FIRE ALARM

Simplex

4006-9101/4006-9121 Fire Alarm Control Panel

Installation, Programming, and Operating Instructions

579-704
Rev B

Copyright and Trademarks

FCC Information

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the door of this equipment is a label that contains, among other information, the following product identifier: US:5QWAL01B4008. If requested, the number must be provided to the telephone company.

In the event of equipment malfunction, all repairs should be performed by an authorized agent. It is the responsibility of users requiring service to report the need for service to our company or to one of our authorized agents. Service can be arranged through our office at:

Tyco Safety Products
91 Technology Drive
Westminster, MA 01473
978-731-2500

The Ringer Equivalence Number (REN), which is 01 for the DACT installed in this panel, is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a 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 (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total number of RENs, contact the local telephone company. For products approved after July 23, 2001, the REN is part of the product identifier, which uses the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g. 01 is a REN of 0.1).

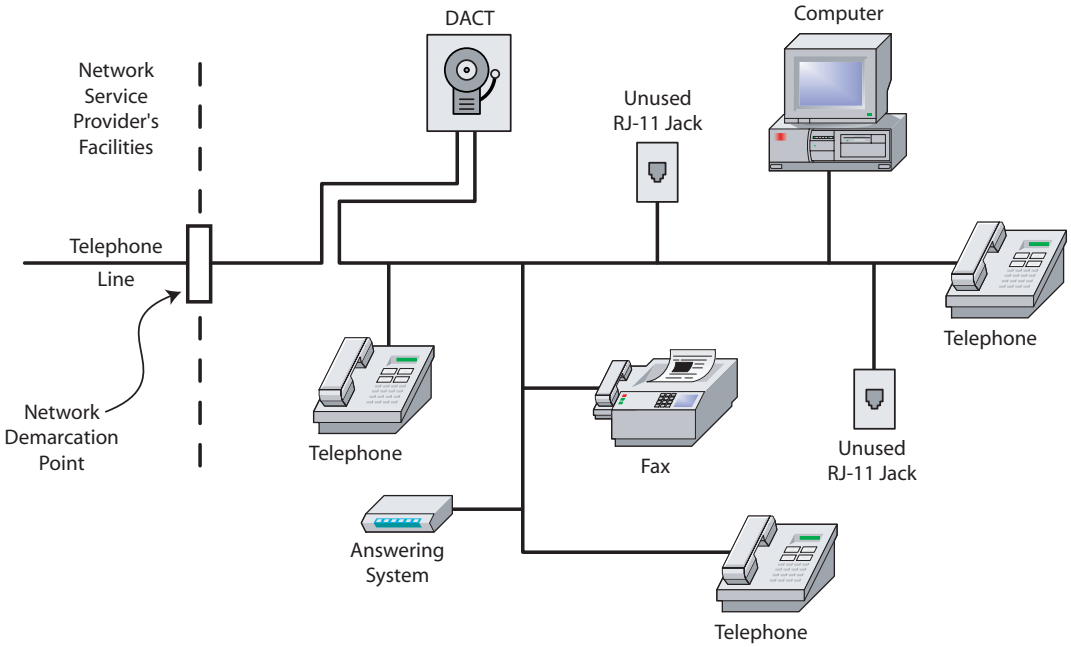
If the DACT causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify you as soon as possible. If your service is discontinued, you will be advised of your right to file a complaint with the FCC.

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

If trouble is experienced with the DACT, please contact Tyco Safety Products at the location identified above. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

Alarm Dialing Equipment

This equipment must be able to seize the telephone line and place a call in an emergency situation. It must be able to do this even if other equipment (telephone, answering system, computer modem, etc.) already has the telephone line in use. To do so, the DACT must be electrically in series with and ahead of all other equipment attached to the same telephone line. Proper installation is depicted in the figure below. If you have any questions concerning these instructions you should consult your telephone company or a qualified installer about connecting the alarm dialing equipment for you.



Connectors for the DACT are terminal blocks on the DACT module. Refer to DACT Wiring in Chapter 2 of this manual for specific DACT wiring instructions.

Cautions and Warnings

READ AND SAVE THESE INSTRUCTIONS. Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depends upon proper installation.

DO NOT INSTALL ANY PRODUCT THAT APPEARS DAMAGED. Upon unpacking your product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify Simplex.

ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. Servicing should be performed by qualified Technical Representatives.

STATIC HAZARD - Static electricity can damage components. Therefore, handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

RADIO FREQUENCY ENERGY - This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, can cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area may cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES - To ensure proper system operation, this product must be tested in accordance with NFPA72 after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

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Chapter 1. Overview

This publication describes how to install, configure, operate, program, and test an 4006-9101 and 4006-9121 (includes door-mounted annunciator) Fire Alarm Control Panel (FACP). In cases where the installation, wiring, or programming procedure is identical for both panels, the term 4006 is used. If the procedure applies only to a specific panel, the complete product name (i.e., 4006-9121 is used).

The 4006 is a conventional fire alarm control panel. The base system includes five Class B Initiating Device Circuits (IDCs), which may be wired as Class A circuits with the addition of an optional Class A module. The base system also includes two Notification Appliance Circuits (NACs), which may be wired class A or class B. A built-in DACT provides a means for remote station or central station monitoring.

The 4006 provides audible and visible indications during alarm, supervisory, or trouble conditions. Should any of these conditions occur, the system activates the applicable notification appliances, LEDs, and the panel tone-alert. The indications continue until an operator acknowledges the condition.

Main System Board

The 4006 base system includes the Main System Board (MSB) mounted in a steel enclosure with locking door.

The MSB contains everything needed for a UL-listed fire alarm system on one board. It consists of:

- System power supply (3A); 24V filtered
- Five IDCs (Class B)
- Two, 2A Notification Appliance Circuits (Class A or B)
- DACT
- Two auxiliary relay circuits
- One auxiliary power tap
- 2x20 backlit LCD, LEDs and keypad
- Service Port
- Expansion power supply connection
- Expansion IDC connection
- Expansion port for Class A IDC adapter connection
- Connection for interface to optional city card
- Communication channel for remote annunciators
- Battery-backed, non-volatile memory preserves logs, time/date information, and disabled points on AC loss.

In This Chapter

Power supply

- 120 VAC, 60 Hz, 4A; 240V, 50 Hz, 3A
- 24 VDC (filtered) 3A alarm power
- 24 VDC, ½A auxiliary power
- Battery charger up to 25 Ah batteries per UL864; temperature compensated. Recharge 12.7Ah batteries per ULC-S527.

Note: The 4006 back box can accommodate up to 12.7 Ah batteries.

Environmental Specifications

The panel operates normally with ambient temperatures from 32° F to 120° F (0° C to 49° C), inclusive.

The panel operates normally under non-condensing humidity conditions up to 93% relative humidity at 90° F (32° C).

Option Modules

The following lists all of the option modules for the 4006. Refer to the individual instructions that accompany each module for more information. Refer to the label inside the door of the 4006 for the placement of optional modules.

4006-9801 Expansion Power Supply (EPS)

When additional notification appliance circuits are required, an expansion power supply may be added. The expansion power supply provides two additional 2A NACs, and filtered/regulated 24 VDC, 3A power. The expansion power supply is mounted to the right of the MSB at the bottom of the chassis. It connects to the MSB with a ribbon harness.

The 3A alarm power of the EPS may be split between the 2 NACs and the 1/2A Aux. 24V power tap. One EPS per system is allowed.

4006-9802 Expansion IDC Module (XIM)

This module mounts to the right of the MSB. It includes five Class B Initiating Device Circuits, and a mounting point for the optional IDC Class A adapter module.

4006-9805 and 4006-9806 City Circuit Cards

The city circuit card connects to the MSB with a ribbon harness to provide connections to either Remote Station (reverse polarity), or Municipal Master (local energy) receiving units (selectable). The card has two circuits - circuit 1 reports alarm or alarm/trouble events (Remote Station only) and circuit 2 can be configured to report trouble events or supervisory events. In the event of a CPU failure, a city card configured for a trouble output sends a trouble to the city circuit. The card is mounted to the right of the MSB at the top of the chassis. The 4006-9805 and 4006-9806 city cards are identical except that the 4006-9805 provides hardware disconnect switches for each circuit. One City Circuit Card per system is allowed.

4006-9803 Expansion Relay Module

The Expansion Relay Module (ERM) includes 10 relays. The relays may be programmed for per-zone operation, one relay per IDC, or as desired. For example, it is possible to program any relay for general alarm, trouble or supervisory conditions. Normally Open or Normally Closed contact operation is selected by shunt jumper placement. Contacts are rated for 2A, 30VDC, 0.35 power factor.

Annunciator Modules

The 4006 supports the following annunciator modules. A total of four annunciators may be added to the system, one of which can be located in the panel (the Local Zone LED module).

- **Local Zone LED Module.** The local Zone LED Modules provides 24 LEDs for visible zone alarm and trouble indication. (The Local Zone LED module, which mounts on the front of the panel, is standard for ULC-S527 compliant systems.) There are 10 Red and 14 Yellow LEDs. This provides a red alarm and yellow trouble LED for each of 10 initiating device circuits. This module also provides 4 Yellow LEDs, one for each of 4 NACs. The LEDs are programmable, and can be used for other functions as appropriate per application.
- **4610-9111 Remote LED/Switch Annunciator.** This annunciator provides the following:
  - 10 programmable red LEDs (default programming tracks alarm state of IDC1-IDC10)
  - 6 programmable yellow LEDs (no default operation)
  - Green “power on” LED
  - Yellow “Alarm Silenced” LED
  - Yellow “Trouble”
  - Yellow “Comm Loss” LED
  - Tone-Alert
  - Switches for ACK, Alarm Silence, System Reset, and Lamp Test
  - Key switch to enable switch functions

4009-9201/4009-9202CA NAC Extender

The 4009-9201/4009-9202CA (Canadian) Notification Appliance Circuit (NAC) Extenders are self-contained

adjunct panels for use with 4006 Fire Alarm Control Panels (FACPs).

The base version of the NAC Extender is a single-board system consisting of four NACs, a power supply and charger, and two conventional NAC inputs that connect to the host panel for hardwired control of the NAC extender.

Option cards are available to provide the following additional capabilities:

- 4009-9808 Class A Adapter Option Card -- allows fault tolerance in the case of open circuit wiring faults on the NACs.
- 4009-9807 NAC Option Card -- adds four conventional Notification Appliance Circuits.

Initiating Devices

The 4006 is compatible with the following conventional initiating devices.

Photoelectric Smoke Detector

Photoelectric smoke detectors detect smoke by means of optical sensing technology.

- 4098-9601/4098-9601C: Standard Sensitivity (2.8%/foot) Photoelectric Smoke Detector
- 4098-9605: Special Sensitivity (3.5%/foot) Photoelectric Smoke Detector

Heat Detector

Four models of conventional electronic heat detector are available:

- 4098-9612/4098-9612C: 135°F Fixed Temperature Heat Detector
- 4098-9613/4098-9613C: 135°F Fixed Temperature Heat Detector w/ rate of rise detection
- 4098-9614/4098-9614C: 200°F Fixed Temperature Heat Detector
- 4098-9615/4098-9615C : 200°F Fixed Temperature Heat Detector w/ rate of rise detection

The rate of rise trigger is 15°F-25°F per minute.

Combination Photo/Heat Detector

The combination photo/heat detector (4098-9602/4098-9602C) is a combination photoelectric detector and thermal detector in one head. This detector correlates smoke and thermal activity to provide earliest alarm initiation.

- Smoke detector sensitivity: 2.8% /ft. obscuration
- Fixed temperature trip point: 135°F

Rate of Rise trigger: 15°F-25°F per minute only at temperatures of 90°F or greater

Detector Bases

The detectors described above may be installed in the following detector bases:

- 4098-9788/4098-9788C: Two-wire detector base with remote LED connection.
- 4098-9683/4098-9683C: Two wire detector base with auxiliary relay (limit 1 per IDC).
- 4098-9684/4098-9684C: Two wire detector base with alarm LED output. For use with 4098-961*x* series heat detectors only.
- 4098-9682/4098-9682C: Four wire detector base with auxiliary alarm relay .

Each of the smoke detectors includes an output for a remote alarm LED. Base 4098-9684 is required for remote LED control with 4098-9612 through 4098-9615 electronic heat detectors.

Maximum of 30 total bases per IDC, except for 4098-9683 (limit one per IDC).

User Interface

The user interface consists of control keys, LEDs, a 2-line by 20-character backlit LCD, and a sounder mounted in the control panel. The purpose of the Operator and Menu keys is listed below.

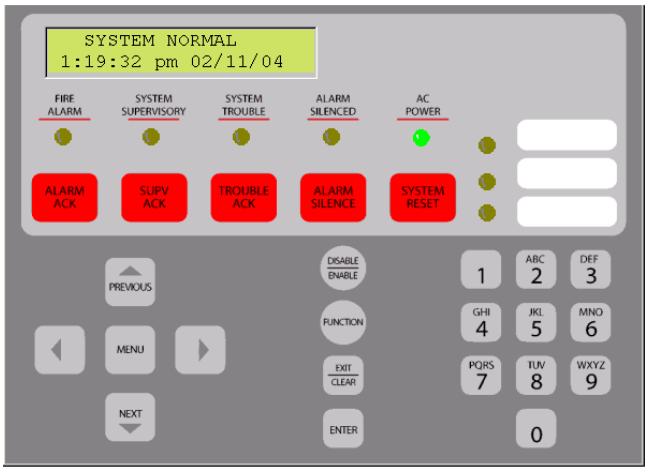


Figure 1-1 User Interface

Table 1-1 Operator Keys

Key	Function
ALARM ACK	Acknowledges any unacknowledged fire alarms in the system, and scrolls through the alarms in the active Alarm List.
SUPV ACK	Acknowledges any unacknowledged supervisories in the system, and scrolls through the supervisory conditions in the active Supervisory List.
TROUBLE ACK	Acknowledges any unacknowledged troubles in the system, and scrolls through the trouble conditions in the active Trouble List.
ALARM SILENCE	Silences any silenceable output types (generally all audible notification appliances).
SYSTEM RESET	Allows the operator to reset all alarm notification appliances and controls, remove alarms from the Alarm List, silence all silenceable outputs, reset detectors, and return the system to a normal state (provided that no alarm, supervisory or trouble conditions are present). The display indicates that a reset is in progress and whether or not a reset completes successfully. Pressing the <SYSTEM RESET> key will only attempt to return the system to a normal, non-alarm state. All outputs that were activated by the alarm will remain active until all alarm inputs have been restored and the reset was able to successfully complete. An open circuit fault on a Class A NAC does not require a System Reset to restore to normal. Open circuit faults on the optional City Connect module are cleared with a system reset after the circuit has been repaired.
MENU	The Menu key always brings you to the top of the main menu structure unless you are in the Programming menu.

Table 1-1 Operator Keys (Continued)

Key	Function
FUNCTION	The Function Menu is displayed when the <Function> key is pressed at the high-level status screen. Use the <Previous> and <Next> keys to scroll through the list of functions. The function key provides access to commonly used control and display functions.
DISABLE/ ENABLE	The <Disable/Enable> key allows the operator to quickly disable or enable any point that is currently displayed. This key is passcode protected. A confirmation screen is displayed requesting <Enter> be pressed before the actual enable or disable is performed.
EXIT/ CLEAR	The <Exit/Clear> key is used to back out of menus or displays and return to the top-level menu structure. Where possible, the <Exit/Clear> key backs out one level at a time. There are cases, however, that the Exit/Clear key will return the operator directly to the top-level menu.
ENTER	The <Enter> key is used to confirm selections. When pressed, this key provides additional information about the point shown on the display. In a programming screen, pressing <Enter> indicates that the information on the display is correct and can be accepted. The <Enter> key is used in various other places within the menu structure, always for this same type of operation.
RIGHT/LEFT ARROWS	The right and left arrows are used in screens with multiple choices. The keys advance the focus (square brackets [ ]) from field to field.
PREVIOUS/ NEXT	The Previous & Next keys are used to scroll through the system lists, historical log, point database, etc. The <Next> key selects the next display screen in sequence, and the <Previous> key selects the previous screen. These keys are also used to view additional information about abnormal points or in viewing historical logs.

Logging In and Out

Certain operator functions are passcode-protected at different levels. This section describes the operator functions, their default access level, and the login/logout procedure.

Table 1-2 Access Levels and Features

Access Level	Operation
1	Acknowledge, Silence, System Reset, View Historical Logs, View Point Information, Lamp Test
2 Passcode = 2000	All Level 1 operations, plus: Set Time/Date, Point Control, Enable/Disable points
3 Passcode = 3000	All Level 1 & 2 operations, plus: Clear Historical Logs, Clear Verification Tallies Custom Label editing WALKTEST
4 Passcode = 4000	All Level 1, 2, & 3 operations, plus: Programming, Upload/Download

Login/Logout Procedure

To perform any of the functions protected at Level 2 or above, you must login to the panel using a passcode. After completing a task at a certain access level, you should then logout to return the access level to Level 1 to prevent unauthorized operation. When logged in at Level 2 or above and no panel keys are pressed for more than 10 minutes, the panel automatically returns the system to Level 1.

All passcodes consist of a 4-digit number. Logging in at Level 4 causes a Service Mode trouble that may only be cleared by restarting the panel.

To login, perform the following steps:

1. Obtain the passcode information for the desired level.
2. Press <MENU>
3. Press <NEXT> until [Login/Logout] is displayed, then press <ENTER>. A prompt similar to the following appears.

   Access: Level 1
   <ENTER>=[Login]

4. Press <NEXT> until [Login] is displayed, then press <ENTER>. A prompt similar to the following appears.

   Access: Level 1
   Passcode: [0]

5. Use the Keypad to enter the appropriate passcode.
6. When the passcode is correct, press the <ENTER> key to login.

A "Login Accepted" message, which indicates your current access level, is displayed briefly upon a successful login attempt. If you did not enter the appropriate Login passcode, a "Login Invalid" screen appears.

To logout, perform steps 1-4 above, but select Logout instead of Login.

Overview - Programming a Job

A *job* refers to the file containing all of the panel's programming information. This manual describes the process required to create a job from the front panel of the system. Creating a job involves:

- Setting the attributes of each IDC, NAC, and AUX relay, including:
  - Function Type. Determines the way in which the IDC, NAC, or relay operates (i.e., fire point, trouble point, on til silence, etc.)
  - Custom Label. This is a 20-character label that describes each zone, NAC, or relay.
  - Alarm Group. Allows inputs and outputs to be associated into groups to implement selective signaling applications. See "Alarm Groups" below.
- Defining the attributes (phone numbers, account numbers, reporting format, etc.) of the panel's Digital Alarm Communicator Transmitter (DACT). If the DACT will not be used, programming consists of disabling the DACT.
- Programming the operation of the LEDs contained on the panel and connected annunciators. Programming an annunciator consists of identifying the point being monitored by the LED and the mode (i.e., fire alarm, trouble, etc.) that will trigger the LED to illuminate.
- Setting values for the panel's system options, which are pre-defined modes of operation with a range of settings from which to choose. System Options define global operations such as the time and date format, door drop timers, and whether the city circuit is enabled, etc.

Alarm Groups

Alarm groups allow you to implement basic selective signalling applications. As you program input (zone of smoke detectors) and output points (NAC or relay), you are given the opportunity to associate the point with an alarm group number. The number can range from 1-100 and each point can be in up to three alarm groups. When programming is complete, an initiating device can only trigger the output devices (relays, NACs) that share its alarm group(s).

Chapter 2. Installation and System Checkout

Back Box Mounting

The back box can be surface-mounted or semi-flush mounted to the wall. Use separate conduit entrances for power-limited and non-power limited wiring.

AC supply, battery supply, and City Connect wiring are all non-power limited wiring.

Removing Electronics Assembly

Use either a #6 Torx or a slot-head screwdriver to remove the four screws that secure the electronics assembly to the back box.

Conduit Entrances

- Nine knockouts are provided for conduit connection. Refer to Figure 2-1 for knockout locations.
- Power limited wiring must be located **only in the shaded area of the cabinet**.
- AC power (non-power limited) wiring must be run in separate conduit from all other wiring, as shown in the figure below. **Non-power limited wiring must be separated from power limited wiring by a minimum of 1/4".**

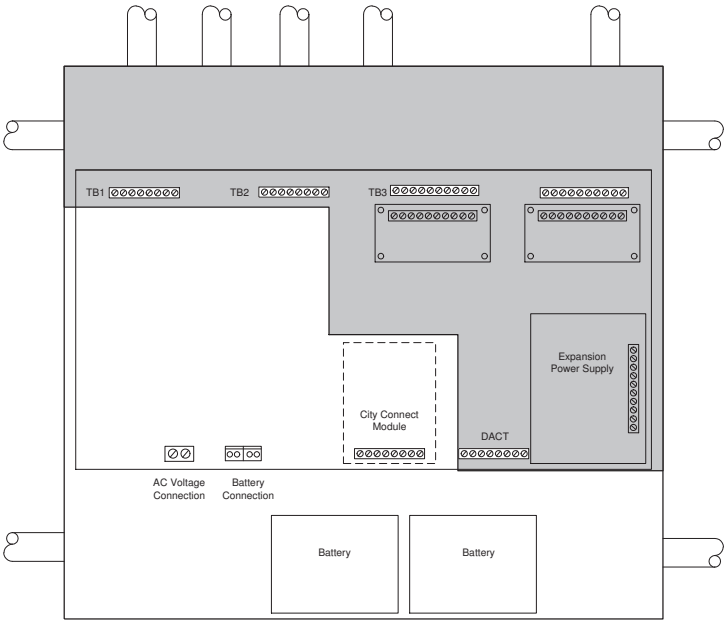


Figure 2-1 Power-Limited (Shaded) and Non-Power Limited Wiring Areas

In This Chapter

- All Aux Relay loads must be powered from the AUX power circuit or from a regulated, 24 VDC, power-limited power supply that is UL-listed for fire protective signaling service.

