LifeGard™

Reference Manual

LifeGard System

Reference Manual

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466-1065 (Changes Pages, if applicable)
466-1066 (Release Notes, iff applicable)

FCC Part 15 Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The FCC's Part 15 Rules require intentional radiators, including transmitters used for data telemetry purposes, to be certified. Modifications to a certified transmitter generally require FCC approval. Changes to the enclosure of a certified transmitter, or attaching inputs at points other than those provided by the manufacturer are modifications which usually require FCC approval. The transmitter manufacturer should be consulted on questions involving FCC certification.

CANADA NOTICE

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational, and safety requirements. The department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together.

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

Printed in the U.S.A.

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About This Manual

This manual describes how to install, program, and operate the Medical Alert Control Panel (panel) and associated equipment.

Who Should Read This Manual?

Installers and service technicians should read this manual and always have one when going to an installation site.

If you're installing this system for the first time: Review each section to become familiar with the system. When you're ready to begin the installation, be sure to review the system planning worksheets in Appendix A of the *Installation Instructions* before following the procedures in each section.

If you've installed this system before: You can use the *Installation Instructions*, which includes an installation checklist, planning worksheets, summaries of programming procedures, and wiring diagrams.

What You Need to Know

This manual assumes that you have a level of mechanical aptitude and a basic understanding of electronic wiring, tools, and related mounting hardware. When attempting a procedure for the first time, read the entire procedure and make sure you understand all notes, warnings, and cautions before attempting to perform it. Programming errors are often prevented by simply understanding the procedure and performing the steps in a timely manner.

Note: Failure to install and program the control panel and accessories for UL listed applications as described in the manual is a violation of the listing mark.

Terms and Conventions

Throughout this manual, we use certain conventions, type styles, and key words. Here's what they mean.

Note: Notes contain helpful information and general guidelines.

WARNING: Warnings alert you to situations that could damage facilities, equipment, or software, and how to avoid such problems.

CAUTION: Caution statements alert you to situations that could be dangerous or cause personal injury.

INSTALLER PROGRAMMING CODE	The words INSTALLER PROGRAMMING CODE refer to the system's 4-digit programming code used by the installer to program the system.
DEALER PROGRAMMING CODE	The words DEALER PROGRAMMING CODE refer to the system's 4-digit programming code used by the dealer to program the system. This is the only code that can program the primary phone number and change the dealer programming code.
Voice	Any voice message from the panel appears in italics.
BUTTON	Any button on the panel appears in bold type and all capital letters.
[xxxx]	The square brackets indicate the information you need to enter within the bracket. For example, [sensor #] means that you should enter a sensor number.
+	The plus sign (+) separates the actions in a command. For example, STATUS + [upper zone #] means that you press the STATUS button, release it, and enter the upper zone number.

Additional Resources

Installation Instructions provides basic information on system installation.

Owner's Manual helps the owner understand how to operate this system.

Sensor Installation Instructions include mounting and programming procedures for sensors and optional system components.

Important ITI Phone Numbers

Department	Phone	Fax
General & Sales	800-777-1415	612-779-4890
Customer Service	800-777-4841	800-777-4842
Technical Services	800-777-2624	612-779-4888
RMA - Repair or Return	800-777-1415 x112	800-777-4842
Advance Replacement	800-777-2624	N/A
Credit Department	800-777-1415	612-773-4633

SECTION 1
SYSTEM OVERVIEW

This section provides an overview of this system, including a discussion of the system components and how they work together. This section also explains the system features and gives a listing of panel specifications.

System Components

This system has three types of components: a panel (see Figure 1.1), devices that report to the panel, and devices that respond to the panel (see Figure 1.2). Since this is a supervised, wireless system, most sensors use radio waves instead of direct wiring to communicate with the panel. A supervised system provides automatic sensor testing and sensor battery monitoring.

Panel

The panel is the main processing unit for all functions. It receives signals from and responds to wireless sensors throughout the premises. The buttons on the face of the panel program and operate the system. A built-in speaker produces voice messages, and indicator lights show the current status of the system (see "Panel Communication with the User" in Section 9).

Figure 1.1 shows the layout of the panel.

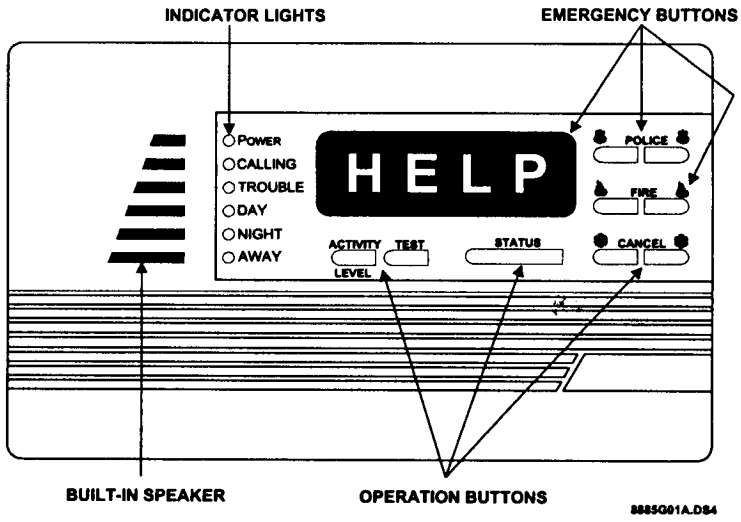


Figure 1.1. The Panel

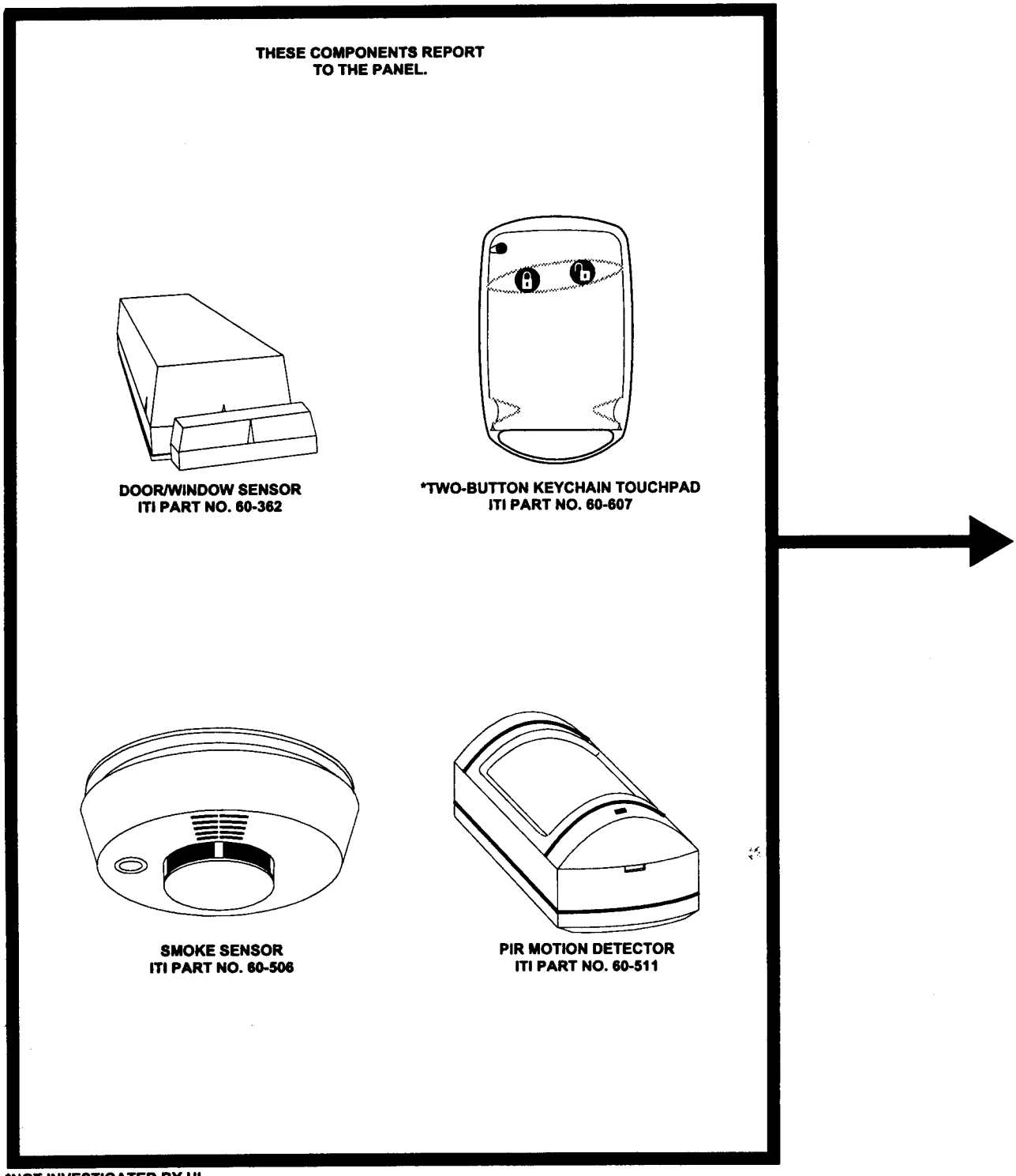
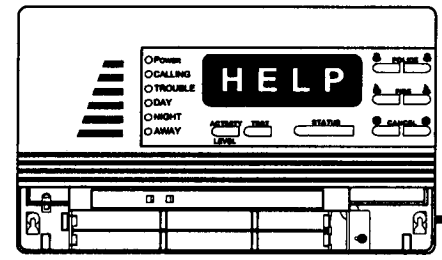


Figure 1.2. Basic System Components

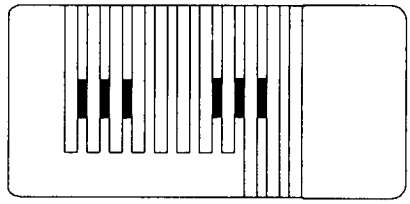


CONTROL PANEL
ITI PART NO. 60-626

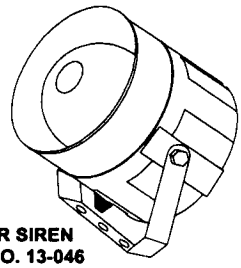
PROCESSES INFORMATION RECEIVED FROM SOME SENSORS AND CONTROLS OTHER SENSORS AND COMPONENTS IN RESPONSE TO INFORMATION RECEIVED.
USER CONTROLS SYSTEM FROM HERE.
INSTALLER PROGRAMS PANEL FROM HERE.

TELEPHONE LINE

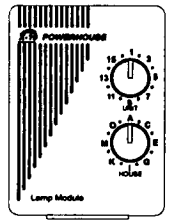
THESE COMPONENTS RESPOND TO COMMANDS FROM THE PANEL.



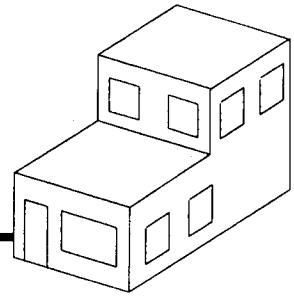
SLIM LINE HARDWIRE
INTERIOR SIREN AND PIEZO
ITI PART NO. 60-483



EXTERIOR SIREN
ITI PART NO. 13-046



X-10 LAMP MODULE*
ITI PART NO. 13-204



CENTRAL STATION

*NOT INVESTIGATED BY UL.

8885G09A.DS4

Interrogator Module

The Interrogator Alarm Verification Module (Interrogator Module) allows the central station operator to "listen in" and /or "talk back" to the user after an alarm has occurred. The module can use up to three microphones and two speakers. The module is connected to the phone line, ahead of the alarm panel. With the module, the central station operator can determine whether or not an alarm report is an actual alarm condition.

Features

Table 1.1 describes the additional features of the Interrogator Module.

Table 1.1. Interrogator Module Features and Descriptions

Feature	Description
Auto siren shut off	Sirens shut off automatically while the module is in listen-in or talk-back mode.
Built-in relay	Allows module to share a siren with the alarm panel to facilitate the talk-back mode.
Record board (optional)	Continually records 17-second intervals that play back when: Interrogator module senses an alarm from the ITI bus Module detects an entry delay from the ITI bus Trip line goes active.
Auxiliary output	Built-in output can be used to activate an external relay.
Phone capabilities	Can dial up to a 20-digit phone number (DTMF or digital). Automatic phone line disconnect in 2 minutes if the module does not receive any commands to remain on-line.
Memory	Stores all user-programmed data in an EEPROM.

Interrogator Components

This section describes the Interrogator Module physical features. Figure 1.3 shows the Interrogator components.

