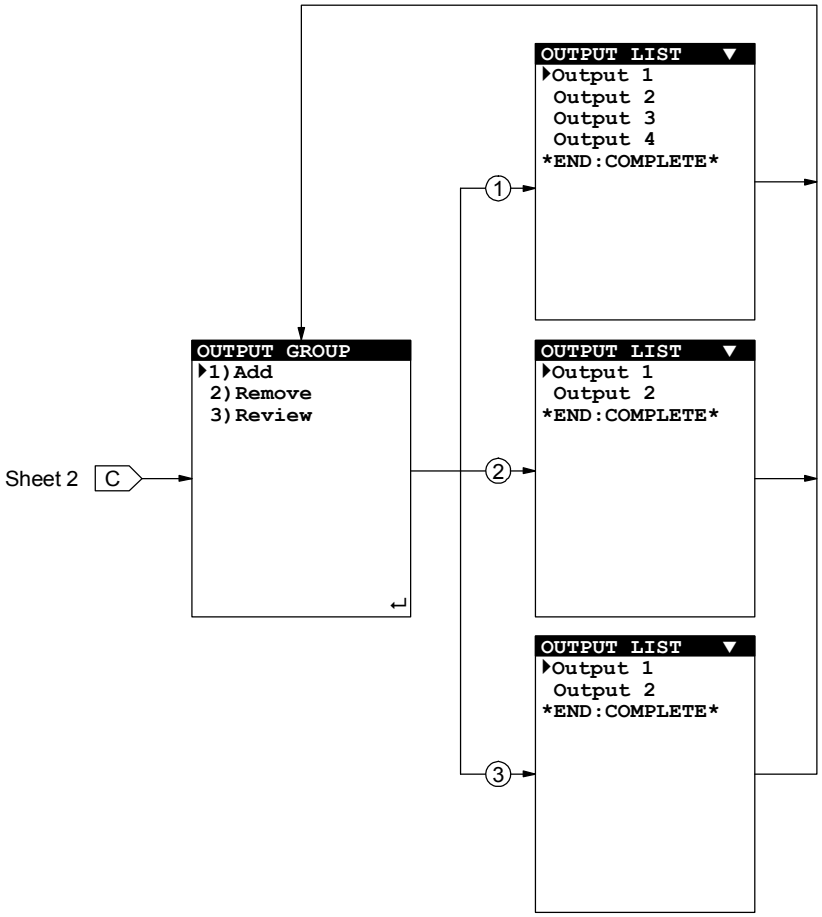


Figure 7-9: Zone configuration (sheet 4 of 4)

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            V^
 1)History
>2)Revisions
 3)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-C
ANN TYPE :
(2)SL30

CARD: 01
  CARD TYPE: ZB16-4
  FIRMWARE : V01.00.00
             06/23/01

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

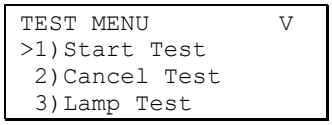
You can start and cancel a service group test from the control panel using the Start Test and Cancel Test commands. A service group test must be performed at regular intervals to verify the system operation.

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

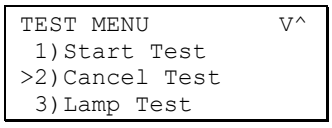


Use the Start Test command on the Test menu to start a service group test.

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

```
DISABLE MENU       V^
 1)Zone
 2)Device
>3)Group
 4)Switch
```

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:

```
DISABLE GROUP      V
>1)AND
 2)Matrix
 3)Time Control
```

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

```
ENABLE MENU        V^
 1)Zone
 2)Device
>3)Group
 4)Switch
```

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:

```
ENABLE GROUP       V
>1)AND
 2)Matrix
 3)Time Control
```

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       V^
 1)Zone
 2)Device
>3)Group
 4)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.

```
DISABLE GROUP      V^
 1)AND
>2)Matrix
 3)Time Control
```

To disable a matrix group:

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        V^
 1)Zone
 2)Device
>3)Group
 4)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.

```
ENABLE GROUP       V^
 1)AND
>2)Matrix
 3)Time Control
```

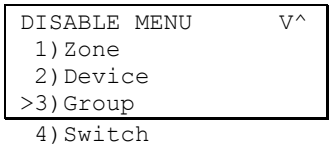
To enable a matrix group:

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.

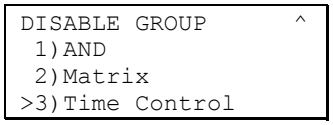
Disabling and enabling a time control

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



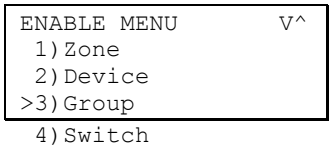
Use the Time Control command on the Disable Group menu to temporarily take a time control out of service and prevent it from initiating a set of responses.