Guidelines for Locating Backbox

Always refer to engineering drawings/site installation plans before beginning installation. The system is designed to operate in a typical commercial environment. Choose a site for each backbox that is:

- Well-ventilated, clean, and dust-free.
- Located near a dedicated AC individual branch circuit with Earth ground (to maintain a consistent supply voltage).
- Away from sources of heat, including direct sunlight.
- Away from sources of vibration or physical shock.
- Away from sources of Radio Frequency Interference (RFI), such as a radio transceiver base station or hand held unit.
- Isolated from sources of strong electromagnetic fields, such as air conditioners, large fans, and large electric motors.

Be sure to mount the backbox to the wall so that the top of the enclosure is no more than six feet above the floor.

Surface Mounting

Refer to the figure below for hole dimensions.

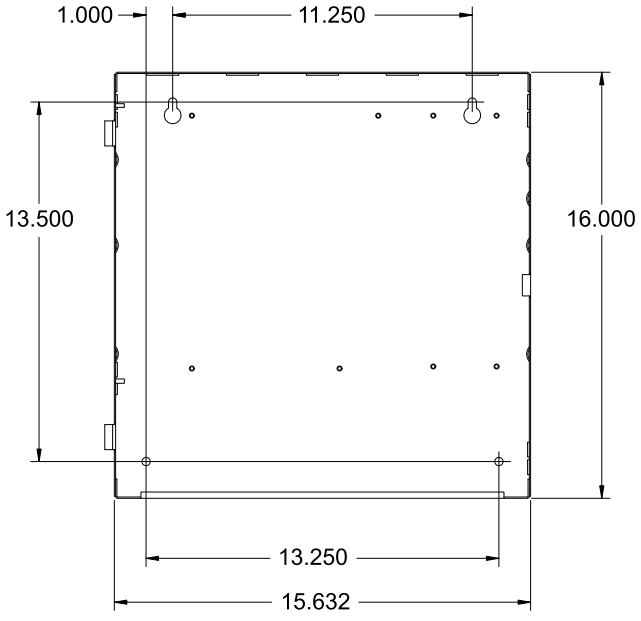


Figure 2-2 Surface Mounting Hole Dimensions

Semi-Flush Mounting

Semi-flush mounting involves recessing the backbox into a wall and attaching it directly to the wall's studs. At a minimum, 1.5 inches of the backbox must protrude from the wall to allow for clearance of the panel door.

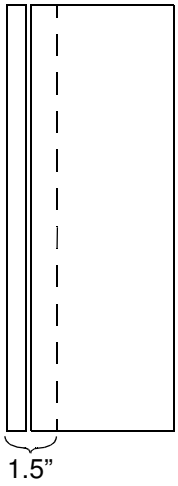


Figure 2-3 Semi-Flush Mounting

General Wiring Guidelines

All wiring to the 4006 and its peripherals must be performed in accordance with NFPA 70, NFPA 72, all local codes, and per the technical requirements listed in each section below.

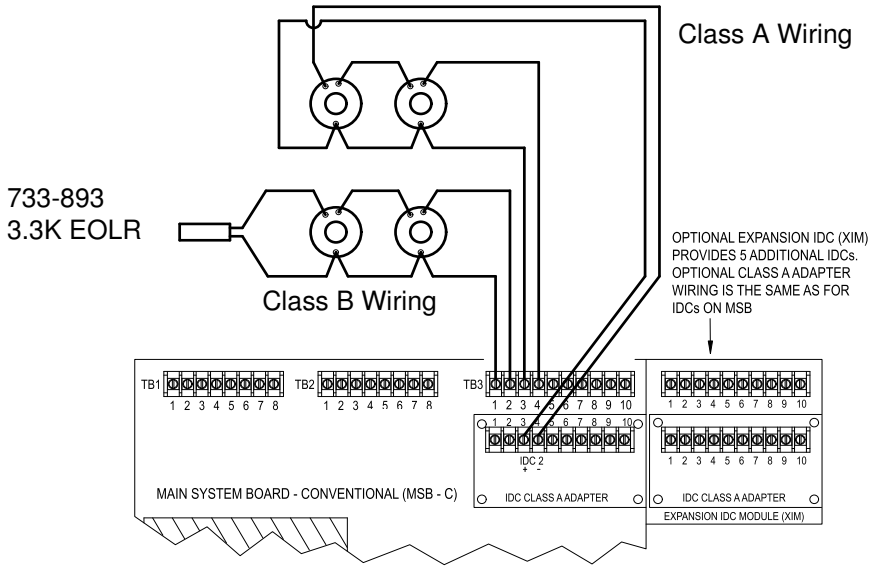
Before connecting any wires to the system, including option modules, wires must be tested as follows:

1. Use a voltmeter (VOM) to verify no stray voltages are applied to the field wiring. Test for AC and DC voltages across each pair of wires and from each wire to earth.
2. Use a VOM to verify that all wiring tests free of grounds. Each conductor should test “open” against earth (chassis).

IDC Wiring

- All wiring must be 18 AWG min. to 12 AWG max.
- Conductors must test free of all grounds and stray voltages before connection to appliances and panel.
- All wiring is supervised and power-limited. IDCs should be segregated from AC supply wiring. If wired power-limited, segregate IDC wiring from non-power limited wiring.
- Leave a 3.3K, 1/2 W resistor (supplied) across all unused IDC terminals.
- Terminate Class B circuits with listed 3.3K, 1W end-of-line resistor, part number 733-893. For Canadian applications, mount end-of-line resistor to TEPG-US Model 431537 EOL plate in accordance with ULC-S527.
- Class A Circuits. Wire as follows:
  - Wire from B+/B- from of TB3 to each initiating device. Wire in a daisy-chain style, in and out from each device to the next device.
  - Do not “T-Tap” wiring.
  - Wire from last device back to the A+/A- terminals on the Class A adapter for that circuit. EOLR is built onto Class A board.
- For Class A, set CLA Adapter 1 (IDCs 1-5) or CLA Adapter 2 (IDCs 1-10) System Option to ON. If using expansion IDC module, set EXP IDC system option to ON. See Chapter 6.
- Class B Circuits. Wire the circuit to the B+ / B- terminals. The circuit must be wired with IN/OUT wiring from detector to detector and terminate with 733-893 EOLR.
- Maximum allowed wiring resistance is 50 ohms per circuit. Suggested wire is 18 AWG, allowing up to 3500’ distance from panel to EOLR (Class B) or Class A Board (Class A). For Simplex Model 4098-9683 relay base, limit is one device per circuit. For all other detectors and bases, up to 30 devices per circuit are allowed.
- Maximum detector standby current is 3 mA per IDC. Maximum detector alarm current is 60 mA per IDC. 16-32 VDC, 1/2 V peak-to-peak maximum ripple. Maximum circuit capcitance is 100 uf per IDC.
- Compatible detectors:
  - 4098-9601, photoelectric smoke (2.8%) detector
  - 4098-9602, combination photo/heat detector
  - 4098-9605, photoelectric smoke (special sensitivity) detector
  - 4098-9612, 135° F, Fixed temp heat detector
  - 4098-9613, 135° F, Fixed temp/rate of rise heat
  - 4098-9614, 200° F Fixed temp heat detector
  - 4098-9615, 200° F Fixed temp/rate of rise heat

  The compatibility identifier is the model number associated with the board or module.
- Compatiblebases:
  - 4098-9788, two-wire base (max. 30 per loop).
  - 4098-9683, two-wire base with auxiliary relay (limit of one per IDC).
  - 4098-9684, two-wire base with LED for use with heat detectors 4098-9612
  - through 9615 (max. 30 per loop).
  - 4098-9682, 4-wire base with aux. alarm relay (max. 30 per loop). See “Wiring 4098-9682 Four-Wire Base” below.



Refer to smoke/heat base installation instructions, 574-706, for specific wiring details for bases and LED modules

Figure 2-4 IDC Wiring

Wiring 4098-9682 Four-Wire Base

When the 4098-9682 base is used, the auxiliary 24V power must be routed through 2098-9735 end-of-line relay, as shown in Figure 2-5.

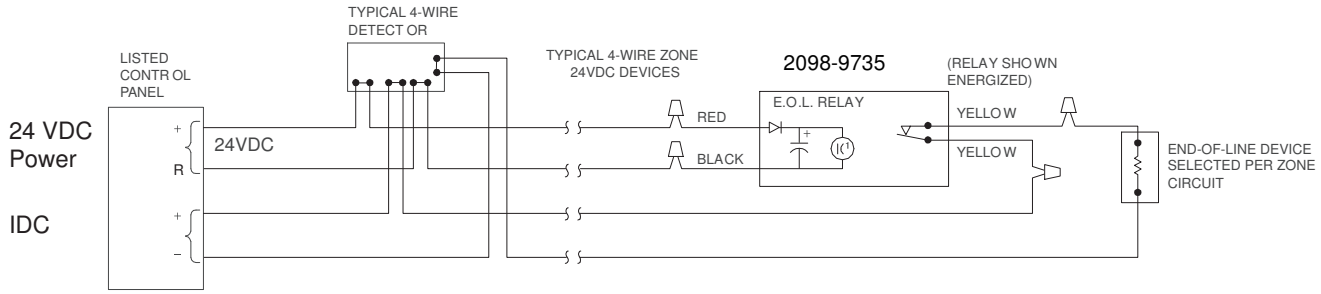


Figure 2-5 Wiring 4098-9682 Four Wire Base

NAC Wiring

General Wiring Notes -- Apply to NACs on Main System Board (MSB) and Expansion Power Supply

Refer to Figure 2-6 and Figure 2-7.

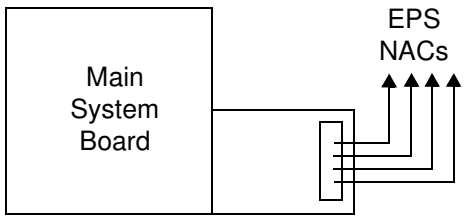
- All wiring must be 18 AWG (min.) to 12 AWG (max.).
- Conductors must test free of all grounds and stray voltages before connection to appliances and panel.
- All wiring is supervised and power limited.
- Terminate Class B (Style Y) NACs as shown using 733-894. For Canadian applications, mount end-of-line resistor to TEPG-US Model 431537 EOL plate in accordance with ULC-S527.
- Wire Class A (Style Z) NACs from B+/B- to each appliance as shown. No EOL device is required. Connect wires from +/- terminals of last appliance to the A+/A- terminals as shown.
- System is shipped with 10K, 1/2 W resistors connected across NAC B+/B- of each circuit. Remove this resistor from any circuits in use. Leave resistor installed if circuits are unused.
- Voltage rating: Refer to "NAC Ratings" on Page 2-7 for specific voltage specifications. Maximum ripple: 1/2V peak-to-peak.
- Current rating: 2A maximum for either circuit. 3A total between both circuits and Aux. 24 V load.
- Terminal designations (+/-) are for the alarm state.
- When using two-wire audible/visible appliances, maximum wiring capacitance must be considered. For TrueAlert Non-Addressable notification appliances, .22uF maximum is allowed.
- If wiring is routed outside the building, use of a listed secondary protector is required. Use Simplex 2081-9028 or 2081-9044. A protector must be installed at each building exit/entrance. Each 2081-9028 adds .2 ohms wiring resistance. 2081-9044 adds 6 ohms wiring resistance. Use of 2081-9044 will greatly reduce wiring distance.
- Wiring chart gives max. distance for 1/4 -2A loads. For Class B circuits wiring distance is from panel terminals to last appliance. For Class A circuits, wiring distance is from panel terminals to last appliance and back to panel terminals. Use of 2081-9044 reduces wiring distance.

Table 2-1 Wiring Distances

Maximum Wiring Distance in Feet					
Alarm Current (Amps)	18 AWG	16 AWG	14 AWG	12 AWG	Line Resistance (Ohms)
.25	840	1335	2126	3382	12
.50	420	667	1063	1691	6
.75	280	445	709	1127	4
1.0	210	334	532	845	3
1.25	168	267	425	676	2.4
1.50	140	222	354	564	2
1.75	120	191	304	483	1.71
2.0	105	167	266	423	1.5

Location of Expansion Power Supply NACs (If Used)

The Expansion Power Supply (EPS) is located to the bottom right of the main system board (MSB), as shown below. Wiring guidelines for these NACs are identical to the guidelines for the MSB NACs.



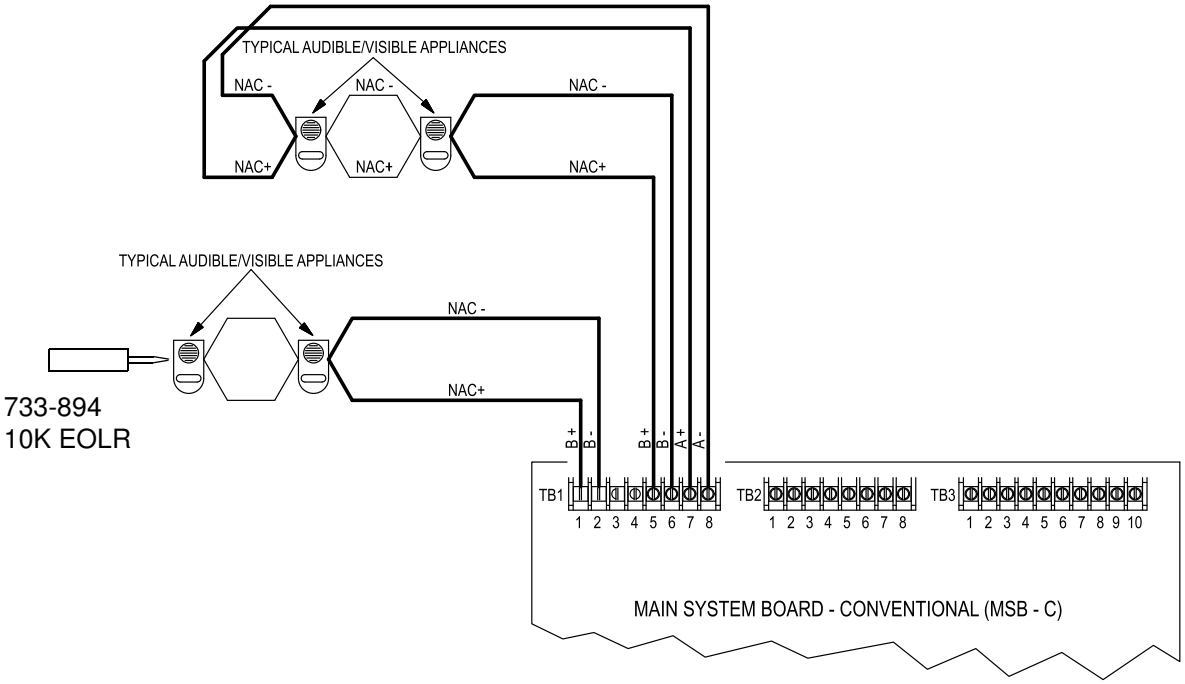


Figure 2-6 Main System Board NACs

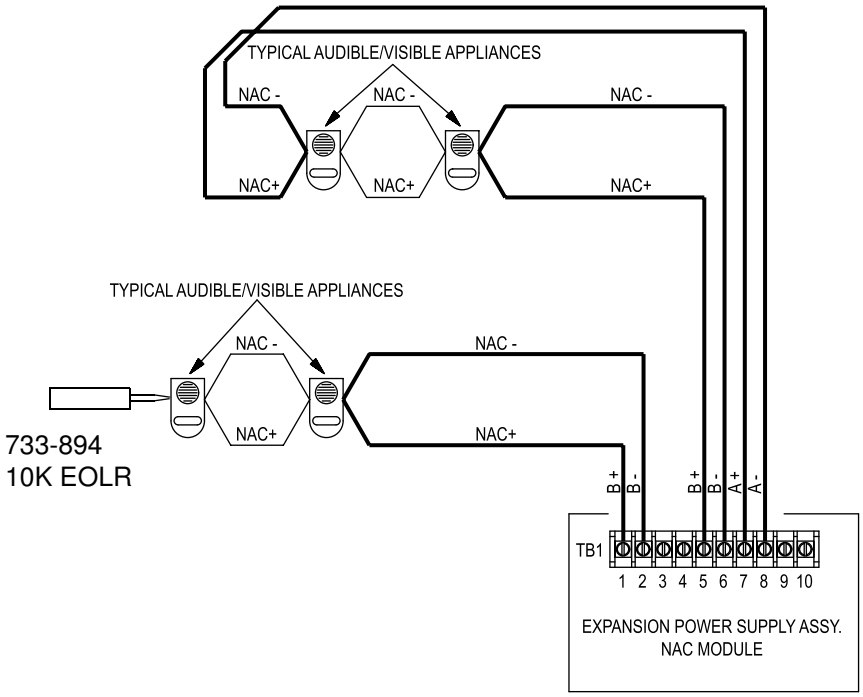


Figure 2-7 Expansion Power Supply NACs

NAC ratings

The panel is rated Special Application for 2A maximum per NAC with Simplex 4901 and 4906 TrueAlert & TrueAlert Multi-Candela Notification Appliances.

For all other UL Listed Notification Appliances, NACs are rated regulated 24 VDC at 1.5 A maximum each. Maximum allowed strobe load on either the main or expansion power supply is 1.35 A. The balance of the 3 A capacity can be auxiliary loads or audible notification appliances.

Synchronization of strobes across all NACs in a system is UL Listed for the Simplex models noted in the table below. See the table below for maximum number allowed of each appliance per NAC.

Table 2-2 NAC Ratings

	15Cd		30Cd		75Cd		110Cd	
4906-	Rated Current	Max. # per NAC	Rated Current	Max. # per NAC	Rated Current	Max. # per NAC	Rated Current	Max. # per NAC
9101	0.060	33	0.094	21	0.186	10	0.252	7
9102	0.075	26	0.125	16	0.233	8	0.316	6
9103	0.060	33	0.094	21	0.186	10	0.252	7
9104	0.075	26	0.125	16	0.233	8	0.316	6
9127	0.075	26	0.116	17	0.221	9	0.285	7
9128	0.086	23	0.132	15	0.250	8	0.320	6
9129	0.075	26	0.116	17	0.221	9	0.285	7
9130	0.086	23	0.132	15	0.250	8	0.320	6
9151	0.060	33	0.094	21	0.186	10	0.252	7
9154	0.075	26	0.125	16	0.233	8	0.316	6
9153	0.060	33	0.094	21	0.186	10	0.252	7

All other regulated 24 VDC synchronized notification appliances require the use of their associated, listed external synchronization module. Notification Circuit rating is 1.5 A maximum, 1.35 A maximum strobe load per power supply. Use the UL-rated operating current to determine maximum number of appliances allowed per NAC.

Auxiliary Relay Wiring

- All wiring must be 18 AWG (minimum) to 12 AWG (maximum). Conductors must test free of all grounds and stray voltages before connection to appliances, devices, and panel.
- Contact rating: 30VDC @ 2A, 0.35 power factor
- If using expansion relay module, set EXP RELAY system option to ON.
- Each relay is selected for normally closed or normally open operation. Shunt jumper setting (see figure) selects desired contact.
- Relay 1 is programmable. Its default operation is Common Alarm - On Until Reset. Jumper is P1.
- Relay 2 is a normally energized, common trouble relay. The jumper settings noted in the figure account for the relay being normally energized. Jumper is P2.
- When the panel is completely powered off, the trouble relay will be in the "Off Normal" state.
- All wiring is unsupervised.