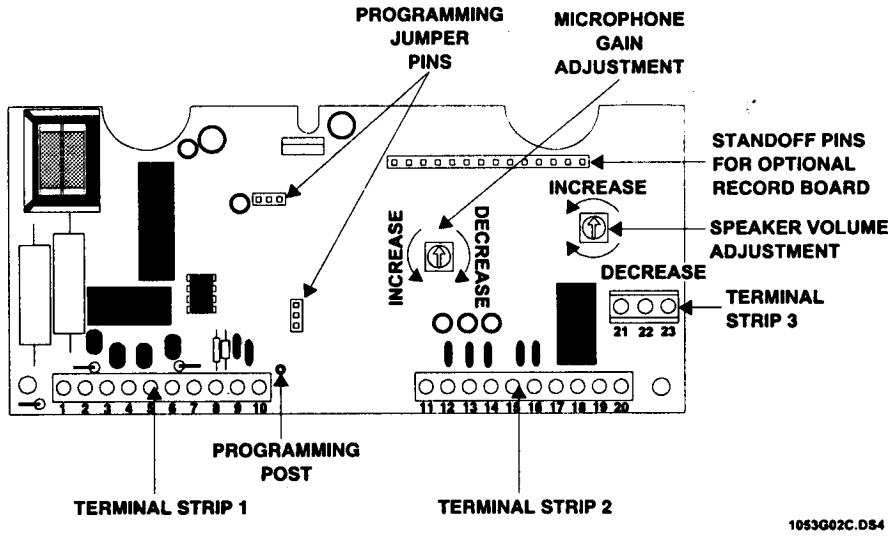


Figure 1.3. Interrogator Components

Terminals and Descriptions

Table 1.2 describes the terminals on the Interrogator Module.

Table 1.2. Interrogator Module Terminals

Terminal	Description
1	6.8 VDC power positive
2	Ground (common)
3	Telco tip
4	Alarm panel tip
5	Alarm panel ring
6	Telco ring
7	Line carrier output
8	Auxiliary output-maximum 50 mA
9	ITI bus in
10	ITI bus out
11	Trip input
12	Microphone 1 positive
13	Shared ground for microphones 1, 2, and 3
14	Microphone 2 positive
15	Microphone 3 positive
16	Speaker +
17	Speaker -
18 through 23	Siren relay terminals

Note: When the module is in the listen-in or talk-back mode, terminal 21 is closed to 23 and terminal 18 is closed to 2. These relay contacts are rated at 1A at 20 VDC.

Programming Jumper Pins

The jumper position on these pins determines which parameters are enabled for programming. In Section 4, refer to "Programming the Interrogator Module."

Record Board (Optional)

The record board uses the microphones to record a 17-second recording to be played back after an alarm. The record board records 4 to 6 seconds before an alarm and 11 to 13 seconds after an alarm.

Devices That Report to the Panel

- **Hardwire Sensors**

  Hardwire sensors are connected to the panel through the hardwire input, which can use either normally open or normally closed devices. Since the circuit is supervised, the panel can detect trouble conditions in the line, such as an open circuit or a short.
- **Wireless Sensors**

  Wireless sensors provide various kinds of detection throughout the premises. An ITI wireless sensor has a preassigned identification (ID) and type code. The panel uses the ITI Learn Mode technology. The panel "learns" the sensor identification code (ID) and type when you trip the sensor's tamper or learn switch.
- **2-Button Keychain Touchpads**

  2-Button Keychain Touchpads let the user operate the system inside or outside the premises by pressing buttons on a touchpad instead of the panel.

Devices That Respond to the Panel

- **Sirens**

  Sirens alert the user to various system conditions, including alarms. All sirens are hardwired to the panel, except the Wireless Interior Siren (WIS) and any exterior sirens that are connected to the WIS.

  The system supports both interior and exterior sirens. Interior sirens produce status and alarm sounds. Exterior sirens produce alarm sounds.
- **Powerhouse™ X-10® Lamp Module**

  X-10 Lamp Modules let the panel turn lamps ON when the user enters or exits the premises and during alarms. The user can also turn these same lamps ON or OFF at the panel.
- **Central Station Communication**

  The panel sends alarm and trouble reports to a central station. The central station can also program many panel options and configuration features.

System Features

This system has several built-in features designed for easier programming, installation, and operation.

- **Alarm Memory**

  Alarm memory stores all alarms that occur. Alarms remain in memory until the next alarm occurs. You can access alarm memory at any time by pressing the STATUS and TEST buttons at the same time for 3 seconds.

- **Auxiliary Power Output**

  The auxiliary power output can operate hardwire sensors or the Interrogator Alarm Verification Module (Interrogator Module).

- **DTMF (touch-tone) or Pulse Dialing**

  The panel can dial the central station with either DTMF or pulse dialing.

- **Event Buffer**

  The event buffer stores a brief system history, such as when alarms, trouble conditions, and supervisories occurred. The event buffer stores up to 14 events, and the oldest events are removed as new events occur. If the panel uses the ITI reporting format, a CS-4000 can read and display this information.

- **Learn Mode Technology**

  With Learn Mode technology, the panel learns the unique identification code (ID) of each sensor. This technology removes steps from the task of programming sensors into the panel.

- **Optional Communications Output (Not investigated by UL)**

  The optional communications output can be used as an alternate means of communication with the central station. For example, you can connect the Interrogator Module to the output to let the central station communicate with the premises during an alarm condition.

- **Communications Locking**

  This feature determines if the dealer or the central station has ownership over the customer account. The Communication Locking feature accomplishes this with two independent locking methods, Phone Lock and Central Station Lock (see "Selecting Communication Locking" in Section 7).

WARNING: The CS-4000 can place a central station lock on any panel account that has not been phone locked by the dealer.

Panel Specifications

The panel specifications are:

- Dimensions: 9-5/8" x 6"x 4-3/4"
- Weight: 2 lb. 2.6 oz.
- Thermoplastic cabinet with tamper switch
- Operating temperature range: 32°F to 95°F (0°C to 50°C)
- Maximum humidity: 95% at 95°F (50°C)
- Microprocessor-based circuit board
- Superheterodyne, spatial diversity (dual-antenna) receiver: At least 500 feet open air range
- Power requirements: 9 VAC Class II Power Transformer or optional DC Line Carrier Power Transformer (see Tables 1.3 and 1.4).
- Battery backup: up to 24 hours maximum using six 1.5 VDC AA alkaline batteries and up to 12 hours maximum using six 1.2 VDC AA NiCd (nickel cadmium) batteries (see Table 1.5).
- Auxiliary power available: 290 mA (maximum) at 6.5 to 12 VDC
- One supervised hardwire input: loop response time = 500 ms (1/2 second); maximum combined loop resistance = 100 ohms.

Table 1.3. Class II Power Transformer (60-515, BE23149-001) Specifications

	Voltage	Amperage
Input	110 AC	0.2 A
Output	9 AC	1.7 A

Table 1.4. Line Carrier Power Transformer (60-346) Specifications

	Voltage	Amperage
Input	110 AC	0.68 A
Output	10 DC	0.42 A

Table 1.5. Backup Battery Specifications

Type	Voltage	m Ah	Number	Average Life
Alkaline	1.5 V	2,450	6	5 years
NiCd	1.2 V	600	6	Rechargeable

SECTION 2
PLANNING THE INSTALLATION

This section describes planning the installation to make the process efficient, particularly for new installers, since it can help them to understand the installation and programming process. We recommend that you read Sections 1 and 9 for an understanding of the basic system operation. Use the "System Planning Worksheets" in Appendix A of the *Installation Instructions* to make the planning, installation, and programming processes easier.

Planning Checklist

- ❑ Determine the purpose of the system.
- ❑ Plan use of hardwire components.
- ❑ Plan microphone location.
- ❑ Plan use of wireless components.
- ❑ Determine panel and component locations.
- ❑ Plan panel option programming:
  - __ Panel configuration options
  - __ Upper sensor numbers
  - __ Feature numbers
- ❑ Determine central station programming.
- ❑ Plan to explain the system to the user.

Note: The tools required to install the panel and peripherals are listed in Section 3 "Installing the System."

Determining the Purpose of the System

This system can be used as a fire warning system, an emergency notification system, or a combination of the two. If the system is to comply with UL household requirements, there are specific guidelines you must follow. This section describes the minimum system configurations for UL listed systems.

Note: The California State Fire Marshall listing is pending.

Requirements for UL Listed Installations

The minimum system configurations for the applicable UL listed systems are as follows:

Basic System

All UL listed systems require the following basic components. The basic system does not include any sensors.

- Control Panel (60-626)
- Line Carrier Power Transformer (60-346-500)

or-- Class II Transformer (60-515) Basler # BE23419-001

- Wireless Interior Siren (WIS) (60-353-235); requires Line Carrier Transformer

or-- Hardwire Exterior Siren (13-046)

or-- Slim Line Hardwire Interior Siren (60-483)

Household Fire Warning System (UL 985)

- Basic system described above
- Smoke Sensor (60-506)

Home Health Care Signaling Equipment (UL 1637)

- Basic system described above
- Water-Resistant Panic Sensor (60-578-10-95)

Canada Listings

- ULC (UL Canada) approval pending
- CSA Certified Accessories
- Residential Fire Warning System Control Unit (ULC-S545-M89)

Planning Use of Hardwire Components

WARNING: The panel may be damaged if the total combined current consumption of all connected sirens, hardwire sensors (smoke or PIR), and Interrogator Module exceeds 290 mA. To determine the total combined current consumption, complete the "Hardwire Devices" worksheet in Appendix A of the Installation Instructions.

Planning Hardwire Sirens and Piezos

Sirens and piezos produce alarm and status sounds to indicate the status of the system, as described in "Alarm Sounds" and "System Status Beeps" in Section 9. For an explanation of how to use and install sirens and piezos, see "Connecting Hardwire Sirens and Piezos to the Panel" in Section 3.

Planning Hardwire Sensors

The system supports one hardwire protection loop with either normally open or normally closed sensors. See "Adding a Hardwire Sensor" in Section 4 for an explanation of how to program the sensor connected to the hardwire input.

The panel's auxiliary power output can be used to power the Interrogator Module or hardwire sensors that need a power supply, such as smoke and PIR sensors. The power output varies from 6.5 to 12 volts, depending on the status of the system. If the AC power is on and the backup batteries are connected, 12 VDC is available. If the AC power is out, the 9 VDC is available. During extended power outages, the voltage can drop to 6.5 VDC before the panel enters shutdown mode to retain memory.

If a hardwire smoke sensor is powered by the auxiliary power output, you must also use the Power Supervision Board (60-391).

Planning Microphones

The Interrogator Module can use up to three microphones and two speakers. Locate microphones so talk-back can be done from different areas on the site.

Planning Use of Wireless Components

Planning Wireless Sensors

Refer to the *Installation Instructions* for a list of other sensors that are available for fire or emergency notification systems. You can install up to 17 wireless sensors. During the installation process, you will program each sensor into a group. Select the group assignments for each sensor as part of the planning process. See "Programming Wireless Sensors" in Section 4 for an explanation of groups and sensor programming.

Planning Wireless Interior Siren (WIS) and X-10 Lamp Module

If you will be using the WIS or the X-10 Lamp Module, you must use the Line Carrier Power Transformer to power the system. Read Section 6 for information on programming and installing the WIS and the X-10 Lamp Module.

Note: In UL listed systems, the X-10 Lamp Module is recommended for supplementary use only.

Determining Panel and Component Locations

Note: Refer to the individual component Installation Instructions to determine the best locations for individual sensors.

Read "Running Wires to the Panel Location" and "Connecting the Panel to the Phone Line" in Section 3 to understand panel wiring requirements, which will affect your choice of a panel location. Use the floor plan worksheet in the *Installation Instructions* to create a floor plan that includes the location of the panel, system devices, and sensors. Follow these guidelines as you create the floor plan.

- Provide the panel with access to the incoming phone line (telephone protector block), 110 VAC power, and other wired devices.
- Be able to run the necessary wires between the panel location that you select and the locations of the hardwire components and connections.
- Locate the panel on a table or countertop where it is convenient to use (for example, on a nightstand near a bed).
- Locate the panel in a temperature- and humidity-controlled environment. Refer to Section 1 for "Panel Specifications."
- Find a central location for the panel with respect to all sensors, if possible.
- Mount sensors within 100 feet of the panel whenever possible. Although the system has an open field range of at least 500 feet, use 100 feet as a starting point inside a building.
- Determine the actual range of any wireless sensors during installation according to Section 8 "Testing the System."

Planning Panel Option Programming

Read Section 5 "Programming Panel Options" to understand the panel options you can program. Determine which of the panel configuration options, upper sensor numbers, and feature numbers need to be programmed into the system. Complete the "Panel Configuration Settings" worksheet in Appendix A of the *Installation Instructions.*

Determining Central Station Programming

Some system options and communication parameters can only be programmed from the central station. Determine if any of these are necessary for the system you are installing by referring to Section 7 "Programming from the Central Station."

Planning to Explain the System to the User

Be prepared to discuss the system operation with the user. For details about how the system operates, see Section 9 "Operation."

SECTION 3
INSTALLING THE SYSTEM

This section describes how to install the system and connect hardwire system components. You should do these procedures before programming the panel. The procedures in this section assume that you have a good understanding of basic wiring techniques and how to run wire behind walls and under floors.

WARNING: The panel may be damaged if the total combined current consumption of all connected sirens, hardwire detectors (smoke or PIR), and Interrogator Module exceeds 290 mA. To determine the total combined current consumption, complete the "Hardwire Devices" worksheet in Appendix A of the Installation Instructions.