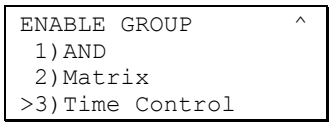
To disable a time control:

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
```

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
```

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:

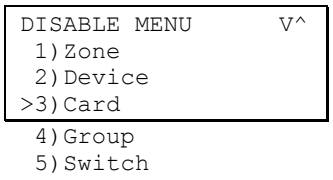
1. Log on using the level 3 password.
2. From the main menu, choose Enable, then Switch.
3. Enter the switch address, where GG = the group number of the LED/switch card, and SS is the switch number.

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.

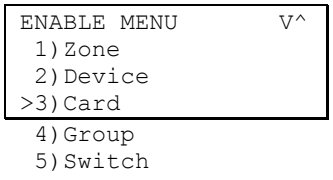


To disable an option card:

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.

Turning an output on

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

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

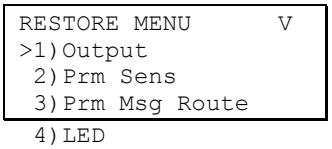
Conventional visible outputs: On

Relay outputs: Steady, 20 bpm, 120 bpm, and temporal

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

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

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

```
RESTORE MENU       ^
 1)Output
 2)Alt Sens
 3)Alt Msg Route
>4)LED
```

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

```
TIME/DATE MENU    V
>1)Enter Time
 2)Enter Date
```

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:

```
   ENTER TIME
     HHMMSS
```

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

```
TIME/DATE MENU    ^
 1)Enter Time
>2)Enter Date
```

Use the Enter Date command on the Time/Date menu to set the system clock to the current date.

```
   ENTER DATE
    DDMMYYYY
```

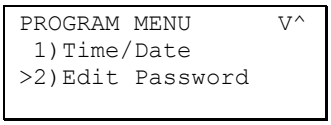
To set the system clock for the current date:

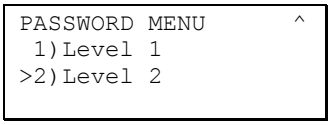
1. Log on using the level 3 password.
2. From the main menu, choose Program, then Time/Date, and then Enter Time.
3. Press DEL until the display shows DDMMYYYY.

   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 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.
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

Table 8-1: Trouble messages

Message	Description
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.
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.

Table 8-1: Trouble messages

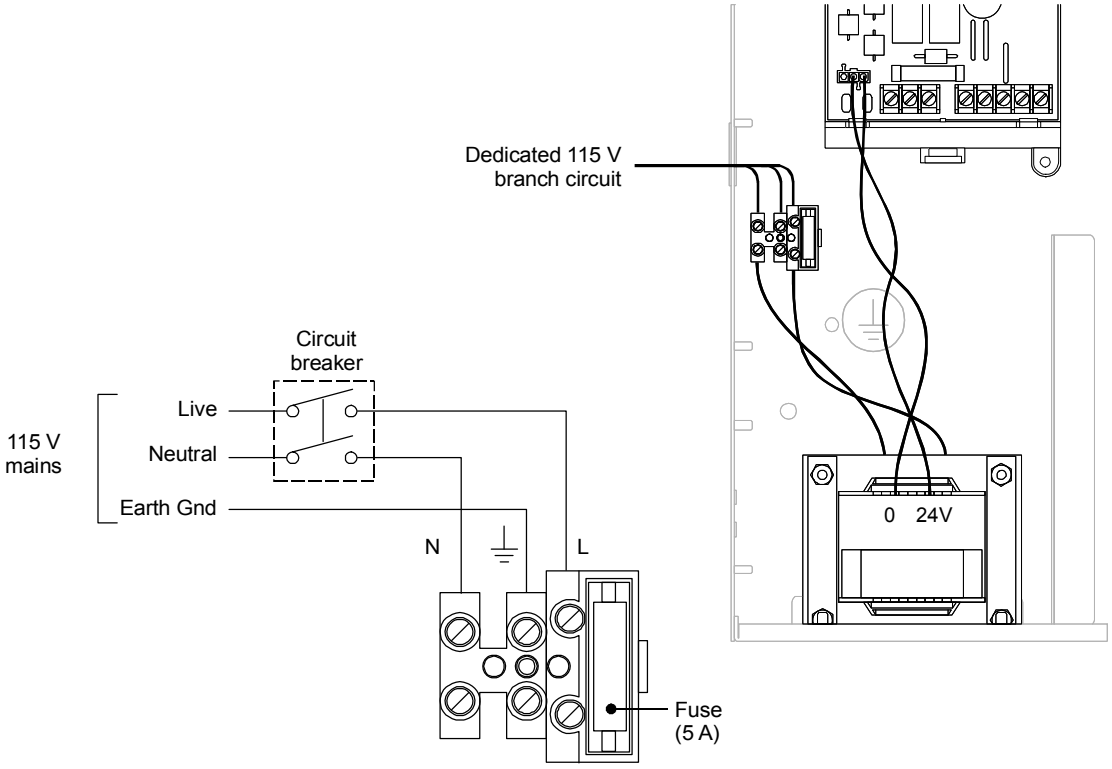
Message	Description
LCL TROUBLE: Database Supervision	Internal CPU memory failure
LCL TROUBLE: Excessive Battery Current	The standby batteries are weak. Replace the batteries.
LCL TROUBLE: LED/switch Display	There is a problem with an LED/switch card. The possible causes are: • A ribbon cable connection 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: 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 an 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.