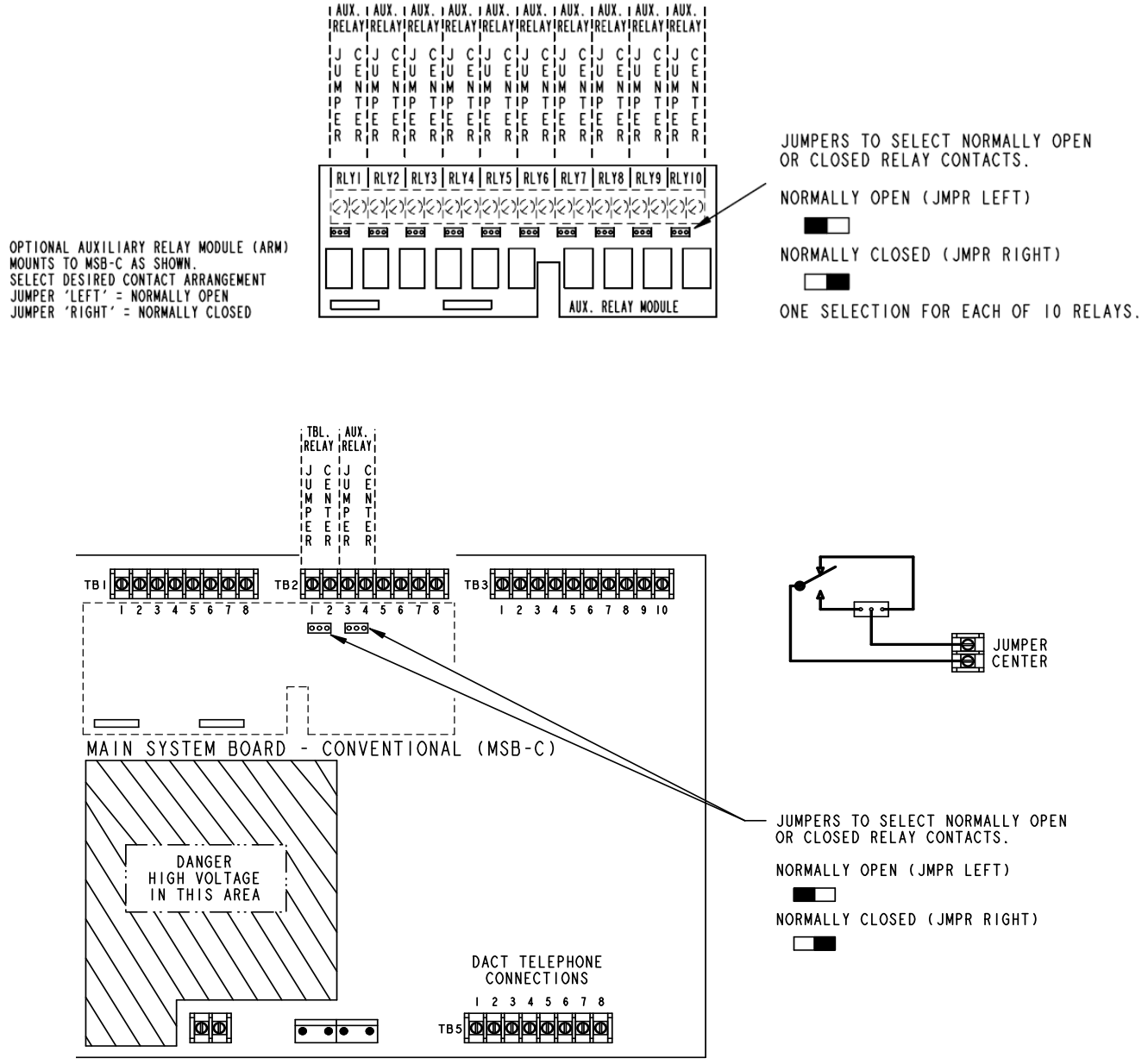


Figure 2-8 Relays on Main System Board

DACT

The DACT connection is made from the Main System Board to the public telephone system via terminals TB5-1/TB5-2 and TB5-5/TB5-6. Wiring information is shown in Figure 2-9.

- The DACT requires two telephone line connections to meet NFPA72 requirements. Wire from TB5-3/TB5-4 and TB5-7/TB5-8 to an RJ-11 or other Telcom wiring block for connection to other telephone equipment. The DACT will seize control of the telephone line (if necessary) to transmit emergency messages. When wired as shown, the DACT will properly control access to lines in an emergency.
- Wire from Telcom equipment to TB5 using 18 AWG to 24 AWG.
- All DACT wiring is supervised.
- Digital Alarm Communicator Receiver (DACR) compatibility is shown in Table 2-3.
- If wiring is routed outside the building, use of a listed secondary protector is required. Use Simplex 2081-9028 or 2081-9044. A protector must be installed at each building exit/entrance. Each 2081-9028 adds .2 ohms wiring resistance. 2081-9044 adds 6 ohms wiring resistance. Use of 2081-9044 will greatly reduce wiring distance.

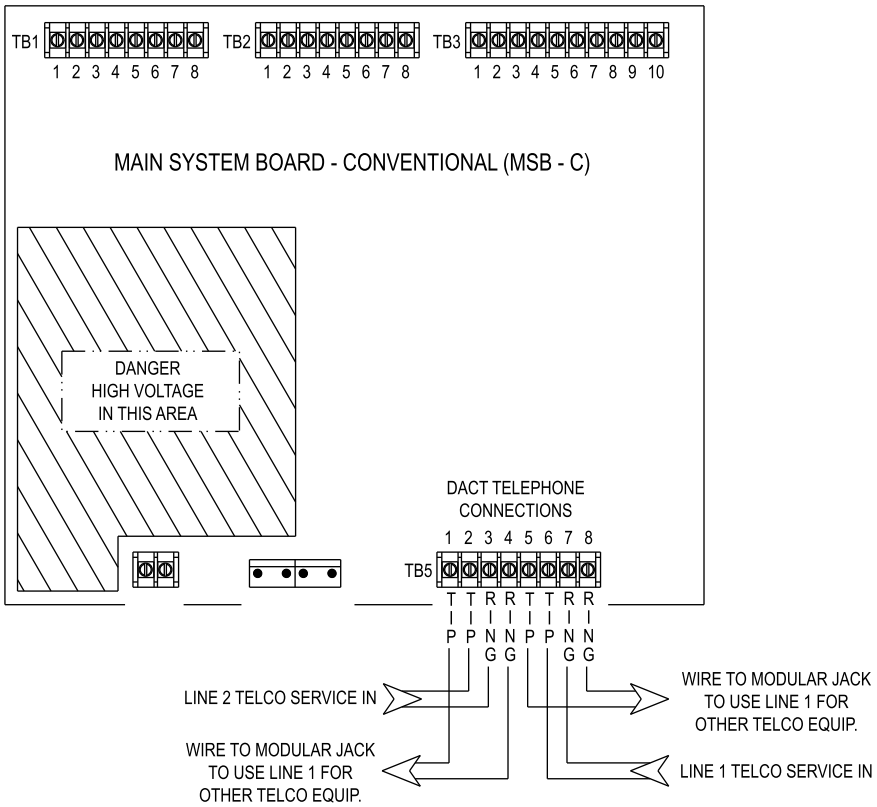


Figure 2-9 DACT Wiring

Table 2-3 Compatible DACRs

		Digital Alarm Communicator Receiver (DACR)							
Communication Format	**Simplex Central Station Services**	**FBII [2, 3] CP220FB**	**Osborne/ Hoffman QuickAlert II**	**ADEMCO 685 [1, 3]**	**SUR-GARD MLR2-DG**	**Radionics D6600**	**Silent Knight 9000**	**Silent Knight 9500**	**SUR-GARD MLR 2000**
Contact ID (Preferred)	✔	✔	✔	✔	✔	✔		✔	✔
3/1 Standard 1800/2300 Hz (10 and 20PPS)	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
3/1 Standard 1900/1400 Hz (10 and 20PPS)	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
4/2 Standard 1800/2300 Hz (10 and 20PPS)	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
4/2 Standard 1900/1400 Hz (10 and 20PPS)	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
Radionics BFSK 1800/2300 Hz	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
Radionics BFSK 1900/1400 Hz	✔	✔	✔	✔	✔	✔	✔ With 9032 Line Card	✔	**TBD**
SIA			✔		✔	✔		✔	**TBD**

Notes:

1. With 685-8 Line Card
2. With Rec-11 Line Card
3. These receivers are also Factory Mutual (FM) approved.

Remote Annunciator Wiring

- All wiring must be 18 AWG (min.) to 12 AWG (max.), twisted pair or shielded twisted pair.
- Conductors must test free of all grounds and stray voltages before connection to appliances, devices, or panel.
- All wiring is supervised and power-limited.
- Refer to instructions packed with remote annunciator modules for connection details to each module.
- Remote annunciators require power and communications wiring.
- For "bus-style" wiring (see figure), maximum wiring limit is 4, 000 feet.
  - Maximum wiring capacitance is 0.58µF total, wire-to-wire plus wire-to-shield.
  - Attach 733-974 (100 ohm, 1/2W) resistor as shown for line matching. See Note A in figure below. Wire remote devices "daisy-chain" style, using in/out terminals on each device.

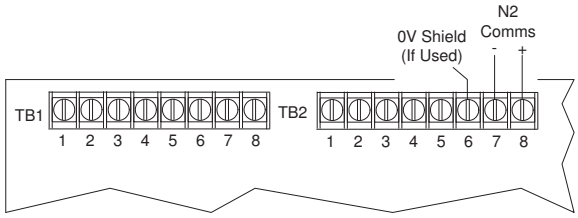
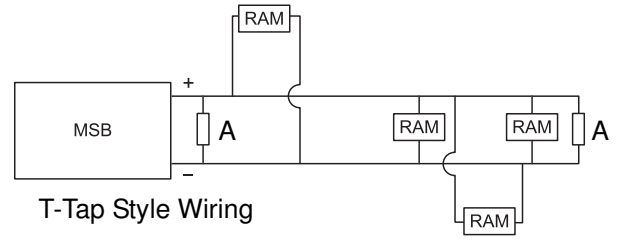


Figure 2-10 Annunciator Wiring Connections



RAM = Remote Annunciator Module
MSB = Main System Board

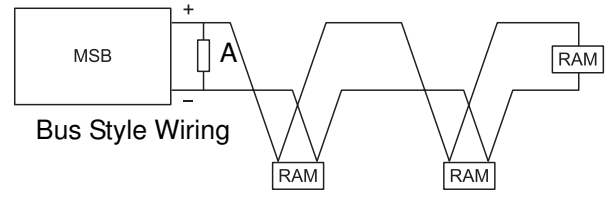


Figure 2-11 Bus Style and T-Tap Wiring

- For "T-Tap" style wiring, total cable limit is 10,000 feet, 2,500 feet to the furthest device.
  - Maximum wiring capacitance is .58uF total, wire-to-wire plus wire-to-shield.
  - Attach 733-974 (100 ohm, 1/2W) resistor (see Note A in figure) for line matching.
- Shielded wire is not required for most installations. If communications wiring is not in conduit with strobes or voice speaker circuits, shielded wiring is not required. Use shielded wiring if remote annunciator wiring shares a conduit with these signals. Terminate shield to 0V (Aux 24V Neg.) or to chassis.
- If wiring is routed outside the building, use of a listed secondary protector is required. Use Simplex 2081-9028 or 2081-9044. A protector must be installed at each building exit/entrance. Each 2081-9028 adds .2 ohms wiring resistance. 2081-9044 adds 6 ohms wiring resistance. Use of 2081-9044 will greatly reduce wiring distance.
- Wiring must pass through a ferrite bead. Wrap the wiring twice through the ferrite bead, as shown in Figure 2-12.

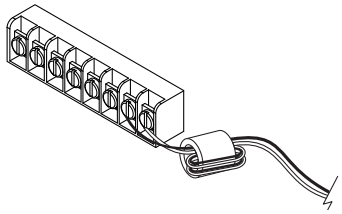


Figure 2-12 Ferrite Bead

City Connect Module Wiring

- City connect module mounts to the main system as shown. Refer to City Module Installation Instructions for details.
- City module consists of two circuits that are jumper-configured. Circuits may be configured for reverse-polarity or local energy operation. See jumper setting table for details. Modules must also be added to the system configuration. See “System Options” later in this manual.
- All wiring to be per NPFP-72, NEC, and local codes. Minimum 20 AWG for reverse polarity; minimum 18 AWG for local energy circuits.
- Conductors must test free of all grounds.
- Wiring is supervised for opens and grounds, but not power-limited.
- For specific information about reverse polarity and local energy circuits, see Figure 2-13.
- If wiring is routed outside the building, use of a listed secondary protector is required. Use Simplex 2081-9028 or 2081-9044. A protector must be installed at each building exit/entrance. Each 2081-9028 adds .2 ohms wiring resistance. 2081-9044 adds 6 ohms wiring resistance. Use of 2081-9044 will greatly reduce wiring distance.
- Circuits are shipped with 3.3K, 1/2W resistor installed. Remove resistor before wiring circuit. Leave installed on unused circuits.

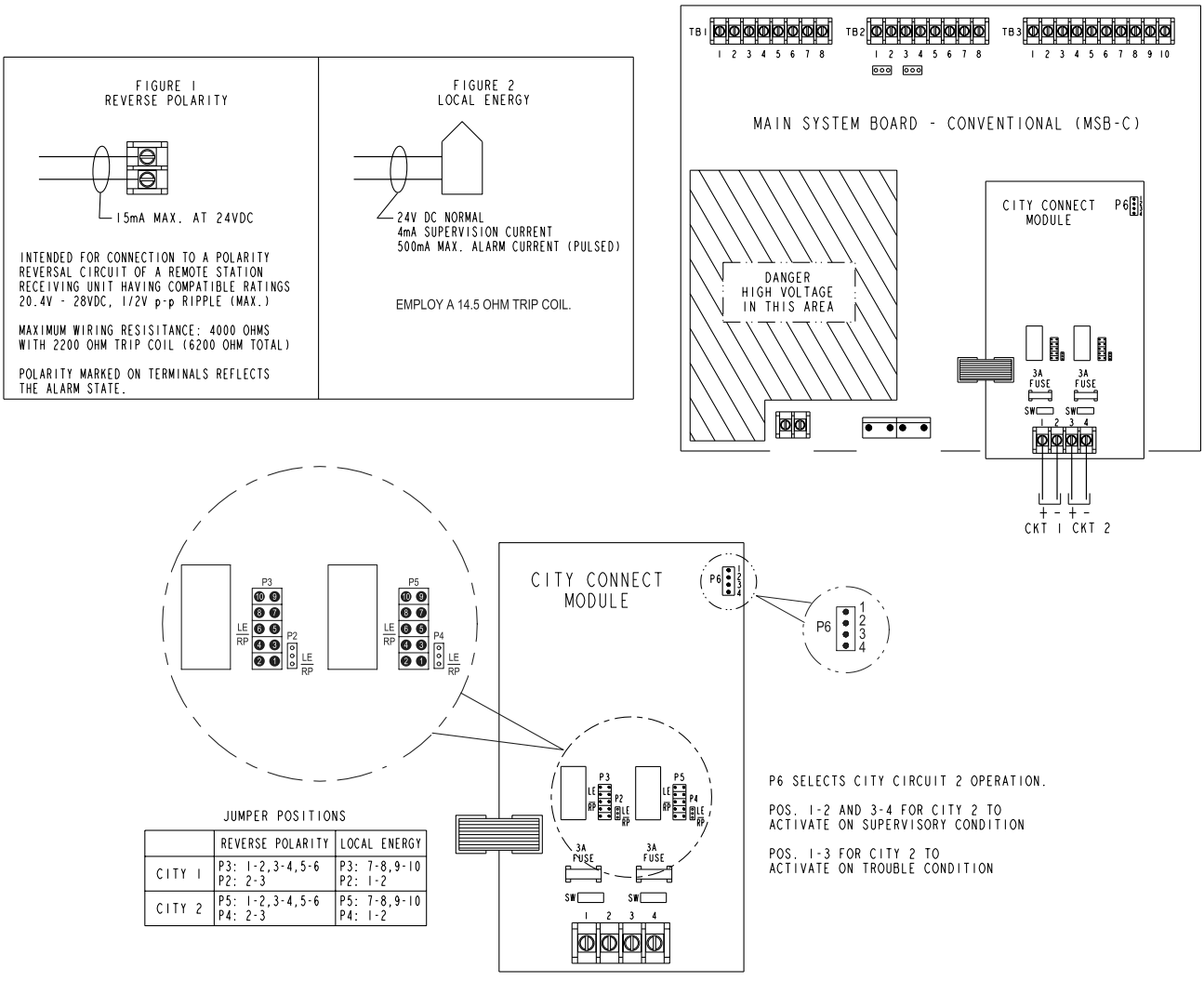


Figure 2-13 City Connect Module Wiring

Auxiliary 24 V Wiring

- All wiring must be 18 AWG (minimum) to 12 AWG (maximum).
- Conductors must test free of all grounds and stray voltages before connection to appliances, devices, and panel.
- All wiring is supervised and power-limited.
- Voltage rating (24 VDC special application): 1 V p-p ripple (maximum)
  - 0.5 A maximum available aux 24 V from EPS
  - Additional 0.5 A maximum available from Main System Board (MSB) AUX 24 V
  - 3 A total available from MSB NACs and MSB AUX 24 V.
  - 3 A total available from EPS NACs and EPS AUX 24 V.
- Compatible with Simplex 4098 Series Peripherals; 2098 Series Relay Modules; all Simplex 4090 Series IDNet Peripherals; and 4610-9111 / 4606-9101 Annunciators.
- If wiring is routed outside the building, use of a listed secondary protector is required. Use Simplex Model 2081-9028 or 2081-9044. A protector must be installed at each building exit/entrance. Each 2081-9044 adds 6 ohms wiring resistance, and is rated for 200mA. Each 2081-9028 adds .2 ohms wiring resistance, and is rated for more than 1/2A Aux. 24V capacity.
- Compatible devices must operate from a range of 19.5 to 28 VDC or greater, and have a total current draw of 1/2 A or less.

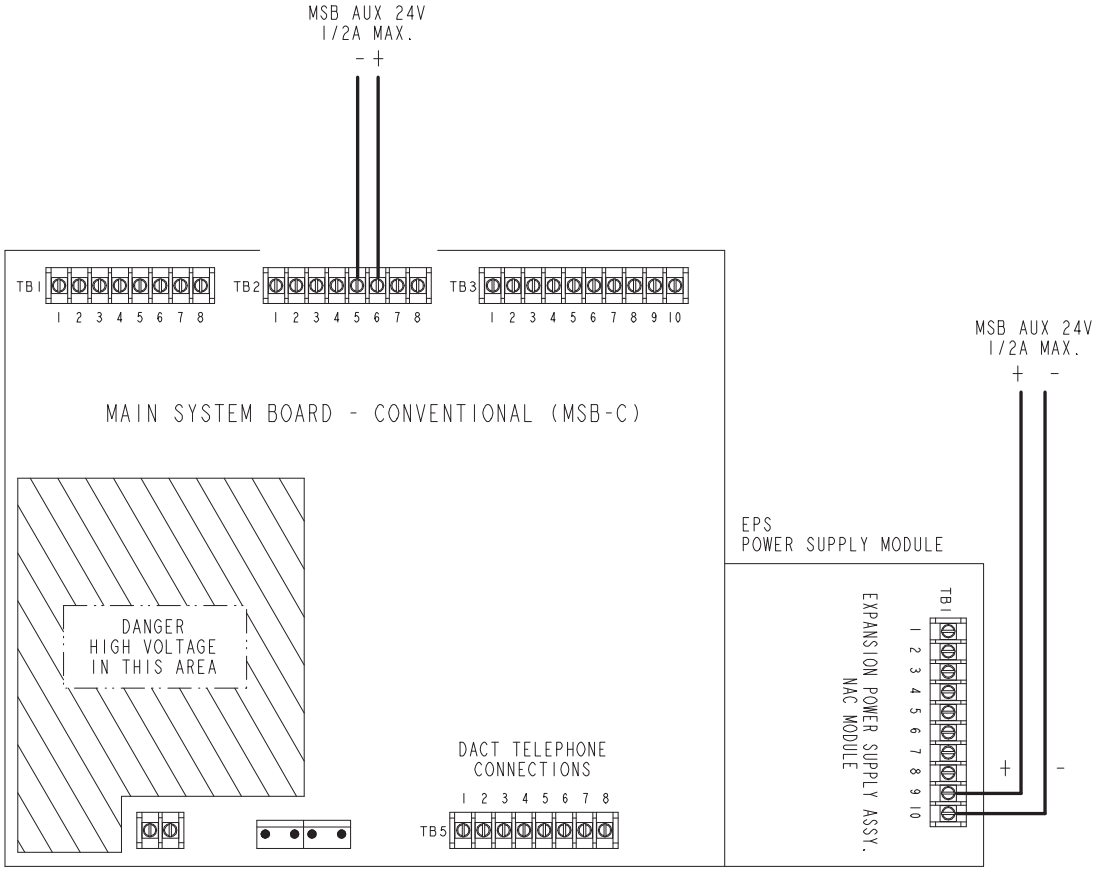


Figure 2-14 Aux 24V Wiring

Connecting to AC Power

- Before handling AC feed, use a voltmeter to verify the feed is not live. Make sure the circuit is de-energized and tagged to prevent injury.
- AC feed must be routed in the wiring area below the main system board, in the area designated “not power limited.”
- AC power must be wired from a dedicated circuit breaker or fuse, rated 20 A, per NFPA-72, NEC, and local codes.
- AC supply wiring must be 14 AWG minimum to 12 AWG maximum.
- Connect a 12 AWG copper ground wire from safety ground in the electrical distribution panel to the panel safety ground stud.
- Input voltage range:
  - 120 VAC, 60 Hz
  - 240 VAC, 50Hz
  - No configuration settings required to select
- The Expansion Power Supply (EPS) is an option, and requires AC power when used. Connect the Black/ White AC harness from the EPS to the TB4 AC input terminals on the main system board. Wire Black to the left terminal of TB4. Wire White to the right terminal of TB4.
- AC wiring is supervised. Safety ground wire is not supervised.
- Supply Power Requirements
  - 120 VAC 60 Hz, 2A maximum
  - 240 VAC 50 Hz, 1.5A maximum

1. Remove insulating cover marked with the high voltage warning.
2. Connect AC feed wires to terminal block located at bottom left of board. Terminals are labeled LINE (120V) and NEUTRAL. Wire the AC feed through the ferrite bead (provided). Refer to Figure 2-18.
3. Before applying AC power to the system, connect the batteries per the instructions on the following page, and replace the protective cover removed in step 1.
4. Connect Safety Ground from electrical service to mounting stud (see Figure 2-18) marked with Earth symbol. Use a terminal lug that is suitable for the ground wire and nut used.
5. Replace protective cover.