Installation Checklist

Install the system by performing the following procedures:

- ❑ Run wires to the panel location.
- ❑ Connect the panel to the phone line.
  - __ Connecting the panel to the phone line without line seizure.
  - __ Connecting the panel to the phone line with line seizure.
- ❑ Connect hardwire devices to the panel.
  - __ Connecting hardwire sensors to the panel.
  - __ Connecting hardwire sirens and piezos to the panel.
  - __ Installing microphones.
  - __ Connecting other components to the panel.
- ❑ Connect panel power.
  - __ Connecting the panel to AC power.
  - __ Connecting the panel to DC power.
- ❑ Plug in the panel.
- ❑ Adjust the panel speaker volume.

Note: To install peripheral and hardwire devices, see the Installation Instructions that accompany each device.

Tools Required

The following tools are required for installing the panel and related accessories. Be sure you have all these tools available before you begin an installation:

- ❑ 22-gauge 2- and 4-conductor wire
- ❑ Wire stripper
- ❑ Phillips screwdriver
- ❑ Flat head screwdriver
- ❑ Drill with assorted bits
- ❑ Digital voltmeter
- ❑ Appropriate mounting hardware
- ❑ Weatherproof crimp connectors
- ❑ Crimping tool

Running Wires to the Panel

You must run wire from the Panel to phone, power, and hardwire devices. For best results, use the following suggestions to wire the system:

- Run wires under floors, over ceilings, and between walls.
- Keep wires as concealed as possible. Whenever possible, fish wires through walls rather than running them along the surface of finished walls.
- Try to keep wires at least 4 to 6 feet away from fluorescent lighting or AC power lines that are running parallel.

Table 3.1 shows the number of conductors (leads) and the wire gauge required for peripheral and hardwire devices.

Table 3.1. Number of Wire Leads Required for Hardwire Components

Component	Wire Size	# Leads	For More Information
Telephone *	22-gauge or greater, stranded	4	See "Connecting the Panel to the Phone Line."
Line Carrier Transformer †	22-gauge or greater, stranded	4	See "Connecting Panel Power."
N/C or N/O Contact	18- to 22-gauge; stranded, twisted	2	See "Wiring Sensors to the Panel."
PIR Motion Sensor	18- to 22-gauge; stranded, twisted	4	
Smoke Detector	18- to 22-gauge; stranded, twisted	4	
Hardwire Exterior Siren	22-gauge or greater, stranded	2	See "Connecting Hardwire Sirens and Piezos to the Panel."
Hardwire Interior Siren and Piezo	22-gauge or greater, stranded	4	
Piezo Status Beeper	22-gauge or greater, stranded	2	
Microphones	22-gauge, stranded	2	See "Installing Microphones."
Other Hardwire Devices	See appropriate installation sheets.		

* Telephone connection required.

† You must use either the Class II AC Power Transformer or the Line Carrier Transformer.

To run wires to the panel's wire access area:

1) Run the appropriate wire between each hardwire device and the panel.

   You can run the wire from the device location to the panel or from the panel to the device location, whichever is more convenient.

2) Route the wires for hardwire devices out through the panel's wire access area and base.

3) Mark each wire run, so that you know which wires are for each component.

4) Tie-wrap or secure the wires to a solid structure, whenever possible.

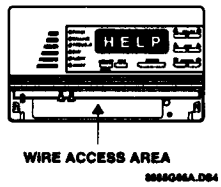


Figure 3.1. Wire Access Area Location

Connecting the Panel to the Phone Line

The panel uses the phone line to communicate with the central station in the event of an alarm or sensor trouble condition.

The panel can be connected to the phone line:

- without line seizure
- with line seizure

Line seizure causes on-premises phones to stop working while the panel is communicating with the central station. When the report is completed to the central station, the on-premises phones work again.

Connecting the Panel to the Phone Line *without* Line Seizure

To connect the panel to the phone line without line seizure:

1) Locate the cord with a phone plug at each end. This cord is included with the panel.

2) Insert one phone plug into the phone jack on the back of the panel and the other phone plug into the phone jack on the wall as shown in Figure 3.2.

Note: This method is not to be used for UL listed systems.

Note: If you want to plug a phone into the same phone jack on the wall, you will need a T-connector.

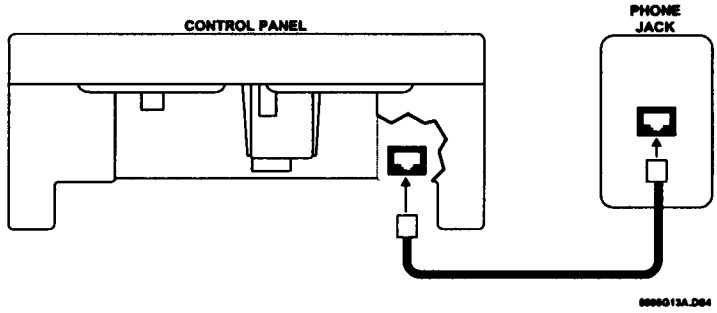


Figure 3.2. Connecting the Panel to the Phone Line without Line Seizure

Connecting the Panel to the Phone Line *with* Line Seizure

This procedure has three parts:

1) Connect the phone cord to the panel.
2) Check the phone line polarity.
3) Connect the panel to the incoming phone line.

If you follow these steps, you will minimize the time phones are disabled while you wire the panel to the phone line.

Note: The panel dials the central station using touch-tone dialing. If the premises do not have touch-tone service, optional feature number F22 (DTMF Dialing) must be turned OFF. Refer to Table 5.3 for a description of this feature.

Connecting the Phone Cord to the Panel

The DB-8 Cord provided with the panel is an 8-lead phone cord with a modular plug. This cord lets the user unplug the panel from the RJ-31-X Jack, to restore the premises phones if the panel will not release the phone line. This capability is required by many local ordinances.

To connect the DB-8 Cord to the panel:

1) Bend the ends of the terminal lugs on the DB-8 Cord to 90° (see Figure 3.3).

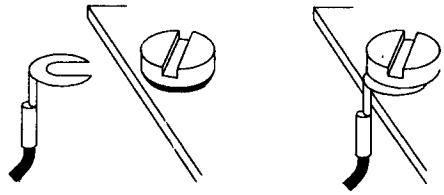


Figure 3.3. Bend DB-8 Cord Lugs 90° before Connecting to Terminals

2) Connect the terminal lugs on the DB-8 Cord to the panel (see Figure 3.4).

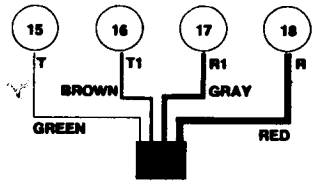


Figure 3.4. Wiring DB-8 Phone Cord to Panel

3) Wrap each end of the four extra wires with electrical tape to insulate them, and tape them together for possible future use.

Note: If you choose to secure the DB-8 Cord's strain-relief eyelet inside the battery access area, fasten the eyelet to the wall.

Checking Phone Line Polarity

WARNING: Reversed polarity at any point along the phone line is a common cause of phone problems. If the phone line polarity is not correct, it may not be possible to dial out. Checking phone line polarity will help you reduce such problems.

To check phone line polarity:

1) Locate the Telco block or network interface where the telephone lines come into the premises. This must be between the incoming phone line and the first premises phone.

2) Using a digital voltmeter that measures DC volts, connect the positive and negative leads of the voltmeter to separate terminals on the Telco block (see Figure 3.5).

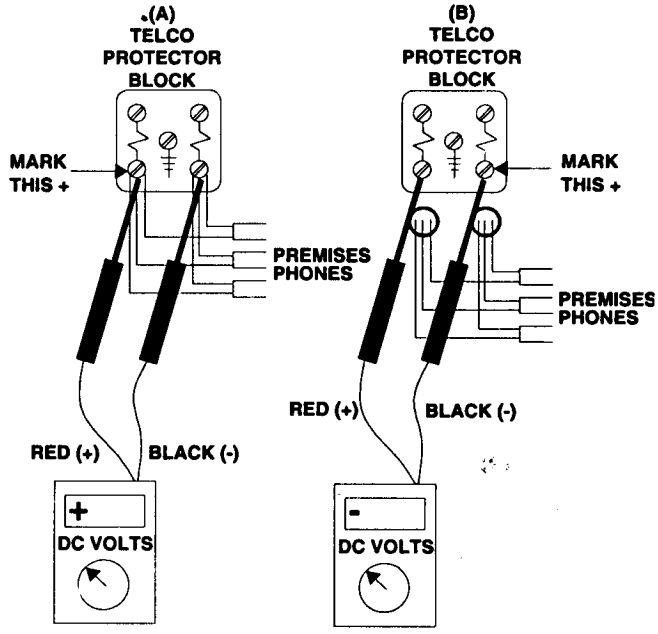


Figure 3.5. Checking Phone Line Polarity

3) Mark the positive terminal on the Telco block:

If the voltmeter displays a positive voltage, the positive terminal is connected to the *positive* lead of the voltmeter. Mark that terminal positive (+), (see A in Figure 3.5).

If the voltmeter displays a negative voltage, the positive terminal is connected to the *negative* lead of the voltmeter. Mark that terminal positive (+), (see B in Figure 3.5).

Connecting the panel to the Incoming Phone Line

As the last step in the process of wiring the panel to the phone line, you must install the RJ-31X Jack (CA-38A in Canada). The RJ-31X Jack completes the connection between the Telco block and the DB-8 Cord on the panel. The connection is made with a 22-gauge 4-lead wire, a splice wire that you supply. The splice wire intercepts the phone line before it reaches the premises phone(s), allowing the panel to seize the outgoing line when an alarm occurs. At one end, the splice wire's four leads connect to the RJ-31X; at the other end, two leads connect to the Telco protector block and two connect to the premises phone lines.

To connect the RJ-31X/CA-38A Jack:

1) Mount the RJ-31X Jack within reach of the DB-8 Cord.
2) Run a 22-gauge 4-lead wire, a splice-wire that you supply, from the Telco protector block to the RJ-31X Jack.
3) Connect one end of the splice-wire to the RJ-31X Jack as shown in Table 3.2 and Figure 3.6.

Table 3.2. Connecting the RJ-31X Jack to the Splice-wire

RJ-31X Terminals	Splice-wire
Brown	Black
Gray	White or Yellow
Green	Green
Red	Red

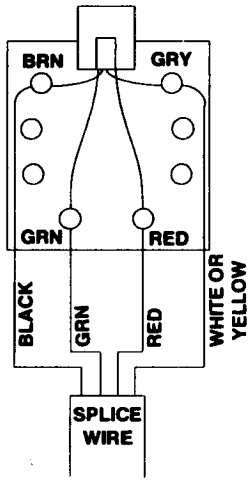


Figure 3.6. Wiring the RJ-31X Jack to the Splice-wire

4) Disconnect the premises phone line's positive and negative leads at the Telco protector block, which you located in the previous procedure, "Checking Phone Line Polarity" (see A in Figure 3.7).

   If there are multiple phone lines at the Telco protector block, keep the positive and negative leads grouped separately when you disconnect (see B in Figure 3.7).

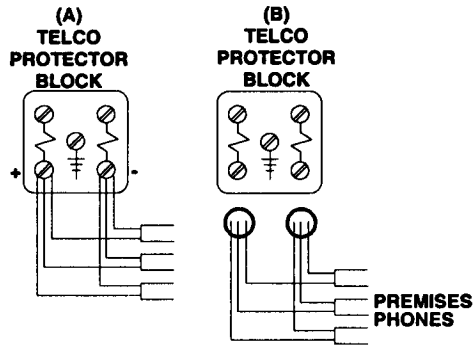


Figure 3.7. Disconnecting Premises Phones

5) Connect your splice-wire's green and red leads to the positive and negative Telco protector block terminals, respectively (see A and B in Figure 3.8).
6) Connect your splice-wire's black lead to the premises phones positive wire(s), normally green (see C in Figure 3.8).
7) Connect your splice-wire's white/yellow lead to the premises phones negative wire(s), normally red (see D in Figure 3.8).

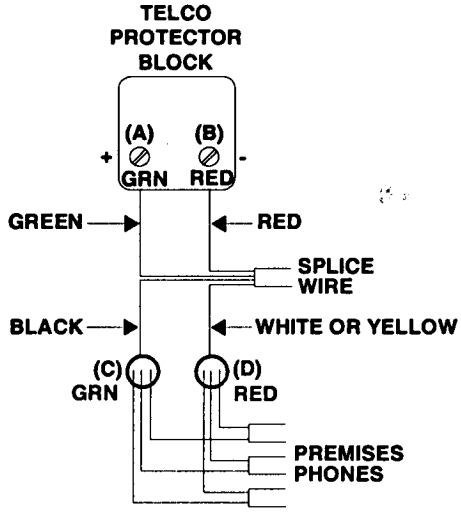


Figure 3.8. Intercepting the Premises' Phones with the RJ-31X Jack's Splice Wire

8) Check all premises phones for dial tone and dial-out operation.
9) Plug in the DB-8 Cord.

10) Check all premises phones again for dial tone and dial-out operation. If the phones do not work properly, double-check the polarity and wiring (see Figure 3.9).