Table 8-1: Trouble messages

Message	Description
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
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.

Content

Notification appliance circuit calculations

Introduction

This topic shows you how to determine the maximum cable length of an NAC circuit for a given number of appliances.

Two methods are presented: worksheet and equation. The worksheet method is simpler, but your installation must meet the criteria listed on the worksheet. If your installation does not meet these criteria, you need to use the equation method.

The methods given here determine cable lengths that work under all operating conditions. The calculations ensure that the required operating voltage and current will be supplied to all notification appliances. To do this, we assume these two worst-case conditions:

- The voltage at the NAC terminals is the minimum provided by the panel power supply
- The notification appliances are clustered at the end of the NAC cable

Other, more detailed methods that distribute the appliance load along the NAC cable may indicate that longer cable runs are possible.

What you'll need

Appliance and cable values

Whether you use the worksheet method or the equation method, you'll need to know:

- The minimum operating voltage required for the appliances
- The maximum operating current drawn by each appliance
- The resistance per unit length of the wire used (Ω/ft)

This information can be found on the appliance installation sheets, and on the cable specification sheet.

Power supply values

For either method, you'll need some output values for your specific panel power supply. These are given below.

For the PS6 power supply the correct values are:

- Maximum voltage = 25.1 V
- Minimum voltage = 17.1
- Voltage drop = 1.1
- Power type = FWR

The *maximum voltage* is the highest voltage measured at the NAC terminals. This value is not used in the calculations, but is given so you can ensure appliance compatibility.

The *minimum voltage* is the lowest voltage measured at the NAC terminals when the panel power supply is under full load for all operating conditions (low battery, low line, etc.).

The *voltage drop* is the difference between the minimum voltage and 16 V. This value is for use with the worksheet only.

The *power type* reflects the type of power supplied to the NAC terminals at minimum voltage. The current draw of notification appliances can vary substantially with the type of power supplied: full-wave rectified (Vfwr) or direct current (Vdc). It is important to know the power type at minimum terminal voltage.

Worksheet method

Use this worksheet to determine the maximum cable length of a notification appliance circuit for a given number of appliances.

Use this worksheet only if all the appliances are regulated. That is, they must have a minimum operating voltage of 16 V.

Make copies of this worksheet as required.

Worksheet 1: NAC cable length

		NAC1	NAC2	NAC3	NAC4	
Voltage drop [1]		1.1	1.1	1.1	1.1	V
Total operating current [2]	÷					A
Maximum resistance	=					Ω
Wire resistance (Ω/ft) [3]	÷					
Maximum wire length	=					ft
	÷	2	2	2	2	
Maximum cable length	=					ft

[1] This voltage drop is valid for regulated notification appliances only. For unregulated appliances, see “Equation method,” later in this topic.

[2] Total of the maximum operating currents for all appliances as specified for FWR power. See the appliance installation sheets for operating currents.

[3] Use the manufacturer’s published wire resistance expressed in ohms per foot. For typical values, see Table A-1, later in this topic.

Equation method

Appliance operating voltage and current

Regulated notification appliances have an operating range from 16 V to 33 V. Use 16 V as the minimum appliance voltage when using regulated notification appliances.

When using unregulated notification appliances, refer to the installation sheets for the appliances to determine the minimum appliance voltage required.

What if there are different types of appliances in the NAC, and each type has a different minimum operating voltage? In this case, use the *highest* minimum voltage required by any appliance.

The total current requirement for the appliances will be the sum of the individual maximum currents drawn by each appliance when using FWR power. Use the maximum current for the appliance over the 16 V to 33 V range.

If all appliances draw the same maximum current, the total current is the maximum current multiplied by the number of appliances. If different appliance types have different maximum currents, the total current is the sum of the maximum current for each appliance type times the number appliances of that type.

Wire resistance

Typical wire resistances are shown in the following table.

Table A-1: Typical wire resistances

Wire gauge (AWG)	Resistance 1 strand uncoated copper		Resistance 7 strand uncoated copper	
	Ω per foot	Ω per meter	Ω per foot	Ω per meter
12	0.00193	0.00633	0.00198	0.00649
14	0.00307	0.01007	0.00314	0.01030
16	0.00489	0.01604	0.00499	0.01637
18	0.00777	0.02549	0.00795	0.02608

When performing these calculations, always refer to the actual cable supplier documentation and use the actual Ω/ft (or Ω/m) for the cable being used.