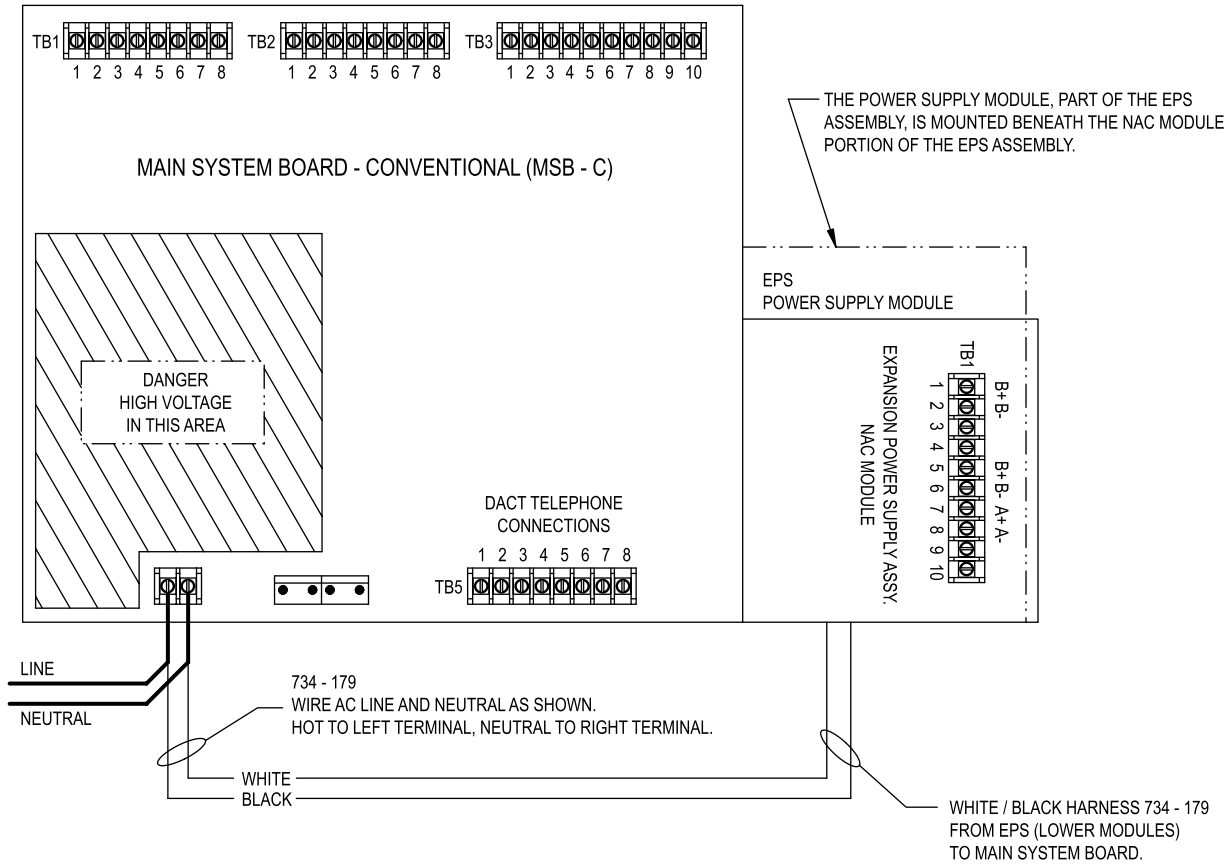


Figure 2-15 AC Wiring

Wiring Battery Power

- The main battery harness connects the main system board to the battery set in the same cabinet.
- The system requires 24V battery backup. Use two 12V batteries, connected in series. The main battery harness connects to the .250” fast-on battery terminals, as follows:
  1. Connect black wire to the negative battery terminal of Battery 1
  2. Connect white wire from the positive battery terminal of Battery 1 to the negative battery terminal of Battery 2.
  3. Connect the red wire to the positive battery terminal of Battery 2.
- Connect the main battery harness to the four-position header, located approximately in the center of the bottom edge on the main system board. Insert the connector left-justified, with the red wire to the left.
- The EPS connects to the battery header next to the battery harness described in the previous bullet. Install the EPS red/black harness right-justified to the battery header, with the black wire to the right.
- Battery circuit is supervised, but not power-limited.
- For depleted battery cutout operation, remove jumper per installation instructions. Separate jumper removal required for main system board and EPS. System programming option “Depleted Battery Cutout” must also be selected. ULC-S527 depleted battery operation requires jumper removal.
- For 18 Ah or larger batteries, the 4009-9801 external battery cabinet must be used. Mount the battery box within 20 feet of the control panel, in accordance with the mounting instruction label in the box. All interconnecting wiring must be enclosed in conduit.

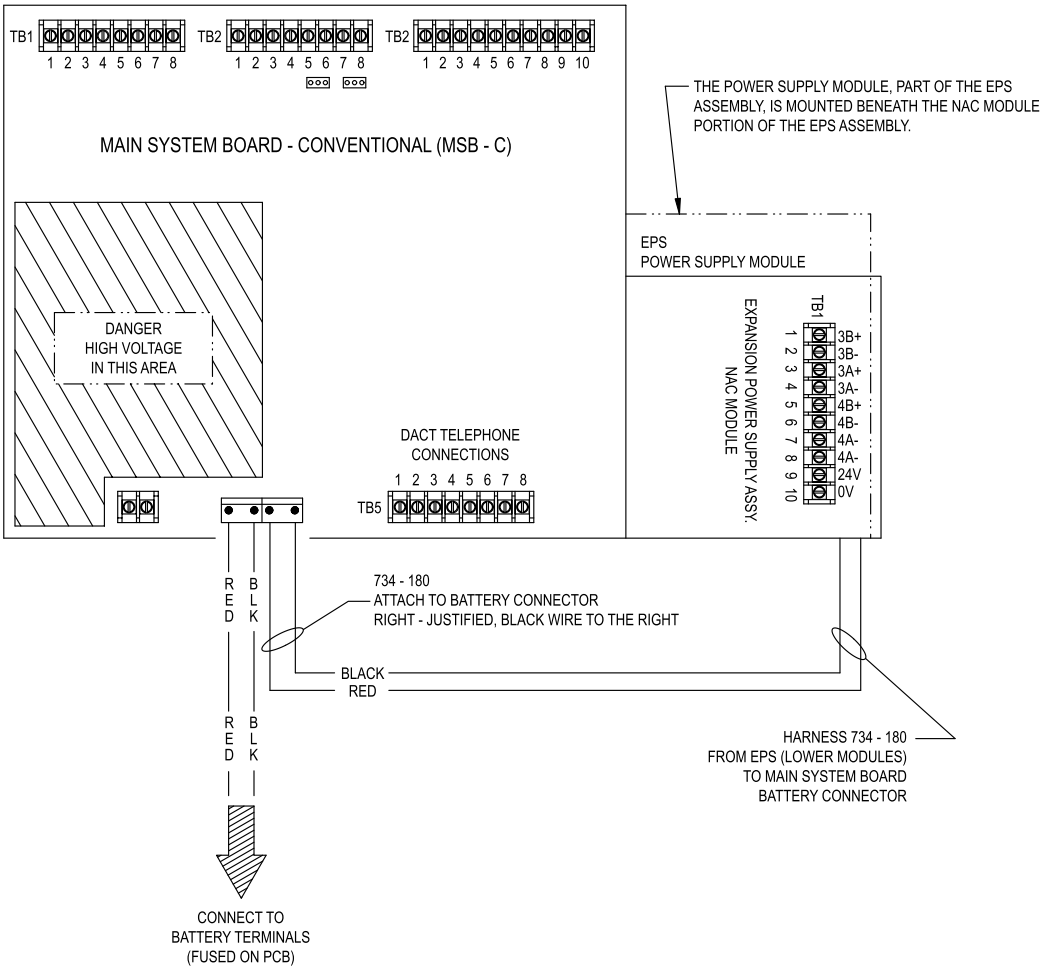


Figure 2-16 Battery Connections

Depleted Battery Cutout

For depleted battery cutout, remove the jumper shown in Figure 2-17 from the main system board. If you are using an Expansion Power Supply (EPS), you must also remove Jumper R76 from the EPS. (When programming the panel, make sure to enable the Depleted Battery Cutout system option.)

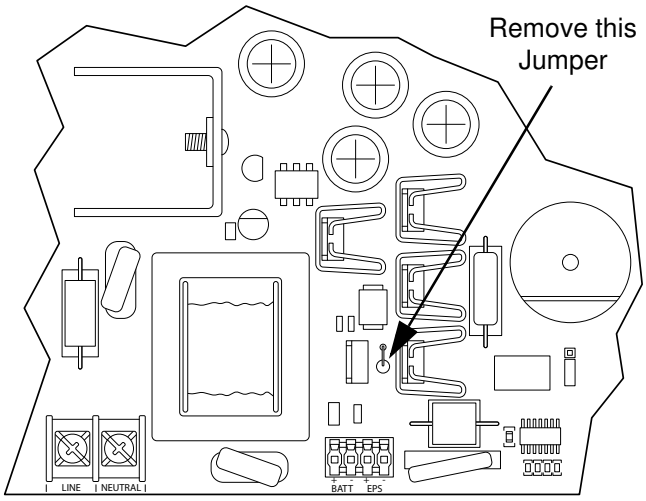


Figure 2-17 Location of Depleted Battery Jumper

Safety Ground/Ferrite Bead

Proper operation and protection against transient energy per UL864 and ULC-S527 requires connection of safety ground wire to cabinet chassis as shown in Figure 2-18.

In addition, a ferrite bead must be attached to the incoming AC power line as shown in the figure. Wrap the LINE and Neutral legs of the power line twice through the ferrite bead.

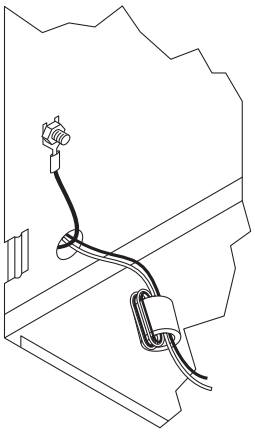


Figure 2-18 Safety Ground and Ferrite Bead

System Powerup and Checkout

Use the following procedure to apply AC and battery power to the 4006.

On power up, the panel performs the following:

- Displays revision of boot-loader software
- CPU self test
- Link Scan - checks for a programming unit connection
- Memory Test - Verifying system and job-specific software
- Startup - 4006 Exec startup

If the panel successfully completes its start up self-test, it will indicate a warm or cold start trouble, which clears when acknowledged. If there are no other troubles in the system, the following is displayed:

SYSTEM NORMAL
12:00 am 21-FEB-03

If other troubles exist in the system, the following is displayed:

FIRE	SUPV	TRBL
00	00	02

Pressing the <TROUBLE ACK> key allows the operator to acknowledge the troubles (silencing the panel sounder) and scroll through the troubles on the active Trouble List.

If the 4006 self-test fails, the panel displays an error code and waits 30 seconds before attempting a restart.

Acceptance Testing

When you are finished with the original installation, programming and all modifications, conduct a complete operational test on the entire installation to verify compliance with applicable NFPA standards and Local Codes. Testing should be conducted in the presence of a representative of the Authority Having Jurisdiction (AHJ), and the customer's representative. Follow procedures outlined in Chapter 10 “Inspection, Testing, and Maintenance” of NFPA standard 72-2002 and as dictated by local codes.

Testing Circuit Supervision

Use the following procedures to confirm that IDCs and NACs are supervising for opens, shorts and grounds. The right column in this table shows the LEDs that illuminate when an open, short, or ground occurs on a specific circuit.

Table 2-4 Testing Circuit Supervision

Condition	Corresponding LEDs
To create an open: • Class B Circuit. Remove the end-of-line resistor from either the IDC or NAC. • Class A Circuit. Disconnect the return wiring from the main system board (NAC only), or from the IDC Class A module.	Illuminates the System Trouble LED.
To create a short: Apply a zero ohm jumper across the IDC or NAC circuit.	Illuminates the System Trouble LED.
To create an Earth ground: Place a 10K or smaller value resistor from supervised wiring to Earth ground.	Illuminates the System Trouble LED. If you have programmed a front panel or annunciator LED to detect Earth ground conditions, the programmed LED also illuminates. Refer to “Common Panel LED Applications” in Chapter 5 of this manual for information on programming an Earth Fault LED.

Replacing Lithium Battery

The panel uses a lithium battery to maintain non-volatile memory on the panel. In the event of a total power-down (AC power and lead-acid battery), the lithium battery allows the panel to maintain all historical logs, time/date information, list of disabled points, and the alarm verification tallies.

Important Note: The lithium battery must be replaced **only** by a qualified service technician.

Periodic Testing and Maintenance

The minimum requirements for periodic testing of the fire alarm system are outlined in chapter 10 of NFPA-72, 2002 edition. Local codes may require additional testing and maintenance. All system components must be tested in accordance with governing codes. Specific details on select system components are provided below.

Smoke Detector Tests

The detectors include magnetically operated functional tests. The magnet tests indicate if the detector is within sensitivity settings. The detector will also indicate whether or not it needs cleaning due to buildup of dirt or dust. This indication is via LED blink codes. The table shown below shows the blink codes associated with the detectors during magnetic test. Refer to the detector installation documents for additional details.

Test mode is activated by placing the magnet at the location indicated by the "I" mark, which is embossed on the detector housing. The visible LED flashes to indicate the detector's condition.

- NORMAL - When in test mode, the detector latches into alarm if the unit is within calibration range. The visible LED stays on, with no blink codes transmitted.
- MORE SENSITIVE - When in test mode, if the detector is too sensitive, (more sensitive than the maximum calibration), the visible LED quickly flashes, at a twice per second rate. Following the sixth flash, the detector latches into alarm and the visible LED stays ON.
- LESS SENSITIVE - When in test mode, if the detector is less sensitive than the minimum calibration, the visible LED slowly flashes, at a rate of one flash every two seconds. Following the fourth flash, the detector latches into alarm and the visible LED stays ON.

Table 2-5 Test Modes

State	Normal	Test Mode		
	LED flashes every 4 seconds	LED fast-flashes six times	LED slow-flashes four times	Latches in alarm LED stays ON
Normal	X			X
More Sensitive	X	X		X
Less Sensitive	X		X	X
Not Functioning			X	

Battery Tests

The batteries used with the 4006 FACP are sealed lead-acid type. The battery charger is temperature compensated per battery manufacturer recommendations. There is no charger voltage adjustment. Batteries should be tested by discharging them with a suitable tester and verifying that battery voltage is at least 21V when fully discharged. Battery discharge tests should be performed annually, and batteries should be replaced no longer than 4 years from date of installation. Batteries should be installed within six months of the date of manufacture. At normal room temperature, battery voltage should be 27-27.6V when the battery set is fully charged. At higher temperatures, the voltage will be lower. At lower temperatures, the voltage will be higher. The battery charger has a negative temperature coefficient. At higher temperatures, the chemical process in the battery is accelerated. This means that the ideal charger voltage is lower. Likewise, at lower temperatures, a higher output volt-

age is required for full charge. Control of battery charge voltage relative to ambient temperature prolongs battery life. The chart below shows the proper range of battery voltage across the specified operating range of the equipment. The chart is for 12-cell battery sets, with nominal 24V rating.

Table 2-6 Voltage Versus Temperature

Temp (C)	Temp (F)	V/cell (min.)	V/cell (max)	Min. Battery Voltage	Max. Battery Voltage
0	32	2.294	2.367	27.53	28.40
5	41	2.284	2.352	27.41	28.22
10	50	2.274	2.337	27.29	28.04
15	59	2.264	2.322	27.17	27.86
22.2	72	2.250	2.300	27.00	27.60
25	77	2.244	2.292	26.93	27.50
30	86	2.234	2.277	26.81	27.32
35	95	2.224	2.262	26.69	27.14
40	104	2.214	2.247	26.57	26.96
45	113	2.204	2.232	26.45	26.78
49	120.2	2.196	2.220	26.36	26.64

Chapter 3. Programming IDCs, NACs, and AUX Relays

NOTICE TO 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.			
Program Feature or Option	Permitted in UL 864? (Y/N)	Possible Settings	Settings Permitted in UL 864
IDC Function Type	Y	FIRE, WATER, HEAT, DUCT, PULL, SMOKE, SO, WSO, SUPV, UTIL, TROUBLE, VSMOKE, STYLEC, LATSUPV	FIRE, WATER, HEAT, DUCT, PULL, SMOKE, SO, WSO, SUPV, TROUBLE, VSMOKE, STYLEC, LATSUPV
NAC Function Type	Y	QALERT, SSIG, RSIG, SUPV, TRBL, UTILITY	QALERT, SSIG, RSIG, SUPV, TRBL
Relay Function Type	Y	SRELAY, RRELAY, SUPV, TRBL, UTILITY, PRIMARY, ALTERN, DRESET, DHOLDER, TEMPORAL, STEADY, SYNCH, 20 BPM, 120 BPM	SRELAY, RRELAY, SUPV, TRBL, PRIMARY, ALTERN, DRESET, DHOLDER, TEMPORAL, STEADY, SYNCH, 20 BPM, 120 BPM

This chapter describes setting the characteristics of each initiating device, notification appliance, and the programmable AUX relay to the specific values required for the job. Refer to Chapter 4 for information on programming the DACT; refer to Chapter 5 for information on programming annunciator LEDs.

You can set the following attributes for each of the panel's IDCs, NACs, and AUX Relays:

- **Function Type**. Determines the operation of the point. For a NAC or relay, for example, you can set whether the device turns off on silence or reset, etc.
- **Label.** Up to 20 characters can be used to create a custom label for the point. A word library, containing common words associated with fire alarm points, and an alphanumeric keypad allow labels to be quickly and accurately created.
- **Alarm Group**. Applies to NACs, Relays, and Initiating Device Circuit points. Allows you to define selective signalling groups. Each NAC or Relay point can be associated with up to three alarm groups, allowing you to specify which initiating devices are allowed to activate the device.

In This Chapter

Keep the following in mind if you are adding or deleting an expansion IDC module.

- **Adding Expansion IDCs** (only if 4006-9802 Expansion IDC Module is installed). To add an expansion IDC module to the job, set the "Exp IDC" system option, described in Chapter 6 of this manual, to ON.
- **Deleting Expansion IDCs** (only if 4006-9802 Expansion IDC Module was previously installed and has been removed). To delete an expansion IDC module from the job, change the setting of the "Exp IDC" system option from ON to OFF. The "Exp IDC" option is described in Chapter 6 of this manual.

If an Expansion Power Supply Module is installed in the system, you must first set the Expansion Power Supply system option to ON before programming NACs. Refer to Chapter 6 - System Options for information on doing this.

All operations described in this chapter require you to first login at Access Level 4. See Chapter 1 for information on doing this.

Note: The <Exit/Clear> key is used to back out of menus or displays and return to the top-level menu structure. Where possible, the <Exit/Clear> key backs out one level at a time. There are cases, however, that the Exit/Clear key will return the operator directly to the top-level menu.

Default General Alarm Programming

The panel ships with the following default programming installed on the panel.

- All IDCs are configured as general fire alarm monitor zones.
- NAC1 and NAC2 are configured for on-til-silence operation (temporal coding).

Accessing Menus

Use the following steps to gain access to the programming menu.

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

2. Press <ENTER>. The Programming menu appears. [Points] is the default selection, which allows you to make changes to a specific point's programming.

   <ENTER>=Accept
   Prg:[Points]

3. Press <ENTER>. A prompt appears, allowing you to select the type of point to manually edit. By default, [IDC] is the first choice.

   <ENTER>=Accept
   Prg:[IDC]

4. Use the <NEXT> and <PREV> keys to scroll to the appropriate choice and then press <ENTER>.
   - IDC
   - NAC
   - RELAY (Use for on-board and expansion relays).

Select the operation you want to perform and see the appropriate section in this chapter. (The other options that appear when you perform Step 4 -- LED, Input, User SW LED -- apply to annunciators. Programming annunciator points is described in Chapter 5 of this manual.)

Editing IDCs

Editing an IDC allows you to change the following attributes for each circuit.

- Function - change the functional characteristics of each IDC zone (i.e., change the zone from a Fire monitoring zone to a Supervisory zone).
- Alarm Group. Assign the IDC to up to three system alarm groups.
- Edit/Clear Label. Allows you to assign or clear the 20-character custom label for the zone.