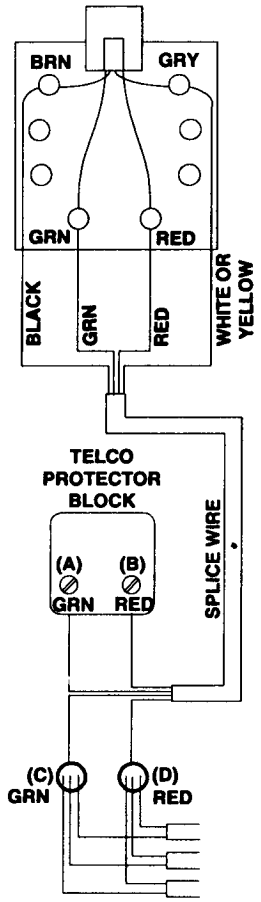


Figure 3.9. Completed Phone Line Wiring

Connecting Hardwire Devices to the Panel

Use Table 3.3 to calculate the total current draw before wiring hardwire devices to the panel.

Table 3.3. Hardwire Device Current Draw Worksheet

Part Number	Description	Quantity	Current Draw	Total
Hardwire Sensors				
13-068	Magnetic Contact 3/8" press fit		N/A	
13-070	Magnetic Contact – surface mount		N/A	
13-077	ESL 445AT Smoke Detector		100 mA	
79-004	Fire Pull Station		N/A	
13-082	PIR Motion Detector		10 mA	
Hardwire Sirens				
60-483	Slim Line Hardwire Interior Siren & Piezo		30 mA	
60-278	Hardwire Interior Siren and Piezo		75 mA	
30-006	Piezo Status Beeper		5 mA	
13-046	Hardwire Exterior Siren		100 mA	
Miscellaneous Components				
60-391	Power Supervision Module		1 mA	
60-471	Interrogator Module *		290 mA	
Total Power Consumption cannot exceed				290 mA *

* When the Interrogator Module requires all panel power (290 mA), sirens can still be used with the Interrogator Module, provided they are all wired through the Interrogator Module and do not exceed 290 mA. Sirens are turned off when the Interrogator Module is on.

Connecting Hardwire Sensors to the Panel

The panel has one hardwire input for wiring sensors to the panel (refer to the sensor's *Installation Instructions*). You can use either normally open or normally closed devices, and both require a 4.7k ohm end-of-line (EOL) resistor to be installed as the last device for circuit supervision, except when the Power Supervision Module (60-391) is installed with hardwire smoke detectors (see Figure 3.10).

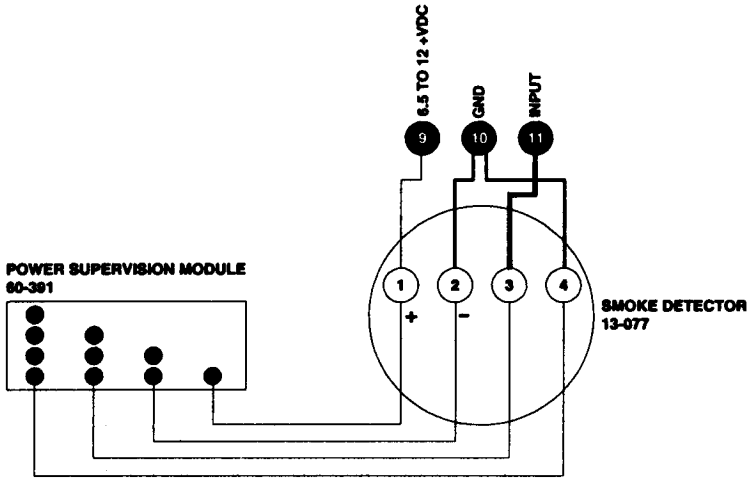


Figure 3.10. Wiring a Smoke Sensor

Normally open contacts are wired in parallel (see Figure 3.11), while normally closed contacts are wired in series (see Figure 3.12).

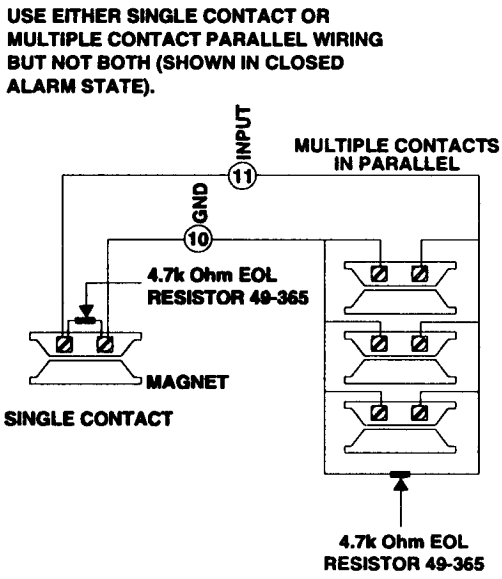


Figure 3.11. Wiring Normally Open Contacts in Parallel

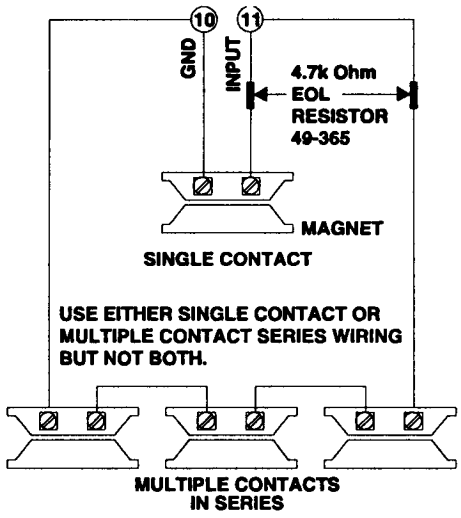
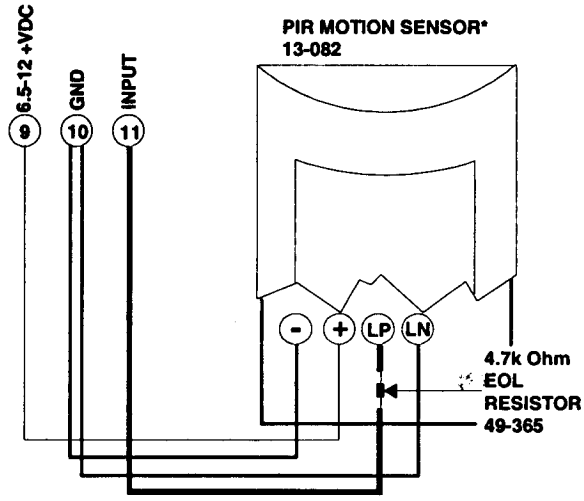


Figure 3.12. Wiring Normally Closed Contacts in Series

A passive infrared motion sensor (PIR) requires the EOL resistor in series, in the loop positive (LP) wire connection (see Figure 3.13).



* Not investigated by UL

Figure 3.13. Wiring a PIR Motion Sensor

Connecting Hardwire Sirens and Piezos to the Panel

You can connect the panel to hardwire sirens and/or piezos. Sirens produce alarm sounds, and piezos produce status sounds in areas of the premises where the panel speaker cannot be heard. The only restriction to the number of sirens and piezos that can be wired to the panel is the 290 mA maximum current draw.

Note: When the Interrogator Module requires all panel power (290 mA), sirens can still be used with the Interrogator Module, provided they are all wired through the Interrogator Module and do not exceed 290 mA. Sirens are turned off when the Interrogator Module is on.

You can attach the Slim Line Hardwire Interior Siren and Piezo (60-483) to the side of the panel, or install it away from the panel. Figure 3.14 shows how to wire the Slim Line siren to the panel.

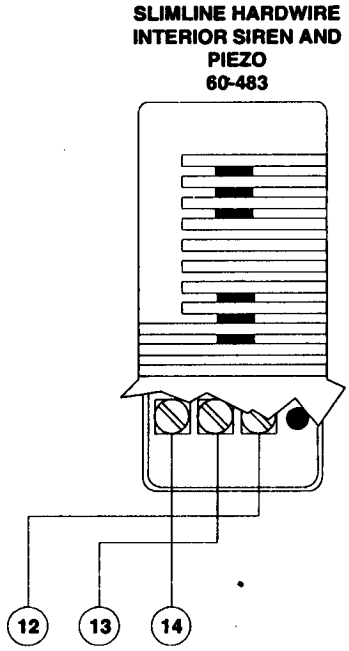


Figure 3.14. Wiring the Slim Line Hardwire Interior Siren and Piezo

Figure 3.15 shows how to wire the Hardwire Interior Siren and Piezo, Figure 3.16 shows how to wire the Piezo Status Beeper, and Figure 3.17 shows how to wire the Hardwire Exterior Siren.

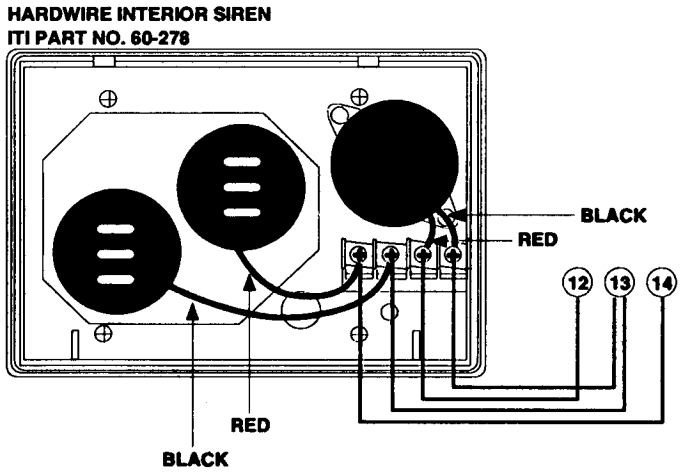
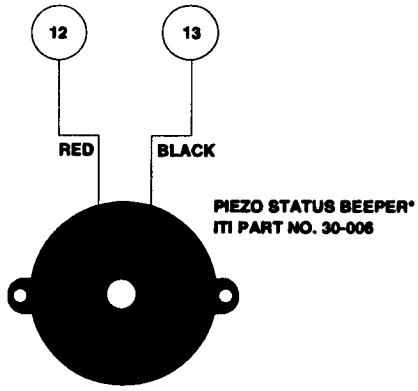


Figure 3.15. Wiring the Hardwire Interior Siren and Piezo



* Not investigated by UL

Figure 3.16. Wiring the Piezo Status Beeper

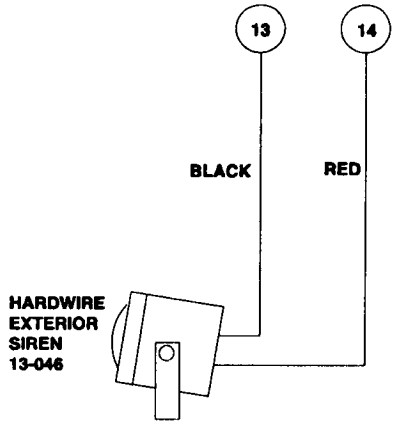


Figure 3.17. Wiring the Hardwire Exterior Siren

Installing Microphones

Use the following guidelines when installing microphones:

- A maximum of three microphones can be used with the Interrogator Module.
- Install microphones so that talk-back can be done from different areas on the site.
- Use shielded, 22-gauge, stranded wire for each microphone wire run.

Installing the Drill-Mount Microphone (60-595)

Use the following procedure for installing the drill-mount microphone:

1) Examine the microphone location to ensure wiring access to the Interrogator Module.
2) Drill a 1/2-inch hole into the wall or ceiling.
3) Run 2-conductor, shielded, 22-gauge, stranded wire from the microphone location to the Interrogator Module.

4) Connect the microphone to the shielded wire, then connect the shielded wire to the Interrogator Module terminals, observing polarity (see Figure 3.18).

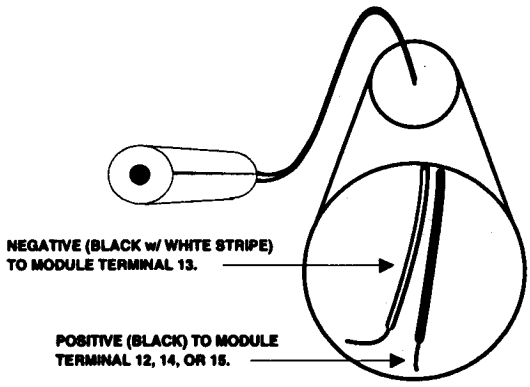


Figure 3.18. Drill-Mount Microphone Wiring Polarity and Termination

5) Slide the microphone housing into the hole until it is flush with the mounting surface.

Installing the Speaker Cover Microphone (60-596)

This microphone and speaker cover combination is designed to replace a cover on an existing interior siren (60-278 or 60-252). Use the following installation procedure:

1) Remove the cover from the existing siren and disconnect the siren wires.
2) Remove the siren housing from the wall.
3) Run 2-conductor, shielded, 22 gauge, stranded wire from the siren location to the Interrogator Module.
4) Mount the siren housing back on the wall and reconnect the sirens.
5) Connect the microphone to the shielded wire then connect the shielded wire to the Interrogator Module terminals, observing polarity (see Figure 3.19).