Calculating cable length

To calculate the maximum NAC cable length:

1. Calculate the allowable voltage drop (Vd) between the panel power supply and the appliances.

   Vd = Vp – Va

   Where:
   Vp = panel minimum voltage
   Va = appliance minimum voltage

   For the panel power supply, Vp is 17.1 V. For regulated notification appliances, Va is 16 V. For unregulated notification appliances, Va is the lowest operating voltage specified on the appliance installation sheet.

2. Calculate the total current (Itot) as the sum of the maximum operating currents for all the appliances.

   Itot = ΣIa

   Where:
   Ia = appliance maximum current

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

3. Calculate the maximum resistance (Rmax) the wire can have.

   Rmax = Vd / Itot

   Where:
   Vd = voltage drop
   Itot = total current

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

   Lc = (Rmax / Rw) / 2

   Where:
   Rmax = maximum resistance
   Rw = wire resistance factor

Example: You're connecting regulated notification appliances to the panel. Assume that the maximum operating current for each appliance is 100 mA for FWR power, and that 20 appliances will be placed on the NAC. The cable is 12 AWG wire, and the cable manufacturer specifies a wire resistance factor of 0.002 Ω/ft.

Vd = Vp – Va
= 17.1 V – 16.0 V
= 1.1 V

Itot = ΣIa
= 20 x 0.1 A
= 2 A

Rmax = Vd / Itot
= 1.1 V / 2.0 A
= 0.55 Ω

Lc = (Rmax / Rw) / 2
= (0.55 Ω / 0.002 Ω/ft) / 2
= 275 ft / 2
= 137.5 ft

So the maximum wire run for this NAC would be 137 ft (rounding down for safety).

Battery calculations

		Standby current (mA)		Alarm current (mA)		
Control panel (see Table A-2)						
Smoke/accessory power (see Table A-3)						
AUX power (see Table A-4)	+		+			
Total current [1]						
Operating time required		× hr		× min		
					÷ 60	
			+		=	mAh
						× 1.2
						mAh
						÷ 1,000
Battery size [2]						**Ah**

Notes

[1] If the 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.

[2] Battery size may not exceed 40 Ah for UL systems or 30 Ah for ULC systems. Batteries greater 10 Ah require an external battery cabinet.

Table A-2: 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				
ZB16-4 card		127	395				
ZA8-2 card		81	281				
DLD card		13	27				
RS-485 card		117	121				
ZR8 card [3]		28	28	+		+	
Totals (mA) [4]							

Notes

[1] Includes a PS6 card and a CPU/Display Unit

[2] Add 0.75 mA for each LED that is turned on in standby and in alarm

[3] Add 18 mA for each relay that is energized in standby and in alarm

[4] The total control panel current and total smoke/accessory power current (see Table A-3) may not exceed 1.32 A

Table A-3: 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				
LED/switch card [2]		1	1				
SRA		66	75				
XGD card [3]		5	5				
CDR-3		60	100				
IOP3A		60	60				
RPM		20	20	+		+	
Totals (mA) [5]							

Notes

[1] Includes a CPU/Display Unit and an RAI card

[2] Add 0.75 mA for each LED that is turned on in standby and in alarm

[3] Add 6.25 mA for each energized LED that is turned on in standby and in alarm

[4] Enter 1 regardless of how many are installed. Only the first SIGA-UM or SIGA-MAB in the alarm state draws current. The remaining ones do not.

[5] If the total smoke/accessory power current exceeds 250 mA, switch part of the load to an auxiliary power supply. The auxiliary power supply must be UL/ULC listed for fire protective signaling systems.

Table A-4: AUX power current load worksheet

	Standby current (mA)	Alarm current (mA)
AUX 1 [1]		
AUX 2		
AUX 3	+	+
Total (mA) [2]		

Notes

[1] For each AUX output, enter the total current required by each notification appliance circuit for which the AUX output supplies power. Use the current specified on the notification appliance's installation or catalog sheet. Do not exceed 1.5 A per circuit

[2] If the total AUX power current exceeds 4.5 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.