Setting IDC Function Type

The Function Type determines the way in which the IDC operates (whether the zone is a fire, trouble, waterflow/sprinkler zone, etc.).

1. Follow the steps in "Accessing Menus". Make sure to choose IDC as the type of device to program.

   <ENTER>=Accept
   Prg: [IDC]

2. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   IDC: [Add]

3. Use the <NEXT> and <PREV> keys to scroll through the choices until [Edit] is displayed.

   <ENTER>=Accept
   IDC: [Edit]

4. Press Enter. Information on the first IDC in the list appears.

   IDC1
   Fire M1

   The top line shows the custom label assigned to the first IDC point (IDC1 in the example). Use the <NEXT> and <PREV> keys to scroll through the list of IDC circuits.

5. Press <ENTER> when the appropriate IDC is displayed. A prompt appears, asking you to specify the function type.

   IDC1
   Fn: [Function]

6. Press <ENTER> and use the <NEXT> and <PREV> keys to scroll through the choices shown in Table 3-1. The default function type assigned to all IDCs is FIRE.

7. Pressing <ENTER> will accept any changes made and exit, and the <EXIT/CLEAR> key quits editing without saving.

Note: Refer to table located at top of Page 3-1 for UL 864 compliant options.

Table 3-1 IDC Function Types

Function Type	Device State = Status	Description
FIRE	Normal = NORMAL Abnormal = FIRE Short = FIRE Open = TROUBLE	Fire Monitor Zone
WATER	Normal = NORMAL Current Limited = FIRE Short = FIRE Open = TROUBLE	Waterflow Monitor Zone
HEAT	Normal = NORMAL Current Limited = FIRE Short = FIRE Open = TROUBLE	Heat Detector Zone
DUCT	Normal = NORMAL Current Limited = FIRE Short = FIRE Open = TROUBLE	DUCT Detector Zone
PULL	Normal = NORMAL Current Limited = FIRE Short = FIRE Open = TROUBLE	Pull Station Zone
SMOKE	Normal = NORMAL Current Limited = FIRE Short = FIRE Open = TROUBLE	Smoke Detector Zone
SO	Normal = NORMAL Current Limited = Supervisory Short = Supervisory Open = TROUBLE	Sprinkler Supervisory Zone
WSO	Normal = NORMAL Current Limited = Supervisory Short = Alarm Open = TROUBLE	Combination Waterflow & Water Supervisory Zone
SUPV	Normal = NORMAL Abnormal = SUPERVISORY Short = SUPERVISORY Open = TROUBLE	Supervisory Monitor
UTIL	Normal = OFF Abnormal = ON Short = ON Open = TROUBLE	Supervised Utility Monitor
TROUBLE	Normal = NORMAL Abnormal = TROUBLE Short = TROUBLE Open = TROUBLE	Trouble Monitor
VSMOKE See note below.	Normal = NORMAL Abnormal = VERIFY Short = FIRE Open = TROUBLE	Verified fire alarm - the abnormal (current-limited) state causes the alarm verification cycle to start. A short is an immediate alarm.
STYLEC	Normal = NORMAL Abnormal = FIRE Short = TROUBLE Open = TROUBLE	Style C Fire Monitor
LATSUPV	Normal = NORMAL Abnormal = SUPERVISORY Short = SUPERVISORY Open = TROUBLE	Latching Supervisory Monitor (supervisory latches until System Reset).

Table 3-1 IDC Function Types

Note: The alarm verification cycle works on a per-zone basis as follows. If a device with the function type VSMOKE enters a current-limited state, the alarm verification cycle begins. The panel starts a delay timer of 30 seconds. When the timer expires, the zone containing the activated detector is reset. Following the reset, another 10 second timer starts. When the 10 second timer expires, the system checks the zone for an alarm. If a current-limited condition exists on the zone, the panel initiates a fire alarm. If no current-limited condition exists, the panel starts a 2 minute timer. While the timer is counting down, any current-limited condition on any zone will trigger a fire alarm.

A short from a pull-station always triggers an alarm condition, regardless of the alarm verification cycle.

At any stage of the alarm verification cycle, the presence of two devices in alarm triggers an alarm condition.

The VSMOKE function type shall not be enabled for Canadian applications.

Entering Labels

1. Follow the steps in "Accessing Menus". Make sure to choose IDC as the type of device to program.

   <ENTER>=Accept
   Prg: [IDC]

2. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   IDC: [Add]

3. Use the <NEXT> and <PREV> keys to scroll through the choices until [Edit] is displayed.

   <ENTER>=Accept
   IDC: [Edit]

4. Press Enter. Information on the first IDC in the list appears.

   IDC1
   Fire M1

   The top line shows the custom label assigned to the first IDC point (IDC1 in the example). Use the <NEXT> and <PREV> keys to scroll through the list of IDC circuits.

5. Press <ENTER> when the appropriate IDC is displayed. Use the <NEXT> and <PREV> keys to scroll through the choices until <Edit Label> or <Clear Label> appears. (Edit Label preserves the existing label and allows editing. Clear Label deletes the existing label first and then allows editing.)

   IDC1
   Fn: [Edit Label]

6. Press <ENTER>. A cursor appears beneath the leftmost letter of the currently assigned custom label. Use the left and right arrow keys to move the cursor between letters.

   You can edit a label in one of three ways:

   - Using the Keypad. Press the alphanumeric key corresponding to the letter you want. For example, for the letter "C", press the "2" key on the keypad three times. Use the left and right arrow keys to move to the next letter in the label.
   - Use the <NEXT> and <PREV> keys. Each time you press the <NEXT> key, the display advances to the next character. Likewise, each press of the <PREV> key moves backward one character. Use the left and right arrow keys to move to the next letter in the label.
   - Use the Word Library, which is a stored list of common words sorted alphabetically. Press the <FUNCTION> key on the front panel. A prompt similar to the following appears.

     IDC1
     <FUNC>=Word Library

     To jump to a word, press the alphanumeric key corresponding to the first letter in the word. For example, to use the word Floor, press the "3" key repeatedly until Floor appears.

     The following is a list of all words in the library.

Table 3-2 Word Library

Default of blanks	5th	Floor
North	Flr_1	Garage
South	Flr_2	Hallway
East	Flr_3	HVAC_Room
West	Flr_4	Kitchen
Front	Flr_5	Lobby
Center	RM __	Office
rear	Basement	Patient

Table 3-2 Word Library (Continued)

upper	Boiler_RM	Restroom
lower	Classroom	Room
main	Closet__	Stairway
first	Corridor	Storeroom
2nd	Elect_RM	Wing
3rd	Elevator	Zone
4th	Entrance	

7. Pressing <ENTER> saves the current label. Pressing <EXIT/CLEAR> will quit label editing without saving.

Editing Alarm Groups

Alarm groups allow you to program selective signaling. Assign the IDC an alarm group number from 1 to 99. Assign the same alarm group number to the notification appliances that you want to turn on when one of the IDCs in the alarm group activates. Each IDC can be in up to three groups.

1. Follow the steps in "Accessing Menus". Make sure to choose IDC as the type of device to program.

   <ENTER>=Accept
   Prg: [IDC]

2. Press <ENTER>. Use the <NEXT> and <PREV> keys to choose EDIT, and then press <ENTER>. Use <NEXT> and <PREV> keys to choose the circuit (IDC1, IDC2, etc.) to program.

   IDC1
   FIRE M1

3. Press <ENTER> and then press the <NEXT> and <PREV> keys until [Alarm Groups] is displayed. For example:

   IDC1
   Fn: [Alarm Groups]

4. Press <ENTER>. A prompt similar to the following appears.

   ALARM GROUPS
   [99] 00 00

5. Use the <NEXT> and <PREV> keys to scroll the number in the brackets. Use the right and left arrow keys to move between the alarm groups. Press <ENTER> when all the values are set correctly.

Programming NACs

Use the following procedure to edit the programming of the two Notification Appliance Circuits (NACs) on the base panel, or the two optional NACs on the expansion power supply. NACs cannot be added or deleted - only edited.

Note: If the panel is using an Expansion Power Supply, set the EXP POWER system option to ON before programming NACs.

NAC editing provides the following options:

- Edit Function, which defines the following for a NAC:
  - When the NAC activates and deactivates.
  - The "output method" used by the NAC when it activates (coded, steady, etc.).
- Alarm Group
- Edit Point Label
- Clear Point Label

Setting NAC Function Type

The Function Type determines the way in which the NAC operates (whether it is an audible, visual, etc.) and its output method (steady, etc.)

1. Follow the steps in "Accessing Menus". Make sure to choose NAC as the type of device to program

   <ENTER>=Accept
   Prg: [NAC]

2. Press <ENTER>, and then use <NEXT> and <PREV> keys to choose the circuit (NAC1, NAC2, NAC3, or NAC4) to program.

   NAC1
   Signal 1/4

3. Press <ENTER> when the appropriate NAC is displayed. A prompt appears, asking you to specify the function type.

   NAC1
   Fn: [Function]

4. Press <ENTER>. As shown in the example below, the NAC function type is comprised of two parts -- the function (On Till Silence, On Till Reset, etc.) and the coding pattern (temporal, 120 BPM, etc.)

NAC1
[SSIG] TEMPRL

5. Use the <NEXT> and <PREV> keys to select the appropriate Function. Use the right arrow key (>)to move the cursor to the coding pattern, and then use the <NEXT> and <PREV> keys to set the pattern. Refer to Table 3-3 and Table 3-4 for information on NAC function types and coding patterns.

6. Pressing <ENTER> will accept any changes made and exit, and the <EXIT/CLEAR> key quits editing without saving

Note: Refer to table located at top of Page 3-1 for UL 864 compliant options.

Table 3-3 NAC Function Types

Function Type	Description
QALERT	General Alarm Horn/Strobe (horn on-til-silence; strobe on-til-reset). Use for NAC circuits containing *both* horns and strobes. Compatible visual-only devices include: • 4906-9101, wall-mount, visual-only, red • 4906-9102, ceiling-mount, visual-only, red • 4906-9103, wall-mount, visual-only, white • 4906-9104, ceiling-mount, visual-only, white Compatible A/V devices include: • 4906-9127, wall-mount, red • 4906-9128, ceiling-mount, red • 4906-9129, wall-mount, white • 4906-9130, wall-mount, red Compatible audible-only devices include: • 4901-9820, wall-mount, red, horn only. Horn must be selected for two-wire horn strobe control. See Horn Instruction manual.
SSIG	General Alarm (on til-silence). Use for NAC circuits containing only audible devices. Compatible audible-only devices include: • 4901-9820, wall-mount, red, horn only.

Table 3-3 NAC Function Types

Function Type	Description
RSIG	General Alarm (on steady-til-reset). Use for NAC circuits containing visual-only devices. Set NAC Coding Pattern (see Table 3-4) to SYNC. Compatible devices include: • 4906-9101, wall-mount, visual-only, red • 4906-9102, ceiling-mount, visual-only, red • 4906-9103, wall-mount, visual-only, white • 4906-9104, ceiling-mount, visual-only, white
SUPV	NAC activates when there is a supervisory condition active in the system. NAC is on until supervisory condition is cleared.
TRBL	NAC activates when there is a trouble condition active in the system. NAC is on until trouble condition is acknowledged.
UTILITY	NAC activates when an IDC with the following attributes activates: • IDC must be in same alarm group as utility NAC. • IDC must be assigned a Utility function type. Typically used for process monitoring function. For example, a relay on a machine is tied to the IDC. When the relay activates, the utility IDC activates and triggers the utility NAC.

Table 3-4 NAC Coding Patterns

Operation	Description
Temporal	Standard Temporal coded pattern. A three pulse coding pattern consisting of three ½ second pulses, each separated by ½ second silence. Each group of three pulses is separated by 1.5 seconds of silence.
Synch	Generates synchronization pulse for visual-only NAC circuits that use the following visual-only devices. • 4906-9101, wall-mount, visual-only, red • 4906-9102, ceiling-mount, visual-only, red • 4906-9103, wall-mount, visual-only, white • 4906-9104, ceiling-mount, visual-only, white
Steady	Steady On
20 BPM	Slow March Time - 20 beats per minute
120 BPM	Fast March Time - 120 beats per minute

Editing Point Label

This option allows you to assign a 20-character custom label to each NAC point.

1. Follow the steps in "Accessing Menus." Make sure to choose NAC as the type of device to program.

   <ENTER>=Accept
   Prg: [NAC]

2. Press <ENTER>, and then use <NEXT> and <PREV> keys to choose the circuit (NAC1, NAC2, NAC3, or NAC4) to program.

   NAC1
   Signa1 1/4

3. Use the <NEXT> and <PREV> keys to scroll through the choices until <Edit Label> or <Clear Label> appears. (Edit Label preserves the existing label and allows editing. Clear Label deletes the existing label first and then allows editing.)

   NAC1
   Fn: [Edit Label]

4. Press <ENTER>. A cursor appears beneath the leftmost letter of the currently assigned custom label. Use the left and right arrow keys to move the cursor between letters.

   You can edit a label in one of three ways:

   - Using the Keypad. Press the alphanumeric key corresponding to the letter you want. For example, for the letter "C", press the "2" key on the keypad three times. Use the left and right arrow keys to move to the next letter in the label.
   - Use the <NEXT> and <PREV> keys. Each time you press the <NEXT> key, the display advances to the next character. Likewise, each press of the <PREV> key moves backward one character. Use the left and right arrow keys to move to the next letter in the label.
   - Use the Word Library, which is a stored list of common words sorted alphabetically. Press the <FUNCTION> key on the front panel. A prompt similar to the following appears.

     NAC1
     <FUNC>=Word Library

     To jump to a word, press the alphanumeric key corresponding to the first letter in the word. For example, to use the word Floor, press the "3" key repeatedly until Floor appears.

     Refer back to Table 3-2 for a list of words in the library.

5. Pressing <ENTER> saves the current label. Pressing <EXIT/CLEAR> will quit label editing without saving.

Editing Alarm Groups

Alarm groups allow you to program selective signaling. Assign the NAC an alarm group number from 1 to 99. Assign the same alarm group number to the initiating device(s) that you want to control the NAC. Each NAC can be in up to three groups.

1. Follow the steps in "Accessing Menus". Make sure to choose NAC as the type of device to program

   <ENTER>=Accept
   Prg: [NAC]

2. Press <ENTER>, and then use <NEXT> and <PREV> keys to choose the circuit (NAC1, NAC2, NAC3, or NAC4) to program.

   NAC1
   Signal 1/4

3. Press <ENTER> and then press the <NEXT> and <PREV> keys until [Alarm Group] is displayed. For example:

   NAC1
   Fn: [Alarm Groups]

4. Press <ENTER>. A prompt similar to the following appears.

   ALARM GROUPS
   [99] 00 00

5. Use the <NEXT> and <PREV> keys to scroll the number in the brackets. Use the right and left arrow keys to move between the alarm groups. Press <ENTER> when all the values are set correctly.

Programming AUX Relays

Aux Relay programming allows you to define the following for the first auxiliary relay located on the MSB, and the expansion relays (if installed). (Aux Relay 2 is always a trouble relay.)

- Function, defines the following for a relay.
  - When the Relay activates and deactivates.
  - The "output method" that defines how the Relay activates (coded, steady, etc.)
- Edit or Clear Point Label. Allows you to set a 20 character label for the relay point.
- Alarm Group. Allows you to associate the relay with up to 3 groups of initiating devices, providing the ability to perform selective activation of the relay.

1. Follow the steps in “Accessing Menus.” Make sure to choose Relay as the type of device to program.

   <ENTER>=Accept
   Prg: [Relay]

2. Press <ENTER>, and then use <NEXT> and <PREV> to choose the relay to program.

   AUX1
   Alarm 1/2

3. Press <ENTER>. A prompt for the Function Type displays. For example:

   AUX1
   FN: [Function]

4. Press <ENTER>. As shown in the example below, the function type is comprised of two parts -- the function (On Till Silence Relay, On Till Reset, etc.) and the coding pattern (Steady, 120 BPM, etc.)

   AUX1
   [RRELAY] STEADY

5. Use the <NEXT> and <PREV> keys to select the appropriate Function. Use the right arrow key to move the cursor to the coding pattern, and then use the <NEXT> and <PREV> keys to set the pattern.

6. Pressing <ENTER> will accept any changes made and exit. <EXIT/CLEAR> key will quit the alarm group edit without saving

Note: Refer to table located at top of Page 3-1 for UL 864 compliant options.

Table 3-5 Relay Function Types

Function Type	Description
SRELAY	Relay activates on general alarm; remains on-til-silence.
RRELAY	Relay activates on general alarm; remains on-til-reset.
SUPV	Relay activates when a Supervisory condition occurs; remains on-til-cleared.
TRBL	Relay activates when a Trouble condition occurs; remains on-til-acknowledge.
Utility	Relay activates when a utility IDC in the same alarm group activates.
PRIMARY See Note Below	Relay activates on general alarm. Relay is tied to Primary Elevator Recall contacts.
ALTERN See Note Below	Relay activates on general alarm. Relay is tied to Alternate Elevator Recall contacts.
DRESET	Relay provides 24V power to four wire detectors. Relay turns off for 5 secs on system reset)
DHOLDER	Relay typically provides 24V power to larger door holder relay with separate power source. Relay activates on general alarm and signals door holder relay to cut power to door holder magnets.

Table 3-6 Relay Operation Settings

Operation	Description
Temporal	Standard Temporal coded pattern. A three pulse coding pattern consisting of three ½ second pulses, each separated by ½ second silence. Each group of three pulses is separated by 1.5 seconds of silence.
Steady	Steady On
SYNCH	N/A - Do not use
20 Bpm	Slow March Time - 20 beats per minute.
120 Bpm	Fast March Time - 120 beats per minute.

Note: Elevator recall requires the following:

- The relay must have a function type of Primary or Alternate and must be wired to the appropriate elevator control contact.
- The IDC zones used to trigger elevator recall **must** be associated with the following alarm groups.
  - Alarm Group 98. Associate all zones used to recall the elevator to the primary floor in this alarm group.
  - Alarm Group 97. Associate all zones used to recall the elevator to the alternate floor in this alarm group.

Editing Point Label

This option allows you to assign a 20-character custom label to each relay point.

1. Follow the steps in “Accessing Menus”. Make sure to choose Relay as the type of device to program.

   <ENTER>=Accept
   Prg: [RELAY]

2. Press <ENTER>, and then use <NEXT> and <PREV> keys to choose the relay (AUX1, AUX2, etc.) to program.

   AUX1
   Alarm 1/2

3. Press <ENTER>, and then use the <NEXT> and <PREV> keys until <Edit Label> is displayed. For example:

   AUX1
   Fn: [Edit Label]

4. Press <ENTER>. A cursor appears beneath the leftmost letter of the currently assigned custom label. Use the left and right arrow keys to move the cursor between letters.

   You can edit a label in one of three ways:

   - Using the Keypad. Press the alphanumeric key corresponding to the letter you want. For example, for the letter “C”, press the “2” key on the keypad three times. Use the left and right arrow keys to move to the next letter in the label.
   - Use the <NEXT> and <PREV> keys. Each time you press the <NEXT> key, the display advances to the next character. Likewise, each press of the <PREV> key moves backward one character. Use the left and right arrow keys to move to the next letter in the label.
   - Use the Word Library, which is a stored list of common words sorted alphabetically. Press the <FUNCTION> key on the front panel. A prompt similar to the following appears.

     AUX1
     <FUNC>=Word Library

     To jump to a word, press the alphanumeric key corresponding to the first letter in the word. For example, to use the word Floor, press the “3” key repeatedly until Floor appears.

     Refer back to Table 3-2 for a list of words in the library.

5. Pressing <ENTER> saves the current label. Pressing <EXIT/CLEAR> will quit label editing without saving. Pressing the <ENTER> key will save the current label, and <EXIT/CLEAR> will quit label editing without saving.

Clear Point Label

The "Clear Point Label" menu performs the same function as "Edit Point Label" described above except that it clears the point's currently assigned label first.

Saving Changes

When IDC, NAC, and relay programming is complete, press the EXIT/CLEAR key until the following prompt is shown.

[Cont] Dscrd Save

Use the right arrow key to move the cursor to one of the following options and press <ENTER>.

- Cont - continues the edit session.
- Dscrd - exits the edit session without saving your changes (keeps the job that was loaded before you started editing).
- Save - saves your edit changes

Note: Both discard and save restart the panel.

Chapter 4. Programming the DACT

The panel's DACT (Digital Alarm Communicator Transmitter) allows the panel to use one or two telephone lines to call a supervising station (remote station or central station) and report a local alarm, trouble, or supervisory condition.

This chapter describes programming the DACT options to specify the characteristics of the DACT's phone connection, communication format, and the format of the event or CID codes used by the supervising station.

Login at Level 4 before starting DACT programming. See Chapter 1 for information on doing this.

Note: The <Exit/Clear> key is used to back out of menus or displays and return to the top-level menu structure. Where possible, the <Exit/Clear> key backs out one level at a time. There are cases, however, that the Exit/Clear key will return the operator directly to the top-level menu.