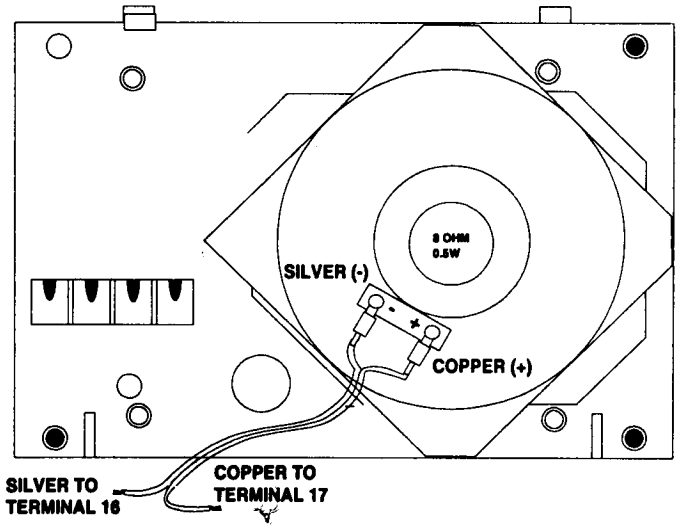


Figure 3.19. Speaker Cover Microphone Wiring Polarity and Termination

6) Install the microphone inside the speaker cover by pressing it into the velcro (see Figure 3.20).

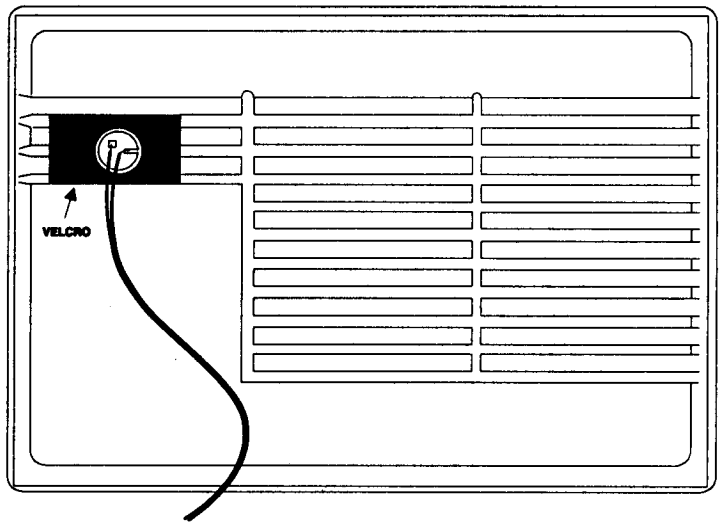


Figure 3.20. Installing the Microphone in the Cover

7) Secure the speaker cover to the siren housing.

Connecting Microphones and Speaker

Connect all microphones and speakers as shown in Figure 3.21.

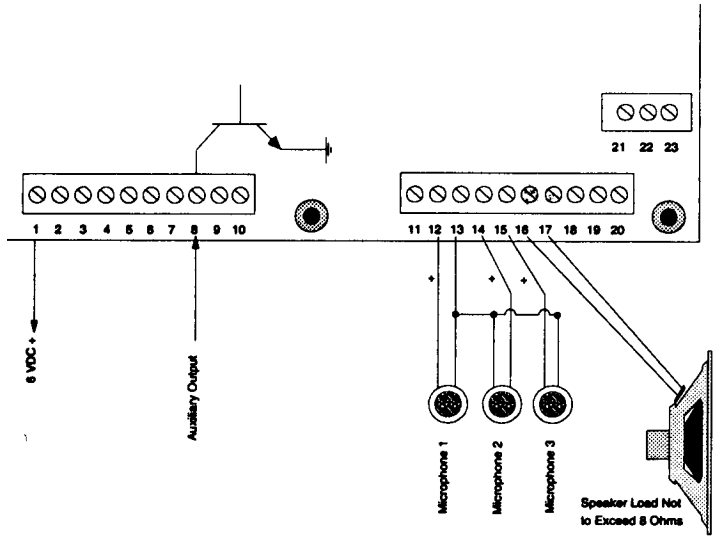


Figure 3.21. Microphone and Speaker Connections

Note: Speakers must be wired so that the total impedance of the circuit is at least 8 ohms. For example, two 8-ohm speakers must be wired in series (16 ohms).

Connecting Other Components to the Panel

Figure 3.22 shows the wiring diagram for the system. See the device's installation instructions for more detailed information.

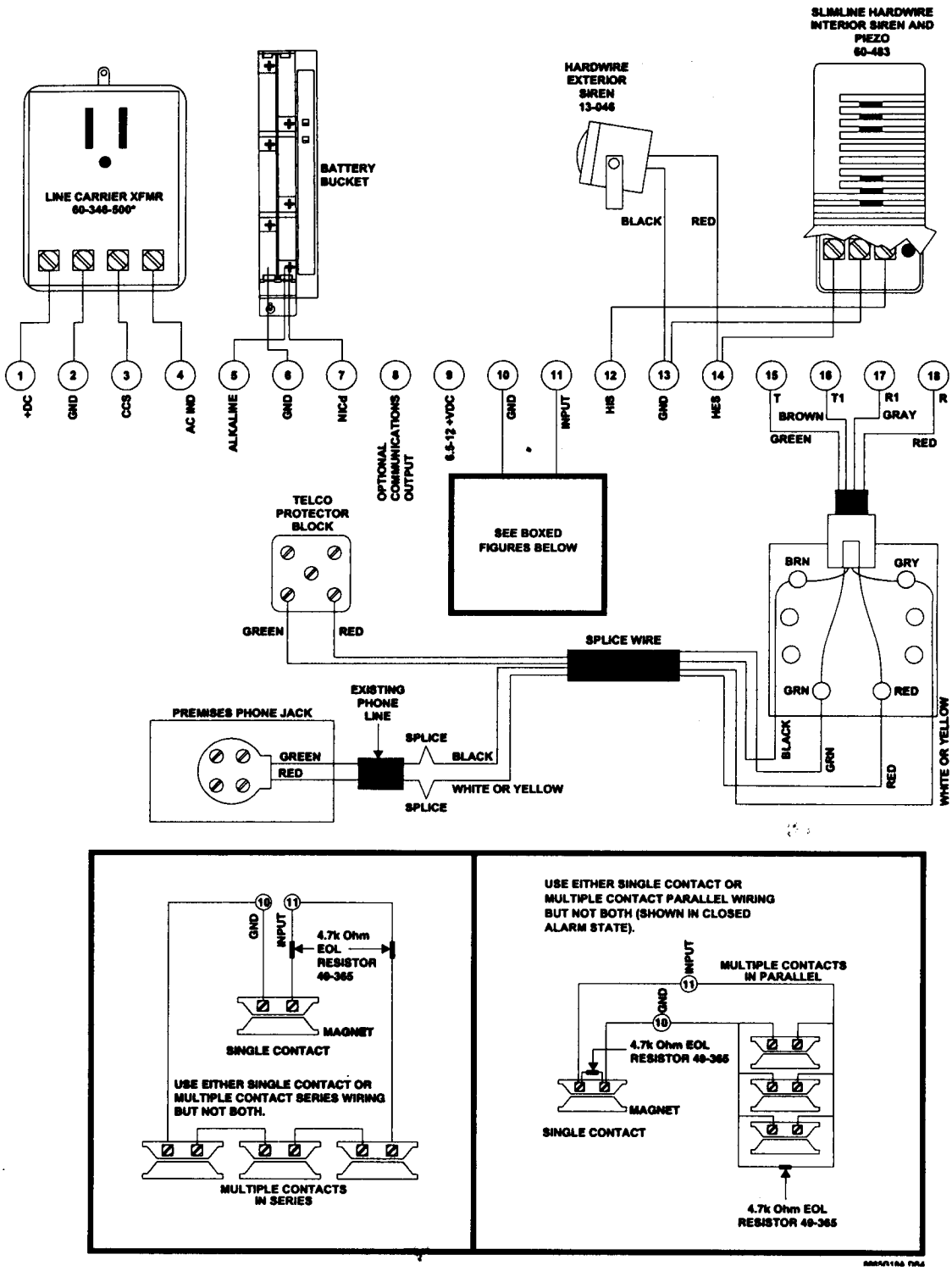


Figure 3.22. Wiring Devices to the Panel

Connecting Panel Power

The panel must receive primary power from either an AC power transformer or a 12 V battery. It also must receive backup power from six backup batteries.

Connecting the Primary Panel Power

Normally the panel receives primary power from an AC power transformer, which plugs into a standard outlet. Use only one of the two AC power transformers that are available for the system:

- Class II Power Transformer (A power cord with a Class II Power Transformer on one end and a power plug on the other end is included with the panel.)
- Line Carrier Power Transformer (60-346-500 in U.S., 60-503 in Canada)

The Class II Power Transformer is the standard power supply for the system. If you are installing the X-10 Lamp Module or the WIS, you must use the optional Line Carrier Power Transformer to power the system.

Optionally, the panel can receive primary power from a DC battery (see "Installing a DC Battery as the Primary Power Supply").

Installing the Class II Power Transformer

The Class II Power Transformer supplies 9 VAC, 15 VA. The panel converts the 9 VAC to a DC voltage for operation.

To Install the Class II Power Transformer:

1) Locate the power cord with a round power plug on one end and a Class II Power Transformer on the other end. This cord is included with the panel.
2) Insert the power plug into the power jack on the back of the panel as shown in Figure 3.23.

Note: Do not plug the transformer into the outlet at this time.

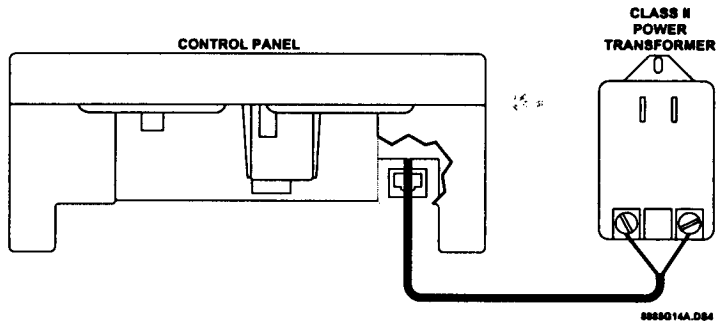


Figure 3.23. Installing the Class II Power Transformer

3) Proceed to "Installing and Replacing Backup Batteries."

Installing the Line Carrier Power Transformer

The Line Carrier Power Transformer supplies DC power to the panel. This transformer also transmits line carrier signals that operate the Wireless Interior Siren (WIS) and X-10 Lamp Modules.

To install the Line Carrier Power Transformer:

1) Connect the cable to the transformer and panel as shown in Figure 3.23.

Note: Do not plug the transformer into the outlet at this time.

2) Proceed to "Installing and Replacing Backup Batteries."

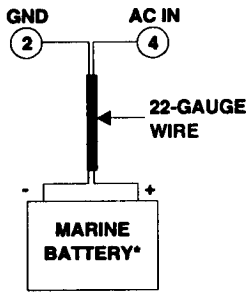
Installing a DC Battery as the Primary Power Supply

In installations where the system must be mobile, such as with boats or RVs, primary power can be provided by installing a 12 V battery.

To install a DC Battery as the primary power supply:

- Connect a 22-gauge 2-lead wire from terminals 2 and 4 to the negative and positive battery terminals, respectively (see Figure 3.24).

Note: Feature Number 21 (F21) must be set to ON when using a marine battery to power the system.



* Not investigated by UL

Figure 3.24. Wiring DC Power

Installing and Replacing Backup Batteries

The panel uses six backup batteries that provide power to keep the system operating in the event of an AC power failure. The panel can use either NiCd or alkaline batteries; but because of the different voltages and charging requirements of these batteries, you cannot change battery types. While alkaline batteries may provide longer backup power, NiCd batteries are kept charged by the system and provide longer overall battery life.

Note: If you're installing NiCd batteries, make sure the batteries are fully charged before installing them (see Section 10 "Troubleshooting"). Fully charged batteries are at least 1.2 VDC per battery or 7.2 VDC for six batteries.

To install backup batteries:

1) Remove the battery door and battery bucket from the panel, if not already removed.

2) Verify all wiring at the panel and devices for correct terminations. Refer to Figure 3.22 for the system wiring diagram and the individual component wiring diagrams.

WARNING: If batteries are in the battery bucket, make sure that the exposed ends of the red and black leads do not touch each other. The batteries could drain, the wires could heat up, and the batteries could explode.

3) Connect the black wire from the battery bucket to panel terminal 6 (GND).

4) Remove the appropriate plastic tab to expose the alkaline or NiCd screw terminal (see Figure 3.25).

Note: Do not remove both plastic tabs. The tab left in place indicates to the user the battery type installed.

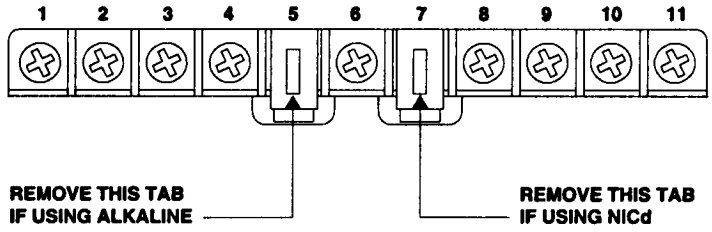


Figure 3.25. Selecting Tab to Indicate Battery Type

5) If you are installing NiCd batteries, connect the red wire from the battery bucket to panel terminal 7.

or-- If you are installing alkaline batteries, connect the red wire from the battery bucket to panel terminal 5.