Appendix B

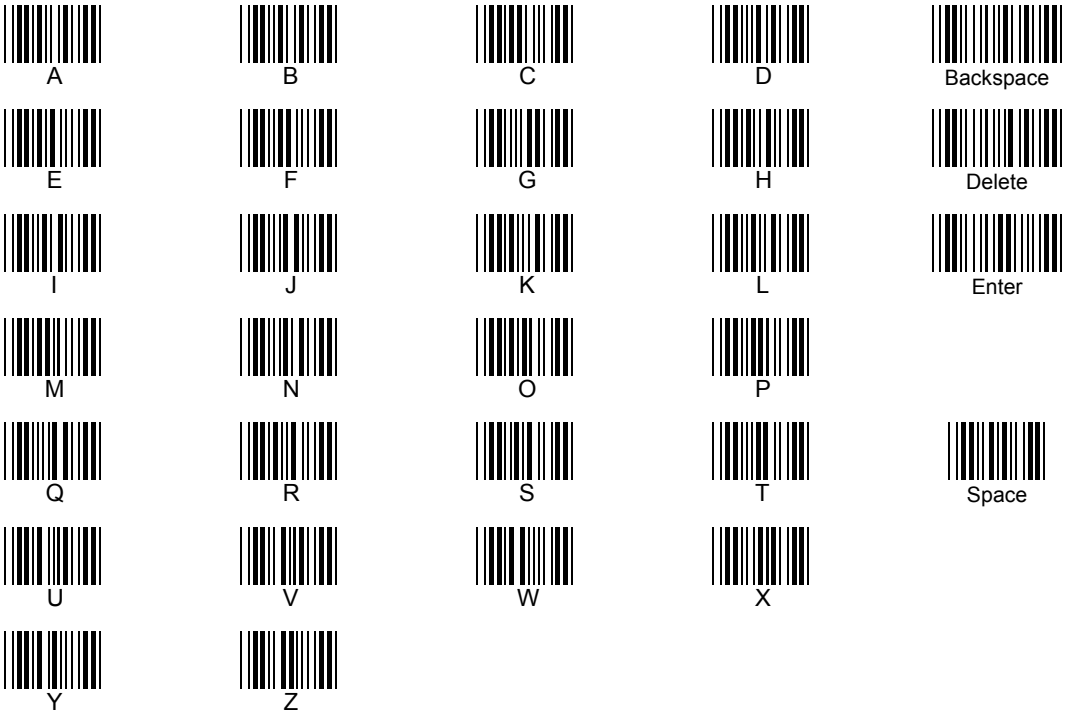
Barcode library

Summary

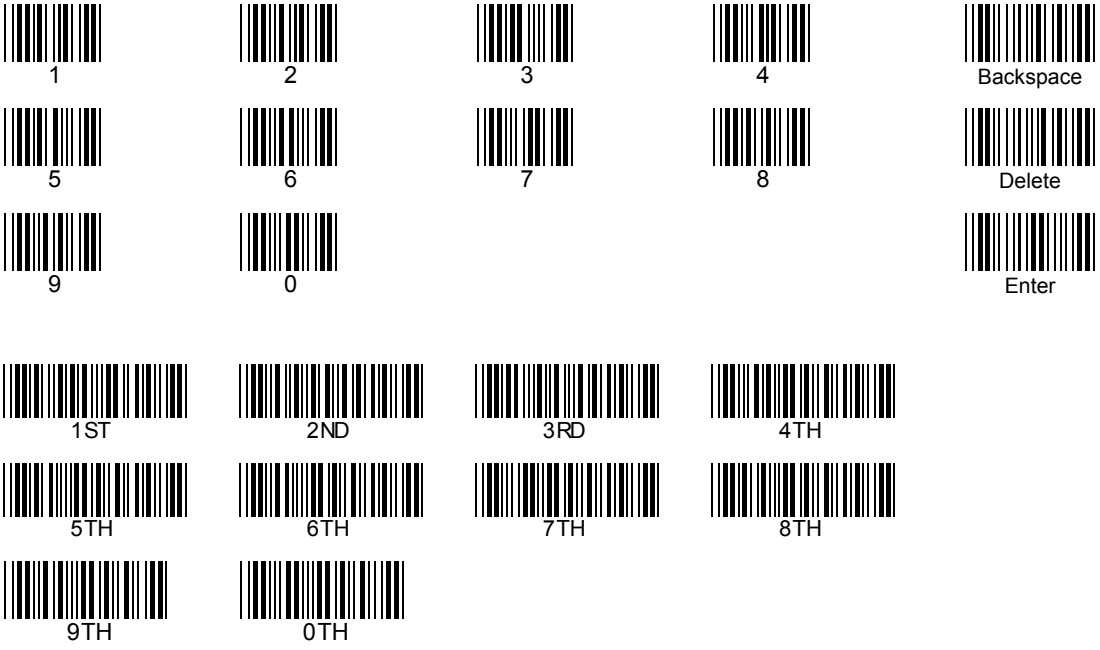
This appendix provides a set of barcodes that you can use to add location descriptions to event messages from the control panel CPU/Display Unit.

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

Addresses

Summary

This appendix provides a list of fire alarm system device addresses.

Content

System addresses

Table C-1 lists the addresses assigned to points common to the fire alarm system.