Accessing DACT Menu

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

2. Press <ENTER>. The Programming menu appears:

   <ENTER>=Accept
   Prg:[Points]

3. Press <NEXT> or <PREV> until DACT is shown.

   <ENTER>=Accept
   Prg:[DACT]

4. Press <ENTER>. The following prompt appears.

   <ENTER>=Accept
   DACT: [Options]

In This Chapter

5. Use the <NEXT> and <PREV> keys to select one of the following choices.
   - **Options.** This choice allows you to program a wide range of DACT parameters (supervising station phone numbers and account codes, dialing mode, communications format, etc.). Refer to "Programming DACT Options" below for specific information.

     Note: If no DACT is installed, use this option to disable the DACT. See "Programming DACT Options," below for more information.
   - **Event Codes**. The 3/1, 4/2, BFSK, and SIA communication formats support per-event reporting of fire alarms, trouble conditions, etc. With these formats, the supervising station receives a general code for an event type that does not specify the activated point.

     Use this choice to verify and edit the codes for each event type. Refer to "Programming Event Codes," below for more information.

     Note: Only the 3/1 and 4/2 formats allow editing.
   - **CID Points.** The Contact ID communication format supports per-point reporting of system events. The supervising station receives a code identifying the point and the event type (alarm, trouble, etc.). With this format, the DACT can also send a restoral code to the supervising station after the device experiencing the alarm, trouble, or supervisory condition is restored to a normal state. Use this choice to verify and edit the activation and restoral codes for each point. Refer to "Programming Contact ID (CID) Event Codes," below for more information.

Programming DACT Options

1. Follow the steps in "Accessing DACT Menu". Make sure to choose Options as the type of device to program.

   <ENTER>=Accept
   DACT: [Options]

Enabling/Disabling DACT

1. Press <ENTER> at the DACT: [Options] prompt. The following prompt appears, allowing you to enable or disable the DACT.

   <ENTER>=Accept
   Opt: [Enable DACT]

2. Press <ENTER>. The following appears.

   Enable DACT
   [OFF]

3. Use the <NEXT> or <PREV> keys to change the setting to ON.

   By default, the DACT is enabled, but unconfigured. The DACT will report a configuration trouble until the phone numbers and account numbers are programmed, or until it is disabled if it will not be used.

4. Press <ENTER>. A prompt appears, asking you to confirm the choice.

5. Press <ENTER> to confirm the selection. The prompt shown in Step 1 reappears. Use the <NEXT> key to move to the prompt for primary phone number.

Setting Primary Phone Number

The next prompt allows you to set the Primary Phone Number of the supervising station. This is the number that the DACT dials first.

<ENTER>=Accept
Opt: [Pri Phone #]

1. Press <ENTER>. The following prompt appears.

   Pri Phone #
   [X] XXXXXXXXXXXXXXX

2. Use the arrow keys to move the cursor from one digit to another. Use the keypad numbers, or use the NEXT and PREV keys to enter each number. Press <ENTER> when the number is correctly entered. A prompt appears asking you to confirm the number that you entered.

   Note: The following special characters are available for use when setting the primary and secondary phone numbers.
   - B -- Use if it is necessary to input an DTMF (touch-tone) asterisk (*) into the phone number.
   - C -- Use if it is necessary to input a DTMF pound sign (#) into the phone number.
   - D -- Inserting this character into the phone number causes a 3 second delay at the point at which the D appears.
   - E -- This character causes the DACT to wait two seconds for a secondary (outside line) dial tone. It may be necessary to use this character if you must dial a specific number (9, for example) to get an outside line on the phone system. For example, 9E

would cause the DACT to request an outside line and then wait 2 seconds for the secondary dial tone before proceeding with the rest of the phone number. If you use the "E" special character, **make sure to set the Dial Mode to Tone; do not use Tone else Pulse.**

3. Press <ENTER>. The prompt shown in Step 1 reappears.
4. Press the <NEXT> key. The prompt for the primary account number appears.

Setting Primary Account Number

The primary account number is a unique identifier assigned and used by the Central Station.

```
Pri Account #
[0] 000
```

1. Use the arrow keys to move the cursor from one number to another. Use the NEXT and PREV keys or the keypad to enter each number.
2. Press <ENTER> when the number is correctly entered. A prompt appears asking you to confirm the number that you entered.
3. Press <ENTER>. The prompt shown above Step 1 reappears.
4. Press the <NEXT> key. The prompt for the Secondary Phone Number appears.

Setting Secondary Phone Number

The Secondary Phone Number specifies the alternate phone number that the DACT can use if attempts to dial the primary phone number fail.

Note: You can also use the special characters B, C, D, and E when specifying the Secondary Phone Number. See the description of these characters in the section "Setting Primary Phone Number" above.

```
<ENTER>=Accept
Opt: [Sec Phone #]
```

1. Press <ENTER>. The following prompt appears.

```
Sec Phone #
[X] XXXXXXXXXXXXXXX
```

2. Use the arrow keys to move the cursor from one digit to another. Use the keypad numbers, or use the NEXT and PREV keys to enter each number. Press <ENTER> when the number is correctly entered. A prompt appears asking you to confirm the number that you entered.
3. Press <ENTER> again. The prompt shown above Step 1 reappears.
4. Press the <NEXT> key. The prompt for the Secondary Account Number appears.

Setting Secondary Account Number

The secondary account number is a unique identifier assigned and used by the Supervising Station.

```
Sec Account #
[0] 000
```

1. Use the arrow keys to move the cursor from one number to another. Use the NEXT and PREV keys or the keypad to enter each number.
2. Press <ENTER> when the number is correctly entered. A prompt appears asking you to confirm the number that you entered.
3. Press <ENTER>. The prompt shown above Step 1 reappears.
4. Press the <NEXT> key. The prompt for setting the dialing mode appears.

Setting Dialing Mode

The dialing mode specifies the type of phone line being used by the DACT.

```
<ENTER> = Accept
Dialing Mode
```

1. Press <ENTER>.

```
Dialing Mode
[Tone else Pulse]
```

2. Use the NEXT and PREV keys to move from one choice to another. Choices are tone (touchtone), pulse, and tone else pulse (attempt to dial with a touchtone format and if that fails, use a pulse format).
3. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
4. Press <ENTER>. The prompt shown above Step 1 reappears.
5. Press the <NEXT> key. The prompt for the Pulse Rate appears.

Setting Pulse Rate

The Pulse Rate option specifies the pulse rate used with either the 3/1 or 4/2 pulse format. This option does not apply to other formats.

<ENTER> = Accept
Pulse Rate

1. Press <ENTER>.

Pulse Rate
[20 PPS]

2. Use the NEXT and PREV keys to move from one choice to another. Choices are 20 pulses per second (PPS), which is the default, and 10 PPS.
3. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
4. Press <ENTER>. The prompt shown above Step 1 reappears.
5. Press the <NEXT> key. The prompt for the Pulse Frequency appears.

Setting Pulse Frequency

The pulse frequency specifies the frequency (in KHz) of the pulses used by the DACT.

<ENTER> = Accept
Opt: [Pulse Freq]

1. Press <ENTER>.

Pulse Freq
[1.9KHz Data]

2. Use the NEXT and PREV keys to move from one choice to another. Choices are

1.9 KHz
1.8 KHz

3. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
4. Press <ENTER>. The prompt shown above Step 1 reappears.
5. Press the <NEXT> key. The prompt for the Reporting Format appears.

Reporting Format

Before you select the Communications Format Code, determine, from an authorized person at the Supervising Station, the required reporting format.

<ENTER> = Accept
Opt: [Report Format]

1. Press <ENTER>. The following prompt appears.

Report Format
[Contact ID]

The DACT can report in any of the following communication formats.

- **3/1 pulse** = Three-digit account code followed by one-digit reporting code, double round at 20 pulses per second (PPS). Allows programmable reporting codes. Refer to “Programming Event Codes” later in this chapter.
- **4/2 pulse** = Four-digit account code followed by two-digit reporting code, double round at 20 PPS. Allows programmable reporting codes. Refer to “Programming Event Codes” later in this chapter.
- **BFSK** = Three-digit account code followed by two-digit reporting code, single transmission of constant tones. Features built-in error checking and fixed reporting codes.
- **SIA** = Level 1 compatibility. Four-digit account code features tonal acknowledge, basic reports, and fixed reporting codes.
- **Contact ID (Default).** Uses a four digit account code, followed by a two- digit group number and three digit contact number.

2. Use the NEXT and PREV keys to move from one choice to another.
3. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
4. Press <ENTER>. The prompt shown above Step 1 reappears.
5. Press the <NEXT> key. The prompt for the AC Fail Delay appears.

AC Fail Delay

The AC Fail Delay allows you to specify the interval between power loss at the panel and when the DACT notifies the central station of the power loss. AC fail delay is selectable from 0-24 hours.

AC Fail Delay
[06] Hrs

1. Use the NEXT and PREV keys to move from one choice to another.
2. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
3. Press <ENTER>. The prompt shown above Step 1 reappears.

4. Press the <NEXT> key. The prompt for the Test Report Time appears.

Test Report Time

This option specifies the time at which the Test Report Event is sent to the supervising station. Time is set in 24 hour, military format.

<ENTER> = Accept
Opt: [Test Rpt Time]

1. Press <ENTER>.

Test Rpt Time
[02] : 00

2. Use the NEXT and PREV keys to increment or decrement the hour setting (two digits on left). Use the right arrow key to move the cursor to the minutes (two digits on right). Use the NEXT and PREV keys to increment or decrement the minutes setting.
3. Press <ENTER> to accept the choice. A prompt appears asking you to confirm the choice.
4. Press <ENTER>. The prompt shown above Step 1 reappears.
5. Press the <EXIT/CLEAR> key. The prompt for setting DACT options reappears. Press the <NEXT> key to access either the CID Points or Event Codes menus.

Programming Contact ID (CID) Points

Follow the procedure below only if the DACT is using the Contact ID (CID) reporting format. CID reporting format requires you to specify the group and Contact ID for each point, but there is no need to specify the type of event with the CID format. This information is automatically derived from the point's function type.

Note: Default CID point values are provided in the panel. Before changing these values, please contact an authorized representative at the supervising station.

Table 4-1 Default CID Event Codes

Function Type	Fire	Supervisory	Trouble
FIRE	110	-	330
WATER	113	-	330
HEAT	114	-	330
DUCT	116	-	330

Table 4-1 Default CID Event Codes

Function Type	Fire	Supervisory	Trouble
PULL	115	-	330
SMOKE	111	-	330
SO	-	200	330
WSO	110	200	330
SUPV	-	200	330
UTIL	-	-	330
TROUBLE	-	-	330
VSMOKE	111	-	330
LATSUPV	-	200	330
STYLEC	110	-	330
OTHER TRBL*	-	-	330

*Any other trouble not specifically mentioned would have a code of 330. For example, a trouble on an output device would report an event code of 330.

1. Follow the steps in "Accessing DACT Menu," earlier in this chapter. Use the <NEXT> or <PREV> keys to choose CID Points.

<ENTER>=Accept
DACT: [CID Points]

2. Press <ENTER>. A prompt similar to the following appears.

[Garage IDC1]
GRP: 01 ID: 001

This prompt consists of the following fields.

- Point Custom Label. The top line of the prompt displays the custom label assigned to the point.
- Grp. A 2-digit number used to group associated devices together.
- ID (Contact ID). A 3-digit number used to identify a specific point/device.

3. For each point, use the right arrow key to move between the digits of the GRP and ID fields. Use the <NEXT> and <PREV> keys to increment or decrement the value of a digit.
4. To choose another point, press the right arrow key until the cursor is on the top line (custom label) of the prompt. Use the <NEXT> and <PREV> keys to scroll to another point and then repeat Step 3.

5. When all points have been configured, press the <ENTER> key. A prompt similar to the following appears, asking you to confirm the changes you made.

   <ENTER>=Confirm
   GRP: [01] ID:001

6. Press <ENTER>. The prompt shown in Step 1 appears.

Programming Event Codes

Follow the procedure below only if the DACT is using the 3/1 or 4/2 reporting format.

1. Follow the steps in "Accessing DACT Menu," earlier in this chapter. Use the <NEXT> or <PREV> keys to choose Event Codes.

   <ENTER>=Accept
   DACT: [Event Codes]

2. Press <ENTER>. A prompt similar to the following appears.

   [FIRE ALARM]
   Code: A1

3. For each code, use the right arrow key to move between the letter/digit of the Code field. Use the <NEXT> and <PREV> keys to increment or decrement the value of a letter or digit. See Table 4-2 for a list of Event types and their corresponding codes.

4. To choose another code to edit or verify, press the right arrow key until the cursor is on the top line of the prompt. Use the <NEXT> and <PREV> keys to scroll to another code and then repeat Step 3.

5. When all points have been configured, press the <ENTER> key. A prompt similar to the following appears, asking you to confirm the changes you made.

   <ENTER>=Confirm
   Code: A1

6. Press <ENTER>. The prompt shown in Step 1 appears.

Table 4-2 Event Categories and Codes

Event	3/1	BFSK	4/2	SIA
Fire Alarm	1	11	A1	FA1
Supervisory	3	33	A3	SS3
Trouble	4	F4	A4	FT4
Fire Restoral	E	E1	71	FR1
Supervisory Restoral	E	E3	73	SJ3

Table 4-2 Event Categories and Codes

Event	3/1	BFSK	4/2	SIA
Trouble Restoral	E	E4	74	FJ4
Phone Line 1 Trouble	F	FB	31	LT1
Phone Line 1 Restoral	E	EB	35	LR1
Phone Line 2 Trouble	F	FC	32	LT2
Phone Line 2 Restoral	E	EC	36	LR2
AC Failure	F	FA	6A	AT0
AC Restoral	E	EA	7A	AR0
Auto Test Report	E	EE	3A	RP0
Manual Test Report	E	EE	3A	RX0
Off-normal at test	F	F8	33	YX0

Note: Event codes for SIA and BFSK are non-editable.

Saving Changes

When DACT programming is complete, press the EXIT/CLEAR key until the following prompt is shown.

[Cont] Dscrd Save

Use the right arrow key to move the cursor to one of the following options and press <ENTER>.

- Cont - continues the edit session.
- Dscrd - exits the edit session without saving your changes (keeps the job that was loaded before you started editing).
- Save - saves your edit changes

Note: Both discard and save restart the panel.

Chapter 5. Programming Annunciator LEDs

This chapter describes programming LEDs located on the following annunciators:

- **Local Zone LED Annunciator.** This is a door-mounted annunciator containing 10 Red and 14 Yellow LEDs, which provides a red alarm and yellow trouble LED for each of 10 initiating device circuits. This module also provides 4 Yellow LEDs, one for each of 4 NACs. The LEDs are programmable, and can be used for other functions as appropriate per application.
- **4610-9111 Remote LED/Switch Annunciator**
  - 10 programmable red LEDs (default programming tracks alarm state of IDC1-IDC10)
  - 6 programmable yellow LEDs (no default operation)
  - Green “power on” LED (not programmable)
  - Yellow “Alarm Silenced” LED (not programmable)
  - Yellow “Trouble” (not programmable)
  - Yellow “Comm Loss” LED (not programmable)
  - Tone-Alert (not programmable).
  - Switches for ACK, Alarm Silence, System Reset, and Lamp Test. Note that these switches are not programmable.
  - Key switch to enable switch functions.

Up to four annunciators can be added to the panel. Annunciator addresses must be within the range of 4 through 7, and the address setting on the annunciator (set via an 8-position dipswitch) must match the setting that you specify when you program the unit.

For Canadian applications, one red LED and one yellow LED must be programmed for each IDC and each NAC. Yellow LEDs must be programmed for indicating Earth Detect, City/DACT Disconnect, and Signal Silence Inhibit Enabled. If the total number of IDCs plus NACs exceeds 10, an additional remote annunciator shall be mounted adjacent to the panel. See “Common LED Applications” later in this manual for information on programming the LEDs for Earth Detect, City/DACT disconnect, and Signal Silence Inhibit Enabled.

Note: The <Exit/Clear> key is used to back out of menus or displays and return to the top-level menu structure. Where possible, the <Exit/Clear> key backs out one level at a time. There are cases, however, that the Exit/Clear key will return the operator directly to the top-level menu.

In This Chapter

Adding an Annunciator

Automatically Adding Annunciator Cards

Use the Automatic Programming option to automatically add annunciator modules to the job. (This option will also detect and add an Expansion Power Supply and City Card, if installed.)

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Automatic Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

2. Press <ENTER>. The following prompt appears.

   <ENTER>=Accept
   AP: [Reconfig All]

3. Use the <NEXT> key to select [Detect New]. The following prompt appears.

   <ENTER> to Continue
   May CHANGE Setting

4. Press <ENTER> to detect and add annunciators to the job.

Manually Adding an Annunciator Module

Use the following procedure to manually add the annunciator module to the job.

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

2. Press Enter. The Programming menu appears:

   <ENTER>=Accept
   Prg:[Points]

3. Use the <NEXT> and <PREV> keys to scroll through the choices until “Annuns” is displayed.

   <ENTER>=Accept
   Prg:[Annuns]

4. Press <ENTER>. Use the <NEXT> and <PREV> keys to scroll through the choices until “Add” is displayed.

   <ENTER>=Accept
   Annuns: [Add]

5. Press <ENTER>. A prompt appears, asking you to identify the specific type of annunciator.

   <ENTER>=Accept
   Add: [LCD]

6. Use the <NEXT> and <PREV> keys to select one of the following:
   - Zone Ann
   - Remote LED/SW
   - LCD. Option not applicable to this panel.

7. Press <ENTER>. A prompt appears, asking you to set the card address for the annunciator. The address you specify must match the address set via dip switch on the annunciator. The address must be in the range of 4 through 7.

8. Use the <NEXT> and <PREV> keys to select the appropriate address and press ENTER.

9. A prompt appears asking you to confirm the addition of the annunciator. Pressing <ENTER> will accept any changes made and exit. Use the <EXIT/CLEAR> key to quit without saving.

Accessing Annunciator Menus

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

2. Press <ENTER>. The Programming menu appears. [Points] is the default selection, which allows you to make changes to a specific point’s programming.

   <ENTER>=Accept
   Prg:[Points]

3. Press <ENTER>. A prompt appears, allowing you to select the type of point to manually edit. By default, [IDC] is the first choice.

<ENTER>=Accept
Prg:[IDC]

4. Use The <NEXT> and <PREV> keys to scroll to the appropriate choice and then press <ENTER>.
   - LED. Use this selection for programming the following:
     - LEDs on 4610-9111 Remote LED/Switch Annunciator.
     - LEDs on Local Zone LED Annunciator (door-mounted annunciator).
   - INPUT. Option not applicable to this panel.
   - USER SWITCH/LED (Panel LEDs). Option not applicable to this panel.

Programming LEDs Located on Zone Annunciator and Remote LED/ Switch Modules

Use the procedures outlined in this section to program any of the following:

- LEDs on Local Zone Annunciator
- LEDs on Remote LED/Switch Module

Note: The three LEDs on the front of the display are programmed in a different manner. Refer to ”Programming Panel LEDs” at the end of this chapter for information.

Mapping LEDs to Software Points

Figure 5-1 identifies the way in which the software points map to the LEDs on the annunciators. For example, to control the LED in the upper left corner of the Local Zone LED Annunciator, you need to program Point 17.

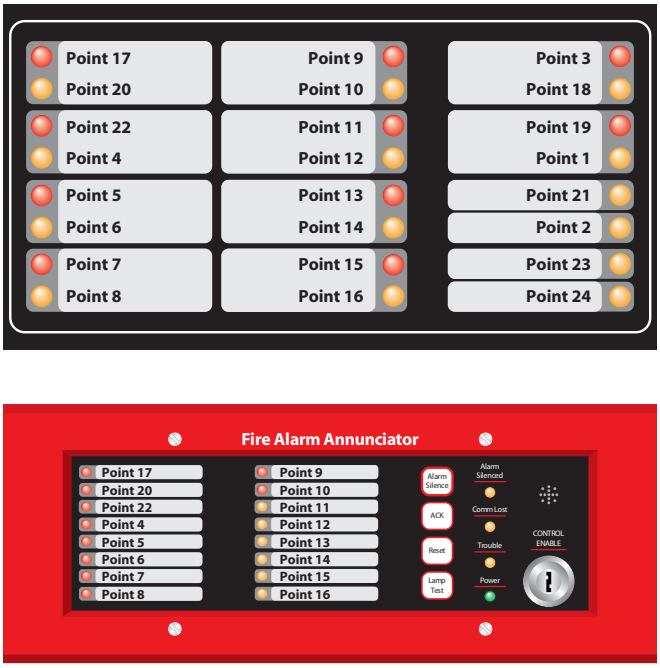


Figure 5-1 Mapping LEDs to Software Points

Programming Overview

Programming an LED consists of performing the following tasks

- Identify which point is being monitored by the LED (called the reference point).
- Identify which point state (fire alarm, trouble, etc.) triggers the LED to turn on. This is called the mode.

See “Programming the LED’s Mode and Reference Point” later in this chapter.

For example, you can associate an LED with a smoke detector point and have the LED turn on only when the point enters a trouble state.