CAUTION: To avoid the possibility of personal injury and equipment damage, never install alkaline batteries when the panel is set up for NiCd batteries. Alkaline batteries may explode if connected to a charging circuit.

Never install NiCd batteries when the panel is set up for alkaline batteries. If an AC power failure occurs, the batteries may not be charged sufficiently to supply power to the panel.

6) Install six of the appropriate AA batteries in the battery bucket. Observe the battery polarity and order of installation shown in Figure 3.26.

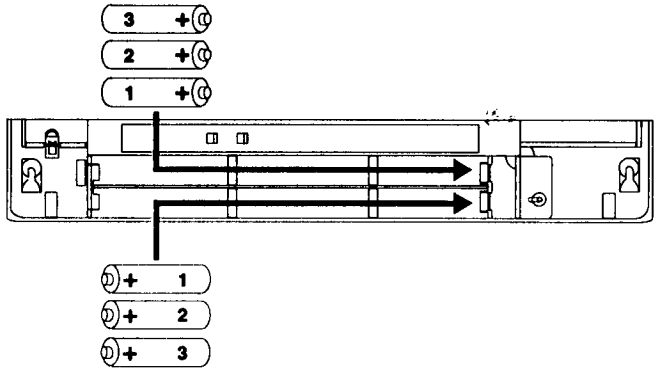


Figure 3.26. panel Battery Polarity and Order of Installation

Note: Depending on the length of your backup batteries, it may be necessary to slightly bend the contacts on either end of the battery bucket to accommodate the batteries. Be sure not to bend the contacts too far; this could result in a poor connection.

7) Put the battery bucket in the panel, and be sure that the battery indicator tab extends through the hole in the battery bucket.

8) Secure the battery bucket in the panel using the screw removed earlier.

9) Replace the battery door.

To replace backup batteries:

1) Remove the battery door from the panel.
2) Remove the backup batteries from the battery bucket, in reverse order of the installation shown in Figure 3.26. Then return to step 7 in the "To install backup batteries" procedure to complete the replacement.

Installing the Battery Door

If the panel is off, installing the battery door is the final task before connecting power. If the panel is already on and in program mode, installing the battery door returns the panel to normal operation mode.

To install the battery door:

1) Position the battery door on the panel as shown in Figure 3.27.
2) Slide the battery door straight up until it fits squarely on the panel.
3) Gently tighten down the two screws at the bottom of the battery door.

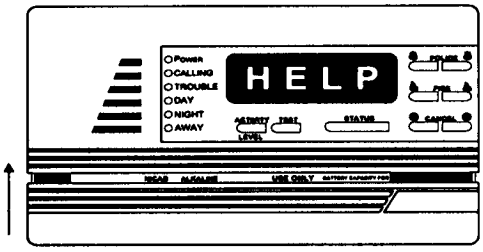


Figure 3.27. Positioning the Battery Door

Plugging In the Panel

After you have made all the wiring and phone connections to the panel and installed the backup batteries, plug in the panel to power up the system and activate the backup batteries.

To plug in the panel and mount the transformer:

1) Plug the transformer into any outlet that is not controlled by a switch.

   The Power light will be ON, and the panel announces, *System [version n, sensor m,* where *n* is the software version number and *m* is the wireless sensor capacity for the panel.

Note: The first time the panel is powered up, the system beeps six times every minute and all LEDs are on steady, indicating that nothing has been programmed into memory yet. If the battery door is off, the LEDs will flash to indicate the panel is in program mode.

If the POWER light is OFF and no voice message is announced, unplug the transformer immediately. Proceed to Section 10 "Troubleshooting" for more information.

Note: If the TROUBLE light flashes, it may be because the NiCd batteries are low. The batteries may need to be charged for 24 hours. Although the panel can charge low batteries, the TROUBLE light may flash for up to 24 hours while the batteries are charging.

Note: If you're installing NiCd batteries, make sure the batteries are fully charged before installing them (see Section 10 "Troubleshooting"). Fully charged batteries are at least 1.2 VDC per battery or 7.2 VDC for six batteries.

2) Unplug the transformer, and then remove the existing screw securing the AC outlet cover.

   CAUTION: Use extreme caution when securing the transformer to a metal outlet cover. You could receive a serious shock if the metal outlet cover drops down onto the prongs of the plug while you are securing the transformer and cover to the outlet box.

3) Hold the outlet cover in place and plug the transformer into the lower receptacle.

4) Use the screw supplied with the transformer to tighten the top of the transformer to the outlet cover.

Adjusting the Panel Speaker Volume

You can adjust the volume level of the panel speaker. The panel has eight volume levels to choose from. The alarm sounds and messages are always at full volume.

To adjust the panel speaker volume:

- Press and hold both CANCEL buttons until it reaches the volume level you want.

  The panel announces, *Hello...hello....hello...hello...* with a steadily decreasing volume and then returns to full volume and starts decreasing in volume again.

SECTION 4
PROGRAMMING SENSORS

The panel must be programmed to receive and recognize signals from sensors. Sensors monitor specific areas of the premises and communicate this information to the panel, which responds with alarm sounds or status information. This section describes basic programming information, such as entering and exiting program mode, as well as how to program sensors, the hardwire input, and wireless touchpads.

Sensor Programming Checklist

Program sensors in the following order:

- ❑ If you're programming a new panel, clear the panel memory and reenter program mode.
- ❑ Program wireless sensors.
- ❑ Program the hardwire sensor.
- ❑ Program wireless touchpads.
- ❑ Program 2-Button Keychain Touchpads.
- ❑ Program the Interrogator Module.

Using Programming Codes

The *dealer programming code* and *installer programming code* allow two different service personnel entry into program mode. The dealer programming code allows the dealer to change all programmable values. The installer programming code allows the installer to change all values, except the dealer programming code and the primary phone number. Table 4.1 shows the defaults for the codes used with the system.

Table 4.1. Default Code Settings

Name of Code	Default
Dealer Programming Code	4 3 2 1
Installer Programming Code	4 3 2 1

The dealer programming code and installer programming code share the same default. The installer programming code is not a programmable value and can never be changed from the default. If the dealer programming code is changed from the default, the dealer programming code and primary phone number are protected, but the installer can perform all other panel programming.

Note: To use the dealer programming code, a wireless touchpad must be learned into the system.

WARNING: Communication Locking (CommLock) settings determine if the dealer or the central station has control over an account. Read "Selecting Communication Locking" in Section 7 before attempting to install and program this panel. Also, check your dealer's procedure for handling CommLock.

Entering and Exiting Program Mode

The panel must be in program mode to program any of the following into the system:

- Learn Mode sensors
- Panel configuration options (see Section 5 "Programming panel Configuration Options").
- Upper sensor numbers (see Section 5 "Programming Upper Sensor Numbers ").
- Feature numbers (see Section 5 "Programming Feature Numbers").

Entering Program Mode

You can enter program mode from the panel or from a wireless touchpad.

To enter program mode from the panel:

1) Unplug the transformer from its outlet.

2) Remove the battery door from the panel.

Note: Every time the panel's tamper switch is activated (including when the battery door is removed), the system begins a 2-minute backup battery test. The charging voltage (9-12 V without the battery wired) that is normally present for NiCd rechargeable batteries is not available during the battery test.

2a) If the panel was operating when you started this procedure, you must also disconnect the black wire from terminal 6 on the panel. This disconnects the batteries.

3) Plug the transformer back into its outlet.

The panel LEDs begin to flash, and the speaker sounds six beeps every minute to indicate that the system is in program mode.

3a) If you performed step 2a of this procedure, you must reconnect the black wire to terminal 6 on the panel. This reconnects the batteries.

4) Remove the HELP button to expose the panel's operation buttons. Perform all desired programming before exiting program mode.

Note: If the panel is new, with no values programmed yet, perform the "Clearing Memory" procedure before beginning to program.

To enter program mode from a wireless touchpad:

Note: To use a wireless touchpad to program the system, it must already be programmed into the system.

1) Remove the battery door from the panel.

Note: Every time the panel's tamper switch is activated (including when the battery door is removed), the system begins a 2-minute backup battery test. The charging voltage (9-12 V without the battery wired) that is normally present for NiCd rechargeable batteries is not available during the battery test.

Note: If the panel is new, with no values programmed yet, perform the "Clearing Memory" procedure before beginning to program.

2) Enter the DEALER PROGRAMMING CODE or INSTALLER PROGRAMMING CODE at the wireless touchpad.

The panel LEDs begin to flash, and the speaker sounds six beeps every minute to indicate that the system is in program mode. Perform all desired programming before exiting program mode.

Exiting Program Mode

You must exit program mode after completing programming to return the panel to normal operation.

To exit program mode:

- Attach the battery door to the panel.

  The LEDs on the panel stop flashing, and the speaker stops sounding six beeps every minute.

Selecting Communication Locking

The Communication Locking feature determines if the dealer or the central station has control over the customer account. The Communication Locking feature accomplishes this with two independent locking methods:

- Phone Lock
- Central Station Lock

If your company does not own the CS-4000 that will provide monitoring, but you want to maintain control of customer accounts, Phone Lock must be enabled before the panel reports to a central station.

WARNING: The CS-4000 can place a central station lock on any panel account that has not already been phone locked by the dealer.

Note: A panel can operate with or without a locking method; however, it is not possible for a panel to use both methods simultaneously. If the panel's dealer programming code is not the default, Phone Lock is enabled and a CS-4000 cannot enable Central Station Lock for that panel. If the panel's security code is not the default, Central Station Lock is enabled and the panel will not allow the dealer to change the dealer programming code.

Refer to the *CS-4000 Installation and User's Manual* (46-056) for a complete discussion of the Central Station Locking feature.

Phone Lock

Phone Lock uses the dealer programming code to determine who has programming privileges for the primary phone number, used for panel reports to the CS-4000.

The dealer programming code and installer programming code share the same default. When the dealer programming code is changed from the default, the dealer programming code and phone number are protected, but the installer can perform all other panel programming.

Warning: Clearing memory does not reset the dealer programming code. When Phone Lock is used, other than using the dealer programming code, the primary phone number and dealer programming code can only be reset by sending the panel to ITI for repair. If the dealer programming code is changed from the default, make sure to keep the new code in a safe place.

To change the dealer programming code:

1) While in program mode, press CANCEL + CANCEL + TEST.
2) Enter the new DEALER PROGRAMMING CODE twice.

Note: If possible, avoid using the same code as any other code being used with the system.

Example: 54325432

The system confirms the change by announcing *OK*.

If the code was not repeated exactly, or if Central Station Lock is enabled, the system announces, *Invalid, Try Again.* Return to step 1 to try again.

3) Exit program mode by replacing the battery door, or continue on to perform any desired programming procedures.

Clearing Memory

Before programming a new panel, clear the memory. If the dealer programming code is different from the installer programming code, clearing memory does *not* clear the primary phone number or the dealer programming code.

Note: When entering command sequences, both POLICE, FIRE, and CANCEL buttons must be pressed at the same time, to register a single entry. If two entries are listed in a step, both buttons must be pressed twice. Pressing and holding both buttons for at least three seconds functions the same as pressing both buttons twice.

Note: If you are not in program mode when you attempt this procedure, pressing both POLICE and FIRE emergency buttons can result in an emergency alarm. You must replace the battery door or close the tamper switch, before you can cancel the alarm.

To clear panel memory:

Note: When performing procedures, read the entire procedure completely, paying particular attention to all notes, cautions, and warnings. A clear understanding of the procedure and the ability to complete it in a timely fashion are the keys to eliminating programming problems.

1) While in program mode, press both POLICE buttons twice.

   The panel beeps each time you press the buttons.

2) Immediately press both CANCEL buttons twice.

   The panel beeps each time you press the buttons.

   The panel announces, *Memory good-bye, system n, sensor m,* where *n* is the software version and *m* is the number of wireless sensors the system can support.

3) To begin programming the panel, enter the DEALER PROGRAMMING CODE or INSTALLER PROGRAMMING CODE if you are programming from a wireless touchpad. If you are programming from the panel, you can just start programming.
4) Proceed to "Programming Wireless Sensors."

Programming Wireless Sensors

Each wireless sensor has a unique sensor identification code (ID). Because each sensor ID is different, the panel needs to *learn* the ID of each sensor in the system. The panel learns the ID when you trip the sensor's tamper switch as described in "Adding Wireless Sensors." If you want to reassign a sensor to another group, you must delete that sensor first, as described in "Deleting Wireless Sensors."

Selecting Sensor Group Assignments

You must assign each sensor to the group that matches the sensor's purpose. Groups are arranged by function and determine how the panel responds to sensors in that group. Sensor numbers can be assigned to any sensor group in any order, but we recommend that you assign sensor numbers sequentially within a group to make programming easier. The following paragraphs describe the four characteristics that define a group. Table 4.2 shows how these characteristics apply to each group.

To select group number assignments:

1) Identify the sensors you will install and locate the group numbers that apply to each sensor's function (see Table 4.2).
2) Record group and sensor number assignments on the "Sensor Groups and Locations" worksheet in Appendix A of the *Installation Instructions*. Be sure to keep group numbers together, and assign sensor numbers sequentially within groups.
3) Use the stickers provided in the panel's accessory pack to identify each sensor when you mount them.
4) Proceed to "Programming Wireless Sensors."