Table C-1: System device addresses

Address	Description
0000000	Reserved
0000001	Startup Response pseudo point. This pseudo point is activated each time the control panel is powered up or restarted.
0000002	First Alarm pseudo point. This pseudo point is activated on any alarm event.
0000003	First Supervisory pseudo point. This pseudo point is activated on any supervisory event.
0000004	First Trouble pseudo point. This pseudo point is activated on any trouble event.
0000005	First Monitor pseudo point. This pseudo point is activated on any monitor event.
0000006	Drill pseudo point. This pseudo point is activated when the control panel executes the drill command.
0000007	Evacuation pseudo point. This pseudo point is activated when the control panel processes the evacuation command.
0000008	Alarm Silence pseudo point. This pseudo point is activated when the control panel processes the alarm silence command.
0000009	Two Stage Expiration pseudo point. This pseudo point is activated when the two-stage timer has expired.
0000010	Reset pseudo point. This pseudo point is activated when the control panel processes the reset command.
0000011	Reset Phase 1 pseudo point. This pseudo point is activated at the start of the reset cycle (phase 1) and is restored at the start of phase 2.
0000012	Reset Phase 2 pseudo point. This pseudo point is activated at the start of phase 2 of the reset cycle and is restored at the start of phase 3.
0000013	Reset Phase 3 pseudo point. This pseudo point is activated at the start of phase 3 of the reset cycle and is restored at the end of the reset cycle.
0000014	First Disable pseudo point. This pseudo point is activated on any disabled event.
0000015	First Test pseudo point. This pseudo point is activated when a service group test is active.

Table C-1: System device addresses (continued)

Address	Description
0000016	Two Stage Timer Started pseudo point. This pseudo point is activated on the first alarm event and is restored when the two-stage timer expires.
0000017	User Trouble pseudo point. This pseudo point is activated when the control panel processes the force trouble command.
0000018	Delayed Output pseudo point. This pseudo point is activated when the control panel processes the cancel delay command.
0016001 to 0016XXX	Addresses assigned to LED/switch cards. See Table C-8 through Table C-23.
0017001 to 0017480	Addresses assigned to zones 1 to 480
0018001 to 0018016	Addresses assigned to AND groups 1 to 16
0019001 to 0019064	Addresses assigned to matrix groups 1 to 64
0020001 to 0020129	Addresses assigned to service groups 1 to 129
0021001 to 0021032	Addresses assigned to time controls 1 to 32
0021248 to 0021255	Addresses assigned to the self-test timers for dialer accounts 1 to 8
0022001 to 0022250	Addresses assigned to output groups 1 to 250
0100001 to 0022036	Control panel CPU card addresses (panel 1). See Table C-2.
0101XXX to 0113XXX	Addresses assigned to option cards. See Table C-4, Table C-5, and Table C-6.
0114000 to 0114018	Addresses assigned to the DLD card. See Table C-7.
0115000 to 0115024	Addresses assigned to the PS6 card. See Table C-3.
0200001 to 0200036	Remote annunciator CPU card addresses (panel 2). See Table C-2.
0300001 to 0300036	Remote annunciator CPU card addresses (panel 3). See Table C-2.
0400001 to 0400036	Remote annunciator CPU card addresses (panel 4). See Table C-2.
0500001 to 0500036	Remote annunciator CPU card addresses (panel 5). See Table C-2.
0600001 to 0600036	Remote annunciator CPU card addresses (panel 6). See Table C-2.
0700001 to 0700036	Remote annunciator CPU card addresses (panel 7). See Table C-2.
0800001 to 0800036	Remote annunciator CPU card addresses (panel 8). See Table C-2.
0900001 to 0900036	Remote annunciator CPU card addresses (panel 9). See Table C-2.

CPU card addresses

Table C-2 lists the addresses assigned to a CPU card. PP is the cabinet on which the CPU card is installed (01 for the control panel, 02 to 09 for remote annunciators.)

Table C-2: CPU card addresses

Address	Description
PP00000	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.
PP00001	Panel PP Reset Extension pseudo point. This pseudo point is activated when an intelligent addressable loop requires additional time to initialize.
PP00002	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.
PP00003	Panel PP DB Incompatible pseudo point. This pseudo point is activated when there is a project database mismatch between CPU cards.
PP00004	Panel PP Reboot Fault pseudo point. This pseudo point is activated when there is an unexpected reboot of the system.
PP00005	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).
PP00006	Panel PP Task Failure pseudo point. This pseudo point is activated when there is an internal CPU process fault.
PP00007 to PP00019	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.
PP00020	Dialer Setup Mismatch pseudo point. This pseudo point is activated when there is a problem configuring the DLD card.
PP00021	Power Supply Setup Mismatch pseudo point. This pseudo point indicates a problem configuring the power supply card.
PP00022	Panel PP LED/Switch Display pseudo point. This pseudo point indicates a problem with an LED/switch card.
PP00023	Panel PP CH2 Communications pseudo point. This pseudo point indicates a fault with the secondary RS-485 transmission path (channel 2).
PP00024	Reserved

Table C-2: CPU card addresses (continued)