Default Programming

The LEDs on the Local Zone LED and Remote LED/Switch annunciators have the pre-defined operations listed in Table 5-1 and Table 5-2.

In both tables, a default function of FIRE means the LED illuminates if a current-limited condition occurs on the corresponding reference point. A default function of TROUBLE means the LED illuminates if a short occurs on the corresponding reference point.

Table 5-1 Default LED Assignments, Local Zone LED Module

LED/Color	Default Function	Default Reference Point
1	TROUBLE	IDC10
2	TROUBLE	NAC2
3	FIRE	IDC9
4	TROUBLE	IDC2
5	FIRE	IDC3
6	TROUBLE	IDC3
7	FIRE	IDC4
8	TROUBLE	IDC4
9	FIRE	IDC5
10	TROUBLE	IDC5
11	FIRE	IDC6
12	TROUBLE	IDC6
13	FIRE	IDC7
14	TROUBLE	IDC7
15	FIRE	IDC8
16	TROUBLE	IDC8
17	FIRE	IDC1
18	TROUBLE	IDC9
19	FIRE	IDC10
20	TROUBLE	IDC1
21	TROUBLE	NAC 1
22	FIRE	IDC2
23	TRBL	NAC 3
24	TRBL	NAC4

Table 5-2 Default LED Assignments, Remote LED/ Switch Module

Point	Type	Default Function	Default Reference Point
1	Tone-Alert	PIEZO (tracks state of main piezo).	none
2	Yellow LED	General Trouble (illuminates on any trouble).	none
4	Red LED	FIRE	IDC4
5	Red LED	FIRE	IDC5
6	Red LED	FIRE	IDC6
7	Red LED	FIRE	IDC7
8	Red LED	FIRE	IDC8

Table 5-2 Default LED Assignments, Remote LED/ Switch Module

Point	Type	Default Function	Default Reference Point
9	Red LED	FIRE	IDC9
10	Red LED	FIRE	IDC10
11	Yellow LED	TROUBLE.	IDC1
12	Yellow LED	TROUBLE	IDC2
13	Yellow LED	TROUBLE	IDC3
14	Yellow LED	TROUBLE	IDC4
15	Yellow LED -	TROUBLE	IDC5
16	Yellow LED -	TROUBLE	IDC6
17	Red LED -	FIRE	IDC1
18	Yellow LED -	none	none
20	Red LED -	FIRE	IDC2
22	Red LED -	FIRE	IDC3

Note: Do not program Point 2 (Common Trouble LED or Point 18 (Comm Loss) on the LED/Switch Annunciator.

Programming the LED's Mode and Reference Point

An LED's mode allows you to specify which point is being monitored by the LED (called the reference point) and what point state triggers the LED to turn on. For example, you can associate an LED with a smoke detector point and have the LED turn on only when the point enters a trouble state.

1. Follow the steps in "Accessing Annunciator Menus" earlier in this chapter. Choose **LED** as the type of device to program.

   <ENTER>=Accept
   Prg:[LED]

2. Press <ENTER>. A scrollable list of points appears. Use the <NEXT> and <PREV> keys to scroll to the LED point you want to edit. The display appears similar to the following.

   LED Card 5, Pt 1
   LED 1/24

3. Press <ENTER>. The next prompt appears similar to the following:

LED Card 5, Pt 1
Fn: [Edit Mode]

4. Press <ENTER>. A prompt similar to the following appears.

   Mode Prg - Output
   [TRBL] 15-10

5. Use the <NEXT> and <PREV> keys to scroll through the available modes. As you scroll through the modes, the default reference address for the mode appears to the right of the mode. Refer to Table 5-3 for a list of the available modes.
6. When the appropriate mode is selected, use the right arrow key to move the cursor brackets over to the reference point. Press the <FUNCTION> key. This changes the numerical designation of the reference point to a text-based description. Refer to Table 5-4 for a list of common reference points. For example:

   Type: BZONE Fire
   IDC10

7. Use the <NEXT> and <PREV> keys to scroll through the list of available reference points.
8. Press <ENTER> when the appropriate reference point is displayed. The prompt shown in Step 4 reappears.
9. Press <ENTER>. A prompt appears, asking you to confirm the changes.
10. Press <ENTER> to confirm the changes.

Table 5-3 LED Modes

Mode	Description
FIRE	Output activates when referenced point is in an Alarm condition.
SUPV	Output activates when referenced point is in a Supervisory condition.
TRBL	Output activates when referenced point is in a Trouble condition.
DISA	Output activates when the referenced point is Disabled.
ON	Output activates when the state of the reference point is ON.
OFF	Output activates when the state of the reference point is OFF.
LF	Output activates when any point is in an alarm condition.

Table 5-3 LED Modes

Mode	Description
LS	Output activates when any point is in a supervisory condition.
LT	Output activates when any point is in a trouble condition.

Table 5-4 Common LED Reference Points

Reference Point	Description
IDCs 1-10	Separate reference point for each IDC. State monitored determined by selected LED mode.
Aux Relays 1 and 2	Separate reference point for each relay. State monitored determined by selected LED mode.
City/DACT Disconnect (18-14)	Separate reference point for disconnect and trouble. Typical use is to monitor the ON state of either point.
City Trouble	
Control Bypass	Separate reference point for each type of bypass.Typical use is to monitor the ON state of any of the points.
Elevator Bypass	
Door Bypass	
List - General Alarm Points	List contains all zones with FIRE, VERIF, or STYLEC function type. Monitoring the Fire or Trouble state of this list allows you to illuminate an LED when any zone in the list enters an alarm or trouble state. Select either FIRE or TRBL as the mode.
List - Waterflow Zones	List contains all zones with WATER or WSO function type. Monitoring the Fire or Trouble state of this list allows you to illuminate an LED when any zone in the list enters an alarm or trouble state. Use output mode to select which state (Fire, Trouble) is monitored.
List - Sprinkler Zones	List contains all zones with SO or WSO function type. Monitoring the Fire, Trouble, or Supervisory state of this list allows you to illuminate an LED when any zone in the list enters an alarm, trouble, or supervisory state. Select either FIRE, TRBL, or SUPV as the mode.
Alarm Group 1 -99	Separate list for each alarm group. Monitoring the Fire, Supervisory, Trouble, or ON state of an alarm group list allows you to illuminate an LED if any point in the group enters the fire, trouble, supervisory, or ON state. Use output mode to select state monitored.

Table 5-4 Common LED Reference Points (Cont'd)

Reference Point	Description
NACs 1 - 4	Separate list for each NAC. Monitoring the ON or trouble state of a NAC allows you to illuminate an LED if the NAC enters trouble state or turns on. Use output mode to select state (ON or trouble) monitored.

Programming Panel LEDs

This section describes how to program the operation of the three LEDs built-in to the front panel display. Programming involves setting the reference point, mode (the point and point state that triggers the LED to illuminate), and the color of the LED.

Setting LED Color

1. Follow Steps 1 through 4 in "Accessing Annunciator Menus" earlier in this chapter. Choose **User SW/LED** as the type of device to program.

   <ENTER>=Accept
   Prg: [User SW/LED]

2. Press <ENTER>. A scrollable list of points appears. Use the <NEXT> and <PREV> keys to scroll to the point you want to edit. The display appears similar to the following.

   User LED 1
   Y LED 1/5

3. Press <ENTER>. Use the <NEXT> and <PREV> keys to scroll through the options until [FUNCTION] is shown.

   User LED 1
   Fn: [Function]

4. Press <ENTER>. A prompt similar to the following appears, allowing you to set the LED color.

   User LED 1
   [Y LED]

5. Use the <NEXT> and <PREV> keys to toggle between the following LED colors
   - Y - Programs LED as a yellow LED.
   - RG - Programs LED as a Red / Green LED. If you assign this type to LED1 (top LED), its color will be red. If you assign this type to LED2 (middle) or LED3 (bottom), its color will be green.

6. Press <ENTER> to choose a color. A prompt appears asking you to press <ENTER> to confirm the choice.

For Canadian applications, LED colors must comply with Table 5-5.

Table 5-5 ULC LED Color Requirements

Function	Color
Alarm Inputs	Red
Alarm Signal	Red with unique identifier
Signal Circuit Fault	Yellow
Inhibit	Yellow
Supervisory Inputs	Yellow with unique identifier
Power - ON	Green
Trouble Signal	Yellow
Alarm Signal Silence	Yellow

Setting LED Mode and Reference Point

An LED's mode allows you to specify which point is being monitored by the LED (called the reference point) and what point state triggers the LED to turn on.

1. Follow Steps 1 through 4 in "Accessing Annunciator Menus" earlier in this chapter. Choose **User SW/LED** as the type of device to program.

   <ENTER>=Accept
   Prg: [User SW/LED]

2. Press <ENTER>. A scrollable list of points appears. Use the <NEXT> and <PREV> keys to scroll to the point you want to edit. The display appears similar to the following.

   User LED 1
   Y LED 1/5

3. Press <ENTER>. Use the <NEXT> and <PREV> keys to scroll through the options until [Edit Mode] is shown.

   User LED 1
   Fn: [Mode]

4. Press <ENTER>. The next prompt appears similar to the following:

   Mode Prg - LED
   [NONE] --

5. Use the <NEXT> and <PREV> keys to scroll through the available modes. As you scroll through the modes, the default reference address for the mode appears to the right of the mode. Refer to Table 5-4 for a list of the available modes.

6. When the appropriate mode is selected, use the right arrow key to move the cursor brackets over to the reference point. Press the <FUNCTION> key. This changes the numerical designation of the reference point to a text-based description. For example:

   Type: BZONE Fire
   IDC10

7. Use the <NEXT> and <PREV> keys to scroll through the list of available reference points.
8. Press <ENTER> when the appropriate reference point is displayed. The prompt shown in Step 4 reappears.
9. Press <ENTER>. A prompt appears, asking you to confirm the changes.
10. Press <ENTER> to confirm the changes.

Common LED Applications

Common applications for programmable LEDs are:

- Earth Fault Detect LED. This LED tracks whether the panel's Earth fault system point is active or not. If the point enters a trouble state (i.e., there is an Earth fault), the yellow LED illuminates. Program the LED as follows:
  - Make sure the color is yellow
  - Select the "TRBL" mode
  - Select 17-06 as the reference point
- Waterflow LED, which illuminates if a device with the function type WATER or WSO activates. Program the LED as follows:
  - Make sure the LED color is red
  - Select the "FIRE" mode
  - Select 22-101 as the reference point
- City/DACT Disconnect (required for Canadian panels). This LED tracks whether the City/DACT Disconnect system point is active or not. If the point turns ON (i.e., either the city circuit or DACT has been disconnected), the yellow LED illuminates. Program the LED as follows:
  - Make sure the color is yellow
  - Select the "ON" mode
  - Select 18-14 as the reference point
- Signal Silence Inhibit Enabled (required for Canadian panels). This LED tracks whether the Signal Silence Inhibit Enabled system point is active or not. If the point turns ON (i.e., Signal Silence Inhibit system option is set to ON), the yellow LED illuminates. Program the LED as follows:
  - Make sure the color is yellow
  - Select the "ON" mode
  - Select 18-35 as the reference point

Saving Changes

When Annunciator programming is complete, press the EXIT/CLEAR key until the following prompt is shown.

[Cont] Dscrd Save

Use the right arrow key to move the cursor to one of the following options and press <ENTER>.

- Cont - continues the edit session.
- Dscrd - exits the edit session without saving your changes (keeps the job that was loaded before you started editing).
- Save - saves your edit changes

Note: Both discard and save restart the panel.

Chapter 6. Programming System Options

System options can be either:

- Pre-defined modes of operation with a range of settings from which to choose. These type of System Options define global operations such as the time and date format, door drop timers, etc.
- Options that allow you to enable or disable a specific hardware module, such as the Expansion Power Supply, City Circuit, etc.

In This Chapter

Accessing System Options Menu

1. Login at Access Level 4. See Chapter 1 for information on logging in and out of the system.
2. Press the <MENU> key. Press <NEXT> or <PREV> until the [Programming] option is displayed. Press <ENTER>. The following displays:

   FIRE ALARM
   SUSPENDED

   <ENTER> to Program
   <EXIT> to resume

3. Press <ENTER>. The Programming menu appears. Press the <NEXT> or <PREV> keys until <OPTIONS> appears.

   <ENTER>=Accept
   [Options]

4. Press <ENTER>. The first prompt appears as follows:

   <ENTER>=Accept
   Opt: [Time/Date]

Note: The <Exit/Clear> key is used to back out of menus or displays and return to the top-level menu structure. Where possible, the <Exit/Clear> key backs out one level at a time. There are cases, however, that the Exit/Clear key will return the operator directly to the top-level menu.

Programming Options

Refer to the appropriate entry in the table below for details on each option. In each case, programming the option involves using the <NEXT> and <PREV> keys to scroll through the choices and then using the <ENTER> key to set the option to the value you choose.

Option	Settings
Time/Date Format	Choose 12 (am/pm) or 24-hour (military) format. Use <NEXT> and <PREV> to scroll between options and <ENTER> to set.
Reminder	The Active Status Reminder option allows you to set an interval and duration during which the panel reminds operators that a FIRE, SUPV, or TBL condition still exists. This is accomplished by sounding the front panel tone-alert. • Choose: ON or OFF (default = OFF). • Set reminder interval (1-12 hours) • Signal duration. This option sets the duration of the acknowledge signal. (0-60 seconds; 0=on until ack). The default for this option is 0, meaning an acknowledge is required to silence the reminder.
Inhibit (reference point 18-35)	While timer is counting down, the Alarm Silence/Reset Inhibit Timer prevents a system operator from using either the Alarm Silence or System Reset functions. When the inhibit timer expires, the panel may be reset/silenced. Choose a timer range from 0-60 minutes (default=0 - no inhibit)
Alarm Cutout Timer	The Alarm Signal Cutout timer allows you to set a duration for how long notification appliances sound after an alarm. In other words, when an alarm condition exists, the signals sound until silenced. With this option set at two minutes, building signals sound on alarm for two minutes and then stop sounding. However, the alarm condition remains active. Choose a timer range from 0-60 minutes (default=0 - no cutout)

Option	Settings
Alarm Doors	Allows the panel to hold doors open for a set duration during an alarm condition. After that duration has expired, the panel shuts off the door holder relays (all DHOLDER point types). Choose a timer range from 0-60 minutes (default=0 - immediate door drop). This option applies to all DHOLDER relay function types, regardless of their Alarm Group setting.
AC Doors	The Door Holder Drop on AC Failure allows the panel to hold doors open for a set duration during an AC power loss condition. After that timer has expired, the panel turns off the door holder relays (all DHOLDER point types). The range for the timer is 0-60 minutes with a default setting of 5 minutes. To have the door holders drop the doors immediately upon AC power loss, set the timer to 0. This option applies to all DHOLDER relay function types regardless of their Alarm Group setting.
Door Holder	Enables or disables whether door holder magnets receive power from the panel during an alarm condition. Set this option to ON if you want the panel to provide power to all relays with a DHOLDER function type when an alarm occurs. Set this option to OFF if you want the panel to cut power to these relays when an alarm occurs.

Option	Settings
Depleted Battery Cut-out	This option selects the operation of the panel if an alarm occurs during an AC power loss while a depleted battery trouble exists. If this option is selected, the system does the following: • WILL NOT initiate an alarm if the first alarm occurs after the depleted battery state has been detected. If the hardware jumper for depleted battery cutout has been clipped, the system will shut down 60 seconds after the depleted battery condition is detected • WILL continue sounding the alarm if the depleted battery state is reached after the system is already in the alarm state.
Display 1st Alarm	When this option is selected, the panel will automatically display the first (oldest) alarm instead of the Alarm Tally abnormal screen. This allows the first responder to determine the location of the first alarm in the system without having to open the door and press the acknowledge key. If an unacknowledged alarm exists, the system displays that alarm. When that alarm is acknowledged, the system shall revert to displaying the oldest alarm. If no fire alarms exist in the system, the first supervisory event is shown on the display. If no supervisories exist, the first trouble is shown on the display. If there are no fire alarms, supervisories, or troubles, the SYSTEM NORMAL screen is displayed.

Option	Settings
Enable City Circuit	This option activates the panel's city circuit Module. If a city circuit is used in the system this option must be selected or a trouble will be reported. If this option is selected and the city module is not connected, the trouble will also report. There is no other programming required for the city module. The city type is configured with jumpers on the city circuit board.
Enable Expansion Power	This option activates the panel's Expansion Power Supply Module and its associated NACs. If the expansion power supply is installed, this option must be selected or a trouble will be reported. If this option is selected and the EPS is not connected, the trouble will also report. Activation of this module allows the two expansion NACs to be edited in the Point programming menu.
Cross Zone	Allows you to enable cross zoning per alarm group. For example, if you enable cross zoning for Alarm Group 1, it takes two activated alarms in Alarm Group 1 before outputs associated with that Alarm Group will activate. To set this option, use the <NEXT> and <PREV> keys to increment or decrement the alarm group. Use the Right arrow key to move to the On/Off field. Use the <NEXT> and <PREV> keys to toggle between On and Off. Alarm Groups programmed as Cross Zone shall not contain any zones programmed as VSMOKE IDC Function Type.
EXP IDC	Set to ON if an expansion IDC module is installed on the panel. Set to OFF if the module is not used.

Option	Settings
CLA Adapter 1	Set to ON if a Class A adapter module is installed for the standard Initiating Device Circuits (IDCs 1 through 5). Set to OFF if the module is not used.
CLA Adapter 2	Set to ON if a Class A adapter module is installed for the optional Initiating Device Circuits (IDCs 6 through 10). Set to OFF if the module is not used.
EXP Relay	Set to ON if an expansion relay module is installed on the panel. Set to OFF if the module is not used.

Saving Changes

When System Option programming is complete, press the EXIT/CLEAR key until the following prompt is shown.

[Count] Discard Save

Use the right arrow key to move the cursor to one of the following options and press <ENTER>.

- Count - continues the edit session.
- Discard - exits the edit session without saving your changes (keeps the job that was loaded before you started editing).
- Save - saves your edit changes

Note: Both discard and save restart the panel.

Chapter 7. Operating

Normal Operation

The panel's operator interface shows the following under normal conditions:

- Green AC power LED is on steady
- All other panel indicator LEDs are off
- Front panel LCD shows the following:

SYSTEM NORMAL
1:45:07 pm 3/10/04

Lamp Test

Lamp Test is accomplished during normal monitoring (Access Level 1) by pressing the Function key and then pressing ENTER. All LEDs energize and all LCD segments are written to.

Abnormal Conditions

Abnormal conditions are indicated on the panel by flashing the alarm, supervisory, or trouble LED and sounding the tone-alert. The tone-alert pulses for an alarm condition, and is on steady for a trouble or supervisory. If the "Display First Alarm" option is selected, the display provides information about the first, highest-priority alarm in the system without operator intervention. If "Display First Alarm" is not selected, a screen showing the overall system status is shown:

FIRE	SUPV	TRBL
02	00	00

When the appropriate Acknowledge key is pressed, the tone-alert turns off and the indicator LED illuminates steady, indicating that the operator has acknowledged all events in that category. The first abnormal point in that category is then shown on the display:

CORE 1 MEZZANINE

In This Chapter

FIRE 1/2

The panel is a Global Acknowledge system meaning that one press of an Acknowledge key acknowledges every abnormal point in the system within that category. Pressing the Ack key allows the operator to scroll through all the abnormal points in that category. The additional information listed below can be obtained by pressing the <ENTER> key.

- The electrical state of the point (open, short circuit, normal, abnormal)
- Enable/Disable state of the point
- Manual override state (if output)
- Assigned Alarm Groups

Silencing Alarms

The "Alarm Silence" key allows the operator to silence active Notification Appliance Circuits that are programmed for "on-til-silence" operation.

Caution: Pressing the Alarm Silence key causes fire alarm evacuation signals to turn OFF. Follow local procedures to silence alarm evacuation signals.

To silence an alarm, press the <ALARM SILENCE> key.

- All "on-til-silence" notification appliance circuits will turn OFF
- The Alarm Silenced indicator LED turns on

If a subsequent alarm occurs, the notification appliance circuits resound.

System Reset

The <SYSTEM RESET> key restores the system to its normal state after an alarm condition has been cleared. When the <SYSTEM RESET> key is pressed, it causes all latched circuits to reset automatically. The system displays the "RESET IN PROGRESS" message when the key is pressed. After a short delay and if all alarms are cleared, the system is restored to its normal, non-alarm state (e.g. all alarm notification, relays, etc. are turned off). The alarm points are removed from the alarm list and the alarm LED turns off.

If a device remains in alarm during the reset period, the system reset is aborted, and the system remains in the alarm state. The display continues to show the device(s) that remain in alarm.

Viewing/Clearing Historical Logs

The panel has three separate, non-volatile historical logs: Alarm, Supervisory, and Trouble. These logs can be viewed separately, or they can be viewed in chronological order as a single combined log. Each log records information about the event and the time the event occurred. The following table describes the different logs and their stored events.