Alarm

Determines the sounds produced when the sensor is tripped. The five types of siren sounds are police, auxiliary/medical interior, fire, silent, and special chime. Special chime causes the panel to sound one long and one short beep when a sensor in group 25 is tripped.

Restoral

Determines whether the panel must receive a signal indicating that a tripped sensor has been closed. For example, door/window and fire sensors must be restored but PIR motion sensors do not have to be restored.

Supervisory

Determines if the sensor is supervised by the panel. Supervised sensors communicate with the panel on a regular basis to provide automatic sensor communication testing. All sensors except portable sensors are supervised.

Central Station (CS) Reporting

Determines whether the panel reports to the central station when the sensor is tripped. All groups except local and custom groups report to the central station.

Note: If the user of the system uses the HELP button for medical emergencies, any sensors named Auxiliary/Medical must be used for medical alarms only.

Table 4.2. Sensor Group Characteristics

No.	Name	Application	Alarm	Restoral	Supervisory	CS Report
00	Fixed Panic	24-hr. audible fixed emergency buttons.	Police		√	√
01	Portable Panic	24-hr. audible portable emergency buttons.	Police			√
02	Fixed Panic	24-hr. silent fixed emergency buttons.	Silent		√	√
03	Portable Panic	24-hr. silent portable emergency buttons.	Silent			√
04	Fixed Auxiliary /Medical	24-hr. auxiliary sensor, such as Pendant Panic or holdup button.	Auxiliary /Medical		√	√
05	Fixed Auxiliary /Medical	24-hr. auxiliary emergency button. Siren shutoff confirms CS report.	Auxiliary /Medical		√	√
06	Portable Auxiliary /Medical	24-hr. portable auxiliary alert button.	Auxiliary /Medical			√
07	Portable Auxiliary /Medical	24-hr. portable auxiliary button. Siren shutoff confirms CS report.	Auxiliary /Medical			√
10	Activity	Interior or exterior doors and windows. Resets Activity Timer.	N/A		√	
15	Activity	PIR motion sensors. Resets Activity Timer.	N/A		√	
21	Local Instant Interior	24-hr. local alarm zone protecting anything that opens and closes.	Police	√	√	
22	Local Instant Interior	Same as group 21, plus activation initiates a delay before going into alarm.	Police	√	√	
23	Local Instant Auxiliary /Medical	24-hr. local alarm zone protecting anything that opens and closes. *	Auxiliary /Medical	√	√	
24	Local Instant Auxiliary /Medical	24-hr. local alarm zone protecting anything that opens and closes. Sirens shut off at restoral. *	Auxiliary /Medical	√	√	
25	Local Special Chime	Notify the user when a door or window is opened. Sounds emit from a local annunciator. *	Special Chime	√	√	
26	Fire	24-hr. fire, rate-of-rise heat, and smoke sensors. †	Fire	√	√	√
27	Custom	Door/Window sensor. ‡	Silent	√	√	

Table 4.2. Sensor Group Characteristics (Continued)

No.	Name	Application	Alarm	Restoral	Supervisory	CS Report
29	Auxiliary /Medical	Freeze sensor.	Auxiliary /Medical	√	√	√

Note: Check marks (√) represent characteristics that are present in a group.
*This group is not certified as a primary protection circuit for UL listed systems and is for supplementary use only.
†This group is required for UL listed residential fire alarm applications.
‡This group has not been investigated by UL.

Adding Wireless Sensors

After you have determined the group assignment for each sensor, use the following procedure to program the sensors. For more information about group and sensor numbers, see "Selecting Sensor Group Assignments."

To add a sensor to a group:

1) While in program mode, press ACTIVITY LEVEL + [group #]. Group number can be from 00 to 29 (see Table 4.2 for group characteristics).

   The panel announces, *Sensor level [group #].*

2) Enter [sensor #]. Sensor number can be from 01 to 17. Refer to the "System Planning Worksheets" in Appendix A of the *Installation Instructions* for the sensor numbers that you planned for the system.

   The panel announces, *Sensor [sensor #].* Proceed to step 3.

   If the panel announces, *Invalid, try again,* you have selected a sensor number that has already been programmed or does not exist, or time has run out. Read the entire procedure for understanding, and then return to step 1 to try again.

3) Trip the tamper switch of the sensor you are programming within 4 minutes.

   Table 4.3 describes how to trip the tamper switch for each type of sensor.

   The panel announces, *[sensor #] OK. Sensor [next available sensor #].*

4) Repeat step 2 until the desired sensors are programmed into the current group.

   Return to step 1 to select a new group.

5) Press the STATUS button to exit from adding wireless sensors.

   The panel announces, *Invalid, try again.*

To trip a sensor with an external reed switch:

1) Check that the contact is in its alarm, and then perform the action described in Table 4.3.

Note: The alarm state is either open or closed, depending on the normal condition of the sensor. Multiple normally closed switches are wired in series and tripped while the loop is open. Multiple normally open switches are wired in parallel and tripped while the loop is closed.

Note: Only the normally closed configuration can be used in UL listed installations.

Note: Do not attempt to use the built-in reed switch and an external switch on the same door/window sensor.

Table 4.3. Methods for Tripping Learn Mode Sensors

Sensor *	Action
Door/Window †	Open sensor cover.
Fire Pull Station	Push the fire button.
Freeze	Open sensor cover.
Portable Emergency Buttons	Press the appropriate emergency button(s).
PIR Motion	Open PIR case.
Rate of Rise Heat	Open sensor cover and press learn switch on circuit board.
Recessed Door/Window	Open sensor cover and remove transmitter circuit board.
Slim Line Door/Window	Remove sensor from mounting base.
System Smoke	Press test button and hold for 30 seconds, until test alarm begins sounding, then release the button.

* Refer to the particular sensor's *Installation Instruction* for more details on tripping sensors.

† When using an external contact with this sensor, the contact must be in the alarm state while tripping the sensor to properly learn it into memory.

To exit from adding sensors:

- Press the STATUS button.

or– If 4 minutes pass with no tamper switches tripped, the panel exits adding wireless sensors mode.

The system announces, *Invalid, try again,* and the panel exits from adding sensors.

Note: When you exit from adding sensors, the panel is still in program mode.

Deleting Wireless Sensors

If you want to reassign a sensor to another group, you must delete that sensor first. The panel must be in program mode when deleting sensors, but it should not be in adding wireless sensors mode.

To delete a sensor from a group:

- While in program mode, press TEST + [sensor #]. Sensor number can be from 01 to 17.

The panel announces, *Sensor [sensor #] Good-bye.*

Programming a Hardwire Sensor

You can connect a hardwire sensor to the hardwire input, which, like wireless Learn Mode sensors, must be programmed into a group. The hardwire input is always sensor number 18.

Note: If the hardwire input is programmed into the fire group, during alarm the auxiliary power output switches off voltage for 3 seconds when the system is disarmed. This resets smoke detectors powered by the output.

Adding a Hardwire Sensor

To add the hardwire sensor:

1) While in program mode, press ACTIVITY LEVEL + [group #]. Group number can be from 00 to 29.

   The panel announces, *Sensor level [group #].*

2) Press 1 + 8.

   The panel announces, *Sensor one eight OK.*

Note: Feature number F24 must be set to configure the hardwire input as either normally open or normally closed. Refer to Table 5.3 for the settings and Section 5 "Programming Panel Options" for the programming command that sets feature numbers.

Deleting a Hardwire Sensor

To delete the hardwire sensor:

- With the panel in program mode, press TEST + 1 + 8.

  The panel announces, *Sensor one eight good-bye.*

Programming Wireless Touchpads

The Handheld and Wireless Wall-Mount Touchpads allow you to enter program mode when Phone Lock is used. See "Selecting Communication Locking" in this section for an explanation of Phone Lock.

Example: If you change the dealer programming code from its default (4321) and then decide you want to change the primary phone number, you must use a wireless touchpad that has already been learned into to the system to enter program mode. If you try to enter program mode from the panel, you will not be able to change the primary phone number because the system will automatically use the installer programming code.

Note: Once you have entered program mode from a wireless touchpad, you can use the panel to do the actual programming.

The system accepts up to four wireless touchpads.

Adding Wireless Touchpads

To add a wireless touchpad:

1) With the panel in program mode, press ACTIVITY LEVEL + ACTIVITY LEVEL + [ID #], where [ID #] is the touchpad ID number from 1 to 4.

   The panel announces, *[ID #] hello.*

2) Press BYPASS on the wireless touchpad that you want to add.

   The panel announces, *[ID #] OK.*

3) Repeat steps 1 and 2 for each wireless touchpad.

Deleting Wireless Touchpads

To delete a wireless touchpad from memory:

1) Put the panel in program mode if it is not already in program mode.
2) Press TEST + TEST + [ID #]. The ID number is a single-digit number from 1 to 4.

   The panel announces, *[ID #] good-bye.*

Programming 2-Button Keychain Touchpads

The 2-Button Keychain Touchpads allow the user to control the system without having to go to the panel. Most operations can be done with a 2-Button Keychain Touchpad. The system accepts up to four, 2-Button Keychain Touchpads.

Adding 2-Button Keychain Touchpads

To add a 2-Button Keychain Touchpad:

1) With the panel in program mode, press ACTIVITY LEVEL + ACTIVITY LEVEL + [ID#], where [ID#] is the touchpad ID number from 1 to 4.

   The panel announces, *[ID#] hello.*

2) Trip the keychain touchpad by pressing and holding both the Lock and Unlock buttons, until its LED flashes.

   The panel announces, *[ID#] OK.*

3) Repeat steps 1 and 2 for each keychain touchpad.

Programming the Interrogator Module

This section describes the following:

- Programming the module
- Off-Site programming access
- On-Site programming access

The following describes requirements for programming the module. To program the password, dialing format, and phone number, you must be interactive with the Interrogator Module.

- A touch-tone phone must be used to program the Interrogator Module.
- Some touch-tone phones may not program or operate the Interrogator Module if they require too much power to operate or if they don't generate true DTMF tones.
- You must program from a phone line other than the one that the Interrogator Module and security panels are using.

Off-Site Programming Access

Use one of the following methods for gaining off-site programming access.

8-ring Method

1) Call the Interrogator Module.
   After 8 rings, the Interrogator Module picks up the line. The module transmits a beeping tone, indicating the module is waiting for a response.
2) Press * on your phone.
   This stops the beeping. If you do not respond with a * within 20 seconds, the module hangs up, and will not accept another call for 5 minutes.
3) Enter the Log On command (* + # + 10 + PSWD + #).

3 Rings, Hang-up, 1-Ring Method:

1) Call the Interrogator Module, and hang up after 3 rings.
2) Wait 10 seconds and call the Interrogator Module back. The module picks up after the first or second ring. The module transmits a beeping tone, indicating the module is waiting for a response.
3) Press * on your phone.
   This stops the beeping. If you do not respond with a * within 20 seconds, the module hangs up, and will not accept another call for 5 minutes.
4) Enter the Log On command (* + # + 10 + PSWD + #).

On-Site Programming

The following describes the method for gaining on-site programming access. To program the password, dialing format, and phone number, you must be interactive with the Interrogator Module.

1) Connect a DTMF phone to screw terminal 2 on terminal strip 1 and the programming post.

Note: If you are using a lineman's telephone handset (a phone with wiring clips instead of a plug connection), connect one clip to the programming post and the other to the top of the diode above terminal #1 on terminal strip 1 (See Figure 4.1).

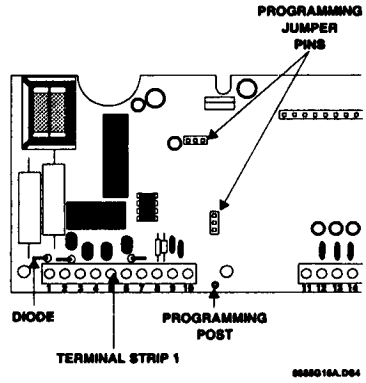
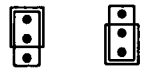


Figure 4.1. Locations of Programming Post, Programming Jumpers, and Diode.

2) With the Interrogator Module powered up and the vertical jumper in the Normal position, remove the jumper and place it in the down position.



3) With the Interrogator Module powered up and the programming (horizontal) jumper in the Normal position(right), remove the jumper and place it in the Program position (left). The programming jumper is above and to the left of the jumper described in step 2.

What to Listen for When Programming

During programming, the module responds in one of two ways:

- ACK - high-frequency tone indicating the module accepted the programming command.
- NACK - low-frequency tone indicating the module rejected the programming command.

Programming for the LifeGard

The following steps describe the basic programming:

1) Set trip input to 2 by pressing * + # + 40 + 2 + y + #, where y is the trip action (see Table 3).
2) Set panel type to 2 by pressing * + # + 39 + 2 + #.
3) Set off-site access by pressing * + # + 33 + n+ #, where n is 0 (off) or 1 (on).
4) Set any additional programming features (see Table 3).

Note: Sensor number 18 cannot be programmed into sensor group 26 when the module is used.