Address	Description
PP00025	Pnl PP Database Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP00026	Panel PP Code Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP00027	Panel PP Call for Service pseudo point. This pseudo point indicates a CPU process fault.
PP00028	Panel PP ROM Supervision pseudo point. This pseudo point indicates an internal memory failure.
PP00029	Panel PP RS232 Port Fault pseudo point. This pseudo point is reserved for future use.
PP00030	Panel PP Program Mode pseudo point. This pseudo point indicates an attempt is being made to change the project database.
PP00031	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.
PP00032	Panel PP Switch Latched pseudo point. This pseudo point indicates a switch is stuck in the pressed position.
PP00034	Panel PP Loop Database pseudo point
PP00035	Panel PP Alt. Sensitivity pseudo point
PP00036	Panel PP Alt. Routing pseudo point

PS6 card addresses

Table C-3 lists the addresses assigned to the PS6 card.

Table C-3: PS6 card addresses

Address	Description
0115000	Card CC Communications pseudo point. This pseudo point is activated when the control panel can't communicate with the PS6 card.
0115001	Battery Charger Fault pseudo point. This pseudo point indicates the battery circuit charging voltage is below 20.4 Vdc.
0115002	Battery Wiring or Battery Fault pseudo point. This pseudo point indicates the battery voltage is below 20.4 Vdc.
0115003	AUX Power 1/2 Shorted pseudo point. This pseudo point indicates a short on AUX1 or AUX2.
0115004	Thermal Fault pseudo point. Reserved for future use.
0115005	AUX Power 3 Shorted pseudo point. This pseudo point indicates a short on AUX3.
0115006	Smoke Power Shorted pseudo point. This pseudo point indicates when the smoke/accessory power output is shorted.
0115007	Primary AC Power Failure pseudo point. This pseudo point indicates that the control panel has lost mains power.
0115008	Excessive Battery Current pseudo point. This pseudo point indicates an over current condition while operating on standby power.
0115009	Check System Wiring pseudo point. This pseudo point indicates the presence of an earth ground fault in the system wiring.
0115010	Power Supply RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0115011	Power Supply ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0115012	Power Supply EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0115013 to 0115020	Not used
0115021	Power Supply User Relay (programmable)
0115022	Power Supply Trouble Relay (not programmable)
0115023	Power Supply Supv Relay (not programmable)
0115024	Power Supply Alarm Relay (not programmable)

ZB16-4 card addresses

Table C-4 lists the addresses assigned to a ZB16-4 card. CC is the card address assigned using the ZB16-4 card's address switch. CC can be a number from 01 to 13.

Table C-4: ZB16-4 card addresses

Address	Description
01CC000	Card CC Communications pseudo point. This pseudo point is activated when the control panel can't communicate with the ZB16-4 card.
01CC001	Circuit Z1 (IDC only)
01CC002	Circuit Z2 (IDC only)
01CC003	Circuit Z3 (IDC only)
01CC004	Circuit Z4 (IDC only)
01CC005	Circuit Z5 (IDC only)
01CC006	Circuit Z6 (IDC only)
01CC007	Circuit Z7 (IDC only)
01CC008	Circuit Z8 (IDC only)
01CC009	Circuit Z9 (IDC only)
01CC010	Circuit Z10 (IDC only)
01CC011	Circuit Z11 (IDC only)
01CC012	Circuit Z12 (IDC only)
01CC013	Circuit Z13 (IDC or NAC)
01CC014	Circuit Z14 (IDC or NAC)
01CC015	Circuit Z15 (IDC or NAC)
01CC016	Circuit Z16 (IDC or NAC)
01CC017	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC018	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC019	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

ZA8-2 card addresses

Table C-5 lists the addresses assigned to a ZA8-2 card. CC is the card address assigned using the ZA8-2 card's address switch. CC can be a number from 01 to 13.

Table C-5: ZA8-2 card addresses

Address	Description
01CC000	Card CC Communications pseudo point. This pseudo point is activated when the control panel can't communicate with the ZA8-2 card.
01CC001	Circuit Zone 1 (IDC only)
01CC002	Circuit Zone 2 (IDC only)
01CC003	Circuit Zone 3 (IDC only)
01CC004	Circuit Zone 4 (IDC or NAC)
01CC005	Circuit Zone 5 (IDC only)
01CC006	Circuit Zone 6 (IDC only)
01CC007	Circuit Zone 7 (IDC only)
01CC008	Circuit Zone 8 (IDC or NAC)
01CC009	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC010	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC011	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

ZR8 card addresses

Table C-6 lists the addresses assigned to a ZR8 card. CC is the card address assigned using the ZR8 card's address switch. CC can be a number from 01 to 13.

Table C-6: ZR8 card addresses

Address	Description
01CC000	Card CC Communications pseudo point. This pseudo point is activated when the control panel can't communicate with the ZR8 card.
01CC001	Relay circuit R1
01CC002	Relay circuit R2
01CC003	Relay circuit R3
01CC004	Relay circuit R4
01CC005	Relay circuit R5
01CC006	Relay circuit R6
01CC007	Relay circuit R7
01CC008	Relay circuit R8
01CC009	Card CC, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC010	Card CC, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
01CC011	Card CC, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.