Table 7-1 Log Contents

Historical Log	Stored Events
ALOG (Alarm Log 100 Entries)	Alarms Alarm Acknowledge Log Cleared Alarm Silence System Reset
SLOG (Supervisory Log 100 Entries)	Supervisory Conditions Supervisory Acknowledge Log Cleared
TLOG (Trouble Log 300 Entries)	Trouble Events Login/Logout for Level 2 or higher Log Cleared WALKTEST Events
CLOG (Combined Log)	All Events in Chronological Order

Viewing Logs

1. Press <MENU>.
2. Press <NEXT> and <PREV> until the following prompt appears.

   <ENTER>=Accept
   Menu: [History Logs]

3. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   Rep: [ALOG]

4. Use the <NEXT> or <PREV> key to select one of the logs described in Table 7-1.
5. Press <ENTER> to access the contents of the log. Use <NEXT> and <PREV> to scroll through each log entry.

Clearing Logs

The logs may be viewed at Access Level 1, however they may not be cleared unless you are at Access Level 2 or higher. To clear the log you are currently viewing, press <ENTER> while viewing any log entry. The following screen will be displayed:

<ENTER>= Clear Log
<EXIT> to cancel

Press <ENTER> to clear the current log. An entry is added to the log to indicate that it was cleared.

Viewing and Controlling Points

The panel allows you to view each point in the system to obtain additional information, or to control or disable/enable it. Points may be viewed at Access Level 1, but control and disable/enable operations are protected at Level 2 or higher.

Viewing Point Information

1. Press <MENU>.
2. Press <NEXT> and <PREV> until the following prompt appears.

   <ENTER>=Accept
   Menu: [Control/View]

3. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   Ctrl/View: [IDC]

4. Use the <NEXT> or <PREV> key to select one of the following.

   - IDC
   - Relay
   - NAC
   - Input (Not Applicable)
   - Output (LED)
   - System Point - these are logical system points used for on/off control of system functions. Control of these points is not allowed.

5. Press <ENTER> when the appropriate point category (i.e., IDC, NAC) is selected. A display similar to the following appears.

   IDC1
   Fire NORMAL

6. Use the <NEXT> or <PREV> key to scroll through the list of points for the selected category.
7. Press <ENTER> when the point whose status you want to view is displayed. The Hardware Type and Function Type for the point are shown. For example:

   IDC1
   Fire NORMAL M1

8. Additional information and control options are available as described in the following table.

Table 7-2 Additional Point Information

IDC	a. Press <ENTER> to view the point's hardware type and assigned function type. For example: IDC1 BZONE FIRE b. Press the <NEXT> key to view the following information for the IDC. • Enable/Disable status • Alarm Verification Tally • Electrical state (normal, short, open, abnormal) • Assigned Alarm Groups
Relay or NAC	a. Press <ENTER> to view the point's hardware type and assigned function type. For example: NAC1 NAC b. Press the <NEXT> key to view the following information for the IDC. • Electrical State (open/short/normal) • Enable/Disable status • Output state (on/off/coding) • Automatic/Manual control status. See "Manually Controlling a NAC/Relay" below for additional information. • Function type and output method • Assigned Alarm Groups
Input	N/A

Table 7-2 Additional Point Information (Continued)

Output (LED)	a. Press <ENTER> to view a description of the first system point in the list. Press NEXT to scroll through the list of points.
System Point	a. Press <ENTER> to view a description of the first system point in the list. Press NEXT to scroll through the list of points.

Manually Activating a NAC/Relay

Follow these steps to manually turn a NAC or Relay on or off, or set it to automatic operation.

1. Press <MENU>.
2. Press <NEXT> until Control/View is shown.
3. Press <ENTER>. Use the <NEXT> or <PREV> key to select NAC or Relay.
4. Press <ENTER>. Use the <NEXT> or <PREV> key to scroll through the list of points for NAC or Relay.
5. Press <ENTER> when the point you want to turn on or off is displayed.
6. Press <NEXT> until a prompt similar to the following is shown.

   ENTER = Control AUX
   TROUBLE STEADY

7. Press <ENTER>. The following prompt appears.

   ENTER = Accept
   FN: ON

8. Use <NEXT> to select one of the following:
   - ON. Use this option to turn the relay or NAC on. To return the NAC/Relay to automatic operation, first set it to OFF, and then reselect the point and set it to AUTO.
   - OFF. Turns the relay or NAC off.
   - AUTO. Use this option to return the NAC or Relay to automatic operation.

Enabling or Disabling Points

Use the following steps to enable or disable points.

1. Press <MENU>.
2. Press <NEXT> until Control/View is shown.
3. Press <ENTER>. Use the <NEXT> or <PREV> key to select IDC, NAC, or Relay.
4. Press <ENTER>. Use the <NEXT> or <PREV> key to scroll through the list of points.
5. Press <DISABLE/ENABLE> when the point you want to turn enable/disable is displayed. A prompt similar to the following appears.

   IDC1
   FN: [Enable]

6. Use NEXT to toggle between Enable and Disable. Press <ENTER>. A prompt appears asking you to confirm the operation. Press <ENTER>. Keep the following in mind when enabling/disabling points.
   - When a monitor point is disabled, any status changes occurring on the point are ignored by the panel. If a control point is disabled, any automatic functions are inhibited. A disable trouble will exist for each disabled point in the system.
   - When a monitor point is enabled, a 30-second countdown will start to prevent an operator from accidentally enabling a point that will alarm the system. The point may be enabled immediately by pressing <ENTER>, or the enable can be aborted by pressing <EXIT>.

Control Functions

The panel includes the pre-programmed functions listed in the table below. To access these functions, press the <FUNCTION> key, and then use the <NEXT> key to scroll through the options. Press <ENTER> to activate a function.

The table below shows the operations available in the Function menu.

Table 7-3 Control Functions

Drill	Activates the drill operation (all notification appliances).
Manual Evacuation	Activates manual evacuation (general alarm).
City/DACT Disconnect	Disconnects the city circuit or DACT (causes a trouble).

Table 7-3 Control Functions (Continued)

Control Point Bypass	Bypasses the following control points (causes a trouble): • On-til-Silence NACs • On-til-Reset NACs/relays
Elevator Bypass	Bypasses Elevator Recall operation (causes a trouble).
Doorholder Bypass	Bypasses the door holder operation (causes a trouble).
Lamp Test	Illuminates all LEDs and LCD segments on the operator interface.
Earth Fault Latch	Latches intermittent Earth troubles in the panel, preventing them from automatically clearing.
Display Time	Shows the current time and date.
Send DACT Test	Sends the DACT test event to the central station.

Setting the Time and Date

Selecting the "Set Time/Date" option from the main menu allows you to change the system time and date. This operation is protected at Access Level 2.

<ENTER>=Accept
[11]:23 pm 11/12/03

The Right/Left arrow keys allow you to move the focus from field-to-field for editing. The <NEXT/PREV> keys allow you to change the currently selected fields. The am/pm field and the day-of-week field are not editable.

Reports

Reports, which are either text-based archives of system activity or a text-based description of the panel configuration, can be archived and printed in the following manner.

- The panel supports an unsupervised, 80-column serial printer that can be used to record events, or to print history log reports.

- Use Windows Hyperterminal (or similar application), as follows:

  a. Connect a 733-794 download cable between the Service Port on the panel and a serial communication port on the PC.

  b. Create a connection profile for the serial port. Set the serial communication parameters to 9600 baud, 8 bits, no parity, 1 stop bit, and no flow control.

  c. Configure the application to capture the information coming in on the serial port. (Choose Capture Text in the Hyperterminal Transfer menu.)

To generate a report, do the following.

1. Press <MENU>.
2. Press <NEXT> and <PREV> until the following prompt appears.

   <ENTER>=Accept
   Menu: [Reports]

3. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   Rep: [ALOG]

4. Use the <NEXT> or <PREV> key to select one of the options described in Table 7-4.

Table 7-4 Reports

Report	Description
ALOG	Displays contents of alarm log.
SLOG	Displays contents of supervisory log.
TLOG	Displays contents of trouble log.
CLOG	Combined alarm, supervisory, and trouble logs.
CONFIG	Text description - including custom label, function type.

5. Press <ENTER>. The panel displays a message noting that the report has been sent to the printer.

Diagnostics

Use the following procedure to run the panel's diagnostic options.

1. Press <MENU>.
2. Press <NEXT> and <PREV> until the following prompt appears.

<ENTER>=Accept
Menu: [Diagnostics]

3. Press <ENTER>. A prompt similar to the following appears.

<ENTER>=Accept
Diag: [BAT CHGR METR]

4. Use the <NEXT> or <PREV> key to select one of the options described in Table 7-5.

Table 7-5 Diagnostic Options

Option	Description
BAT CHGR METER	View battery charger incoming voltage, and output current.
Battery Meter	View battery voltage and battery load.
HW Reset	The Hardware Reset is context sensitive. If the reset is performed with an alarm in the system, the alarms are allowed to reset. If there are no alarms present, a HW reset (power is dropped to all zones for 15 seconds) is performed. The hardware reset will attempt to clear any latched troubles.
CLR Tally/TBL	This option clears the alarm verification tallies for all IDCs in the system. Typically this is only done when an Alarm Verification Tally Limit trouble occurs. The Alarm Verification Tally Limit trouble occurs if an IDC programmed for alarm verification starts the verification cycle, but does not verify 10 times.

5. Press <ENTER>. The function you chose in Step 4 executes.

WalkTest

WalkTest allows one person to test the functionality of the panel's devices. Once the panel is placed into WalkTest mode, you can test the following:

- Initiating Device Alarm Sensing. To test each detector's alarm capability, use a pole magnet or canned smoke to activate the initiating device. If the device is functioning correctly, one of two things happen:
  - If the WalkTest signaling option is set to SIG, the panel pulses the device's zone number on the panel's NACs. After 15 seconds the panel drops power to the zone, resetting the activated device. Subsequently activating another initiating device on the same zone sounds a double pulse on the NAC.
  - If the WalkTest signaling option is set to SIL, the panel logs the alarm activation to the ALOG (alarm log). Use the History Logs menu option to view the ALOG. Use the Reports menu option to print a copy of the ALOG.
- Initiating Device Trouble Sensing. To test the panel's ability to sense a trouble condition for each initiating device, disconnect one of the IDC wires at the detector. If the panel senses the trouble condition correctly, one of two things happen:
  - If the WalkTest signaling option is set to SIG, the panel activates the panel's NACs for four seconds.
  - If the WalkTest signaling option is set to SIL, the panel logs the trouble in the TLOG (trouble log). Use the History Logs menu option to view the TLOG. Use the Reports menu option to print a copy of the TLOG.
- Earth Ground Sensing. To test the panel's ability to detect an Earth Ground, short one of the panel's circuits to Earth. If the panel senses the trouble condition correctly, one of two things happen:
  - If the WalkTest signaling option is set to SIG, the panel activates the panel's NACs for four seconds.
  - If the WalkTest signaling option is set to SIL, the panel logs the trouble in the TLOG (trouble log). Use the History Logs menu option to view the TLOG. Use the Reports menu option to print a copy of the TLOG.
- NAC Trouble Sensing. To test the panel's ability to sense a trouble condition for each NAC, disconnect one of the NAC wires at the panel. If the panel senses the trouble condition correctly, one of two things happen:
  - If the WalkTest signaling option is set to SIG, the panel activates the panel's NACs for four seconds.
  - If the WalkTest signaling option is set to SIL, the panel logs the trouble in the TLOG (trouble log). Use the History Logs menu option to view the TLOG. Use the Reports menu option to print a copy of the TLOG.

Setting WalkTest Options

WalkTest options are set via the WalkTest entry at the main menu. You must be logged in at either Access Level 3 or 4 to set the WalkTest options.

1. Press the <MENU> key. Press <NEXT> or <PREV> until the [Walktest] option is displayed. Press <ENTER>. The following displays:

<ENTER>=Accept
[Off] Lg Sil NoPr

2. For each option, use the <NEXT> and <PREV> keys to scroll through the option's choices. Use the right and left arrow keys to move from one option to another. Available options include
   - **ON/OFF.** Used to enable and disable WalkTest. When set to ON, a WalkTest Enabled trouble is displayed on the panel.
   - **LG/NL.** Controls whether alarms and troubles generated by WalkTest are sent to the alarm or trouble log. Lg enables logging; NL disables logging.
   - **SIG/SIL.** Controls whether the NACs are used to signal activation of an alarm or trouble condition. SIG enables NACs for Walktest; SIL disables NACs for WalkTest.
   - **PR/NoPR.** Enables (PR) or disables (NoPR) whether WalkTest alarms and troubles are sent to the locally attached printer.
3. When the options are set, press the <ENTER> key. The system prompts you to confirm the settings. Press <ENTER> again to confirm.

Advanced Operations

Upload/Download

Uploading and downloading files allows you to transfer the panel's job file between a service PC and the panel. The term Uploading refers to transferring a job file from the panel to a PC; whereas, the term Downloading refers to moving a job file from the PC to the panel.

Note: The UPLD/DWNLD menu option enables the panel for an upload or download operation. This option does not, however, perform the transfer operation.

1. Press <MENU>.
2. Use the <NEXT> or <PREV> keys to scroll to the UPLD/DWNLD menu choice.
3. Press <ENTER>. A prompt similar to the following appears.

   <ENTER>=Accept
   XFER: [Start XFER]

Restarting the CPU

This option is used to clear an Access Level 4 Trouble (i.e., a "Service Mode Trouble").

1. Press <MENU>.
2. Press <NEXT> and <PREV> and choose one of the following options.
   - Warm. Clears the Access Level 4 trouble, restarts the panel, but preserves the panel's non-volatile memory, including time/date information, historical logs, and all currently disabled points
   - Cold. Clears the Access Level 4 trouble and re-initializes the panel's non-volatile memory, clearing all time/date information, historical logs, and disabled points.
3. Choose an option and press <ENTER>. System startup prompts appear on the screen, followed by the system status message.

Viewing Software Revision Number and Job Info

1. Press <MENU>.
2. Press <NEXT> or <PREV> until Software Rev is shown. Press <ENTER>. A message similar to the following appears, displaying the revision level of the panel's software.

   Rev 1.00.11
   <NEXT> = View Job Info

3. Press <NEXT> to see the job revision number (i.e., the number of times the job has been edited and saved), and the date on which the panel was edited.

   JOB REV:1
   12:00:00 am 04/09/04

Appendix A. Battery Standby Calculations

Current Draw for System Components

Each component of the panel has a specified alarm and standby current rating. To calculate the current draw for the system, add the specified standby current for each module and device to obtain an alarm and a standby current rating for your system. Also refer to "Module Current Specifications" at the end of this appendix.

Note: Auxiliary power from the system's AUX 24 V taps must also be included in the calculation, unless that power is switched off during battery standby. For example, door holders operated from 24 V need not be included if they are disconnected via a relay during a battery standby condition. Notification Appliance load must be included in the alarm current total.

Module	Standby Current	Alarm Current
Main System Board (5 IDCs, 30 detectors each	130 mA	160 mA + 60 mA per zone in alarm
Expansion IDC Module (30 detectors per IDC)	50 mA	50 mA + 60 mA per zone in alarm
Expansion Power Supply	50 mA	60 mA
Auxiliary Relay Module	0 mA + 10 mA per energized relay	0 mA + 10 mA per energized relay
Class A Adapter	0 mA + 10 mA per zone in trouble	0 mA + 10 mA per zone in trouble
Remote LCD Annunciator	100 mA	150 mA
Remote LED Annunciator	100 mA	100 mA
City Connect Module or Relay Module	30 mA	60 mA

Total Standby Current:_____ Total Alarm Current:_____

1. Identify Standby Time (C), in hours. C = _____ (typically 4, 24, 48, or 60 hr)
2. From previous calculations, locate total Alarm Current (B) in amperes. B = _____
3. Identify Alarm Time (D) in minutes. D = _____ (typically 5, 10, or 15 min)
4. Using the values in Steps 1-4, perform an Initial Battery Calculation per the following:
5. (A x C) + (0.0167 x B x D) = _____ Ah (Ah = ampere hours)
6. Select a battery size LARGER than the number from the Initial Battery Calculation from the following list of batteries using the 20 Hour Rating value:

20 Hour Rating	C/20 (Amps)	20 Hour Rating	C/20 (Amps)
2.2 Ah	0.11	7.0 Ah	0.35
3.0 Ah	0.15	7.2 Ah	0.36
3.4 Ah	0.17	10 Ah	0.50
4.0 Ah	0.20	12 Ah	0.60
4.5 Ah	0.225	12.7 Ah	0.635
5.0 Ah	0.25	18 Ah	0.90
6.2 Ah	0.31	25 Ah	1.25

7. If either the Standby Current or the Alarm Current is greater than the C/20 current for the initial battery size selected, a Discharge Factor (DF) must be applied. For example, 1A load on a 10 Ah battery requires a Discharge Factor of 1.08 (10 Ah / 1 A gives discharge time of 10 hours; DF = 1.08). Use the following table to determine Discharge Factor (use the 20 hr value for 24 hr standby):

Discharge Time		Discharge Factor	Discharge Time	Discharge Factor	Discharge Time	Discharge Factor	Discharge Time	Discharge Factor
0.083 hr	5 min	3.85	2 hr	1.43	8 hr	1.10	14 hr	1.03
0.166 hr	10 min	2.78	3 hr	1.30	9 hr	1.09	16 hr	1.02
0.249 hr	15 min	2.27	4 hr	1.22	10 hr	1.08	18 hr	1.01
0.332 hr	20 min	2.08	5 hr	1.18	11 hr	1.06	20 hr	1.00
0.5 hr	30 min	1.96	6 hr	1.14	12 hr	1.05	48 hr	1.00
1 hr	60 min	1.67	7 hr	1.11	13 hr	1.04	60 hr	1.00

8. Standby Discharge Factor (SDF) = _____ Alarm Discharge Factor (ADF) = _____

9. Minimum Required Battery Capacity Calculation (to account for battery aging, a 1.17 multiplier is included)

   Minimum battery capacity in Ah =

   1.17 x [(A x C x SDF) + (0.0167 x B x D x ADF)] = _____

10. If the battery size initially selected is smaller than the result of step 9 above, repeat the calculations using a larger battery size.

Appendix B. Contact ID Default Values

Table B-1: Contact ID Default Values

Description	Contact ID	Event Code
IDC 1 through IDC 10	GRP:01 ID:001 through GRP:01 ID:010	Based on device function type
Expansion Relay 1 through Expansion Relay 10	GRP:01 ID:011 through GRP:01 ID:020	*
NAC 1	GRP:01 ID:201	*
NAC 2	GRP:01 ID:202	*
Expansion NAC 1	GRP:01 ID:203	*
Expansion NAC 2	GRP:01 ID:204	*
Aux Relay 1	GRP:01 ID:205	*
Aux Relay 2	GRP:01 ID:206	*
AC Power	GRP:01 ID:207	Trouble 301
Aux Power	GRP:01 ID:208	Trouble
EPS Aux Power	GRP:01 ID:209	Trouble
EPS AC Fail	GRP:01 ID:210	Trouble 301
EPS Battery	GRP:01 ID:211	Trouble
Earth	GRP:01 ID:212	Trouble 310
Low Battery	GRP:01 ID:213	Trouble 302
Battery Depleted	GRP:01 ID:214	Trouble
Low Battery Cutout	GRP:01 ID:215	Trouble
Charger Trouble	GRP:01 ID:216	Trouble
EPS Configuration Mismatch	GRP:01 ID:217	Trouble
Manual Test Report	GRP:01 ID:233	Test 601
DACT Phone Line 1 Trouble	GRP:01 ID:233	Trouble 351
DACT Phone Line 2 Trouble	GRP:01 ID:234	Trouble 352

*Any other trouble not specifically mentioned would have a code of 330.
For example, a trouble on an output device would report an event code of 330.

Continued on next page

Table B-1: Contact ID Default Values (Continued)

Description	Contact ID	Event Code
24hr Test Report, Off Normal	GRP:01 ID:235	Test 602, 608
Extra Card	GRP:01 ID:236	Trouble
External Comm Trouble	GRP:01 ID:237	Trouble
DRILL	GRP:01 ID:238	Utility
Cold Start	GRP:01 ID:239	Trouble
Warm Start	GRP:01 ID:240	Trouble
Manual Evac	GRP:01 ID:241	Alarm
Time/Date Not Set	GRP:01 ID:242	Trouble
Service Mode	GRP:01 ID:243	Trouble
List Overflow	GRP:01 ID:244	Trouble
City Disconnect	GRP:01 ID:245	Trouble
City Trouble	GRP:01 ID:246	Trouble
Control Bypass	GRP:01 ID:247	Trouble
Elevator Bypass	GRP:01 ID:248	Trouble
Door Bypass	GRP:01 ID:249	Trouble
AV Tally Exceeded	GRP:01 ID:250	Trouble
WalkTest Active	GRP:01 ID:251	Trouble
Programming Mode	GRP:01 ID:252	Trouble
Duplicate Device Detect	GRP:01 ID:253	Trouble
IDNet Weak Active	GRP:01 ID:254	Trouble
Event Queue Overflow	GRP:01 ID:255	Trouble
LCD Sounder Disable	GRP:01 ID:256	Trouble

*Any other trouble not specifically mentioned would have a code of 330.
For example, a trouble on an output device would report an event code of 330.

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