DLD card addresses

Table C-7 lists the addresses assigned to a DLD card.

Table C-7: DLD card addresses

Address	Description
0114000	Card 14 pseudo point. This pseudo point is activated when the control panel can't communicate with the DLD card.
0114001	Primary Phone Line:Check TELCO
0114002	Secondary Phone Line:Check TELCO
0114003	Pri. Receiver Failed to answer
0114004	Sec. Receiver Failed to answer
0114005	Dialer Account 1 Fault
0114006	Dialer Account 2 Fault
0114007	Dialer Account 3 Fault
0114008	Dialer Account 4 Fault
0114009	Dialer Account 5 Fault
0114010	Dialer Account 6 Fault
0114011	Dialer Account 7 Fault
0114012	Dialer Account 8 Fault
0114013	Dialer Card, RAM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0114014	Dialer, ROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0114015	Dialer, EEPROM Supervision pseudo point. This pseudo point indicates an internal memory fault.
0114016	Dialer, Queue overflow
0114017	Line 1 Ground Fault. This pseudo point indicates a ground fault on the telephone line connected to J1.
0114018	Line 2 Ground Fault. This pseudo point indicates a ground fault on the telephone line connected to J2.

LED/switch card addresses

Table C-8 through Table C-23 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 C-8: 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

Table C-8: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	01	07	1	00	16	019
	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

Table C-8: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	01	15	2	00	16	044
	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

Table C-8: Annunciator card group 1 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	01	23	3	00	16	069
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 C-9: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
1	Switch	02	01	n/a	00	16	091

Table C-9: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	02	01	1	00	16	091
	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

Table C-9: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	02	09	2	00	16	116
	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

Table C-9: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	02	17	3	00	16	141
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

Table C-9: Annunciator card group 2 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
26	Switch	02	26	n/a	00	16	166
	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 C-10: 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

Table C-10: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	03	03	2	00	16	188
	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

Table C-10: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	03	11	3	00	16	213
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

Table C-10: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
20	Switch	03	20	n/a	00	16	238
	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

Table C-10: Annunciator card group 3 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	03	28	1	00	16	262
	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 C-11: 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

Table C-11: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	04	05	3	00	16	285
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

Table C-11: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
14	Switch	04	14	n/a	00	16	310
	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

Table C-11: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	04	22	1	00	16	334
	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

Table C-11: Annunciator card group 4 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	04	30	2	00	16	359
	Trouble (yellow) LED	04	30	3	00	16	360

Table C-12: 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

Table C-12: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
8	Switch	05	08	n/a	00	16	382
	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

Table C-12: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	05	16	1	00	16	406
	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

Table C-12: Annunciator card group 5 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	05	24	2	00	16	431
	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 C-13: 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

Table C-13: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
2	Switch	06	02	n/a	00	16	454
	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

Table C-13: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	06	10	1	00	16	478
	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

Table C-13: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	06	18	2	00	16	503
	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

Table C-13: Annunciator card group 6 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	06	26	3	00	16	528
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 C-14: 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

Table C-14: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Alarm (red) LED	07	04	1	00	16	550
	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

Table C-14: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	07	12	2	00	16	575
	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

Table C-14: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	07	20	3	00	16	600
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

Table C-14: Annunciator card group 7 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
29	Switch	07	29	n/a	00	16	625
	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 C-15: 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

Table C-15: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Active (yellow) LED	08	06	2	00	16	647
	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

Table C-15: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	Trouble (yellow) LED	08	14	3	00	16	672
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

Table C-15: Annunciator card group 8 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
23	Switch	08	23	n/a	00	16	697
	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 C-16: 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 C-16: 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 C-16: 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 C-16: 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 C-17: 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 C-17: 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 C-17: 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 C-17: 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 C-17: 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 C-18: 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 C-18: 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 C-18: 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 C-18: 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 C-18: 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 C-19: 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 C-19: 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 C-19: 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 C-19: 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 C-20: 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 C-20: 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 C-20: 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 C-20: 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 C-20: 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 C-21: 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 C-21: 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 C-21: 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 C-21: 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 C-21: 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 C-22: 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 C-22: 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 C-22: 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 C-22: 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 C-23: 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	***
9	Switch	16	09	n/a	00	16	***

Table C-23: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	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	***
	Alarm (red) LED	16	17	1	00	16	***

Table C-23: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	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	***
	Active (yellow) LED	16	25	2	00	16	***

Table C-23: Annunciator card group 16 addresses

LED-switch group	Component	GG	SS	L	PP	CC	DDD
	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 D

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
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
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
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
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
614	Fire 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

Event code	Description	Data type
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	

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