Features F20 and F27 must be turned on to work with the module.

Operating the Interrogator Module with Hot Key Commands

Hot keys are operational commands that work only if an alarm has just occurred (within 5 minutes) or when the proper password (log-on procedure) is used. Table 3 describes the hot key commands.

Table 4.4. Hot Keys Command Options

Hot Key	Interrogator Function	Procedure
0 (3)	All Mics ON (gain toggle)	Press 0 and press 0 again to increase the gain on all microphones.
1 (4)	Mic 1 ON (gain toggle)	Press 1 and press 1 again to increase the gain on microphone 1.
2	Mic 2 ON (gain toggle)	Press 2 and press 2 again to increase the gain on microphone 2.
3 (0)	Mic 3 ON (gain toggle)	Press 3 and press 3 again to increase the gain on microphone 3.
4 (1)	Turn speaker ON.	Press 4 to speak (press 0 to listen).
5	Play recording.	Press 5.
6	Turns ON the auxiliary relay for the time specified by command 42.	Press 6.
7	Extend connection time.	Press 7.
8	Dial back (at preset number).	Press 8 8.
9	Hang up.	Press 9 9.

Note: Numbers in parenthesis () indicate the switched setting when command 44 is set to 1.

Note: Sometimes, the audio on-site may be so loud it interferes with central station1 communication. Press and hold the 5 button 5 seconds on a touch-tone phone to switch all microphones to low volume.

SECTION 5
PROGRAMMING PANEL OPTIONS

After you have programmed the sensors into groups, you need to program the panel configuration settings, the upper sensor numbers, and the feature numbers. These settings tell the panel about communication, self-testing, and operation requirements. These settings all have defaults, and you don't have to program defaults in order for the panel to use these settings. All settings described in this section can be programmed or changed from the panel or the CS-4000.

Programming Checklist

If programming locally, you can do the programming described in this section in any convenient order. In this section, the three types of panel programming appear in the following order:

- ❑ Program panel configuration information
- ❑ Program upper sensor numbers
- ❑ Program feature numbers

Note: Remember to replace the HELP button that covers the panel's operation buttons before you leave program mode.

Programming Panel Configuration Options

Panel configuration options are numeric settings that affect how a system operates and communicates (see Table 2.1). This section describes how to program or review panel configuration settings. You can program these options at any time, in any order.

To program or review panel configuration options:

- With the panel in program mode, enter the command sequence from Table 2.1.

  The panel announces the entry and *OK*.

or-- To review a configuration option setting, enter the command sequence from Table 2.1, but omit the option value (which appears in square brackets).

The panel announces the current value for that set-up option and *OK*.

Table 5.1. Command Sequences for Panel Configuration Options

Option	Command Sequence	Default Value	Range
House Code	Both FIRE buttons twice + [house code]	001	001–254
Siren Time-out	Both CANCEL buttons twice + [siren time-out]	05	02–15 min. (must be at least 5 minutes for UL installations)
Account Number	Both FIRE buttons twice + ACTIVITY LEVEL + [account number]	00-000	00000–99999
Primary Phone Number	Both FIRE buttons twice + TEST+ [primary phone number] *, †, ‡	None	2–14 digits §
Panel Reporting Format	STATUS + both CANCEL buttons twice + [reporting format]	00	00 = ITI 01 = 4/2 (2300 Hz) 03 = 4/2 (1400 Hz)
Day Activity Time-out	STATUS + both FIRE buttons twice + [activity time-out]	12 hours	2–24 hours
Night Activity Time-out	STATUS + STATUS + [activity time-out]	12 hours	2–24 hours
Pill Reminder Time (1)	STATUS + both POLICE buttons twice + 1 + [pill reminder time]	00:00 (time disabled)	00:00–24:00 hours
Pill Reminder Time (2)	STATUS + both POLICE buttons twice + 2 + [pill reminder time]	00:00 (time disabled)	00:00–24:00 hours
Pill Reminder Time (3)	STATUS + both POLICE buttons twice + 3 + [pill reminder time]	00:00 (time disabled)	00:00–24:00 hours
Pill Reminder Time (4)	STATUS + both POLICE buttons twice + 4 + [pill reminder time]	00:00 (time disabled)	00:00–24:00 hours

Notes: *Primary phone number can only be programmed while in dealer program mode.
† Press both FIRE buttons twice to insert pauses.
‡ Delete the primary phone number by pressing both FIRE buttons twice + TEST + 1.
§ Primary phone number can be up to 18 digits long if it is programmed from the CS-4000. A secondary phone number is also available through CS-4000 programming.

Programming Upper Sensor Numbers

Upper sensor numbers (see Table 5.2) let you customize alarms, reports, tests, and system operations that are in the panel's memory. Some upper sensor numbers also affect how the panel responds under certain conditions. Upper sensor numbers can be turned on or off, but we recommend that you leave *on* upper sensor numbers that default to on. You can program these options at any time, in any order.

To turn on upper sensor numbers:

- While in program mode, press ACTIVITY LEVEL + [upper sensor #].

  The panel announces, *[upper sensor #] OK.*

To turn off upper sensor numbers:

- While in program mode, press TEST+ [upper sensor #].

  The panel announces, *[upper sensor #] good-bye.*

Table 5.2. Upper Sensor Numbers

Sensor	Sensor Name	Default	Description
79	No Activity Report	OFF	Reports that no activity was detected during the day or night activity time-out.
80	Touchpad Fire Emergency	ON	Reports a fire alarm when user presses FIRE buttons on panel or touchpad.
81	Touchpad Police Emergency	ON	Reports a police alarm when user presses POLICE buttons on panel or touchpad.
82	Touchpad Auxiliary/Medical Emergency	ON	Reports an auxiliary/medical alarm when user presses HELP button on panel.
83	Manual Phone Test	ON	Allows user to initiate panel to dial central station and report a test signal.
84	Opening Report	OFF	Reports to central station when the system is set to home or night mode.
85	Closing Report	OFF	Reports to central station when the system is set to away mode.
89	RF Touchpad Low Battery/Supervisory	OFF	Wireless touchpad requires battery replacement. Trouble beeps alert user of problem. Supervisory only for Wall-Mount Touchpads.
90	AC Power Failure	OFF	Reports to central station when panel is without AC power for 15 minutes. Trouble beeps alert user of problem.
91	Panel Shut Down	ON	Occurs while on backup battery power, one minute before BATTLIFE expires.
91	Low Panel Battery	ON	Reports to central station when panel backup batteries require replacement. Trouble beeps alert user of problem.
93	Automatic Phone Test	OFF	Dials central station phone number every 35 days. Can be set from 1 to 255 days from a CS-4000. See Section 7 "Programming from the Central Station."
94	Receiver Failure	ON	Reports to central station when panel has not received a supervisory signal from any sensor for at least 2 hours. Trouble beeps alert user of problem.
95	Panel Back in Service	ON	Reports to central station when AC power is restored to panel after panel has been in sleep mode.
96	Phone Failure	ON	Panel was unable to report to central station in at least three attempts. Also triggers optional communications output. Trouble beeps alert user of problem.
98	Auto Event Buffer Dump	OFF	Report to central station when 12 new events are entered into event buffer when set to ON. Before releasing panel, CS-4000 clears panel event buffer.

Programming Feature Numbers

Feature numbers determine how the panel communicates with the central station, the hardwire input, and the user. Table 2.3 describes the features that are available. You can program these options at any time, in any order.

To toggle feature numbers on and off:

1) With the panel in program mode, press both CANCEL buttons twice + ACTIVITY LEVEL + [feature #].

   The panel announces, *[feature #] on* or *[feature #] off.*

Table 5.3. Feature Numbers

Feature Number	Feature Name	Default	Description
20 * †	Interrogator Enable	OFF	When set to ON, panel can operate with the Interrogator Module.
21 ‡	Panel Power Source	OFF	When set to ON, panel can be powered using a DC power source, such as a marine battery for boat installations. When set to OFF, panel is powered by the Class II Power Transformer or Line Carrier Power Transformer.
22	DTMF (touch-tone) Dialing	ON	When set to ON, panel dials the central station using the touch-tone format. When set to OFF, panel dials central station using the pulse format.
23	Opening/Closing Reports in Event Buffer	OFF	When set to OFF, panel stores all reports in the event buffer. When set to ON, panel stores only opening and closing reports in the event buffer.
24	Hardwire Input Configuration	OFF	When set to OFF, hardwire input is set up to accept normally closed (N/C) devices, such as door and window contacts. When set to ON, hardwire input accepts normally open (N/O) devices, such as smoke and heat detectors.
25	Not Used		
26	Not Used		
27 * †	Panel Alarm Mute	OFF	When set to OFF, panel speaker produces alarm and status sounds as necessary. When set to ON, panel speaker does not produce any alarm or status sounds.
30	Low Battery Report Option	OFF	When set to ON, low battery reports will be sent to the central station immediately. When set to OFF, low battery reports will be sent to the central station at STIME.
34	External Output Option	OFF	When set to OFF, external output can be used for a hardwire siren. When set to ON, external output can be used for a strobe.
35	Activity Levels	OFF	When set to OFF, system can only switch between Day and Away modes. When set to ON, system can switch between Day, Night, and Away modes.

* Set feature number 27 to ON when using the Interrogator Module.
†These features must be set to OFF for UL installations.
‡Marine batteries are not investigated by UL.

SECTION 6
INSTALLING ADDITIONAL COMPONENTS

After you have completed the system programming that can be done from the panel, you can install the additional components. There are two reasons for waiting to install the components listed in this section: 1) it is easier to program sensors before you mount them, and 2) the panel must be programmed before you install the WIS and X-10 Lamp Modules.

Installation Checklist

Install the additional system components in the following order:

- ❑ Install sensors.
- ❑ Install and program the WIS.
- ❑ Install the X-10 Lamp Modules.

Installing Sensors

After you have learned the sensors into groups and programmed the system, see the individual *Installation Instructions* for information about installing them throughout the premises. Verify the sensor numbers so that you install each sensor in its correct location.

Installing and Programming the WIS

The WIS produces both low-volume status sounds and high-volume alarm sounds. The unit does not produce voice messages. The WIS operates using signals sent over the existing AC power lines in the premises by the Line Carrier Power Transformer.

Do not plug the WIS in or connect the Hardwire Exterior Siren until you've programmed the panel.

Note: You must power the system with the Line Carrier Power Transformer when using the WIS.

Installing Battery and Setting DIP Switches

If there is an AC power failure, a 9-volt backup battery (not included) inside the WIS keeps the unit operational (see Figure 6.1). The WIS battery type can be alkaline, lithium[1], or NiCd. When backup battery voltage is low, the WIS sounds a single beep every 60 seconds until the battery is replaced.

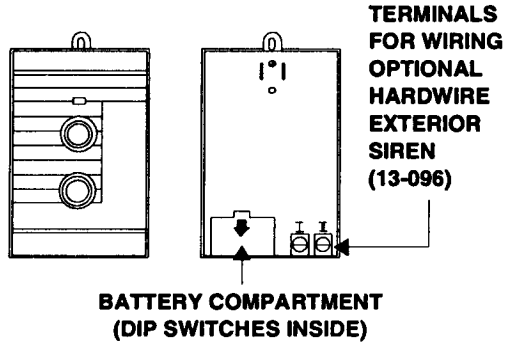


Figure 6.1. WIS (60-353) Front and Back Views

Note: UL applications require either Duracell model MN-1604 or Eveready model 522 alkaline batteries.

Note: UL applications require that DIP switches 1, 2, and 3 be set in the OFF position.

To install the battery and set DIP switches:

1) Remove the battery cover on the back of the WIS (see Figure 6.1).
2) Set DIP switches as appropriate (see Figure 6.2).

   CAUTION: Never turn ON switch 1 when installing an alkaline or lithium battery. If recharged, these battery types can leak or explode. Personal injury may occur if a lithium battery is recharged, short circuited, punctured, or discharged at higher than acceptable rates.

3) Connect the battery to the WIS battery clip and insert the battery into the battery compartment. You will hear a short chirp from the WIS.
4) Replace the battery cover.

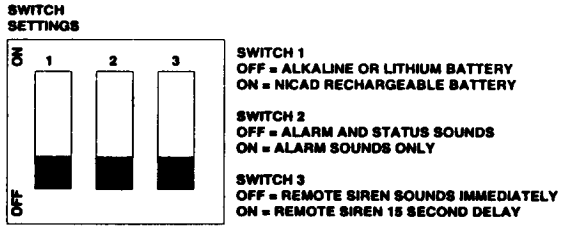


Figure 6.2. DIP Switch Setup on the WIS

1. Do not use Lithium batteries for UL Listed Applications.

Connecting the Hardwire Exterior Siren to the WIS

You can connect the Hardwire Exterior Siren to the WIS with the two screw terminals located on back of the WIS (see Figure 6.1 and Figure 6.3). These terminals provide 7.5 VDC and 100 mA maximum current during alarms only; the Hardwire Exterior Siren will not produce status beeps. You must program the WIS house code before you connect the siren.

To connect a Hardwire Exterior Siren to the WIS:

1) Unplug the WIS from the outlet.
2) Wire the siren to the WIS as indicated in Figure 6.3.
3) Plug the WIS into the outlet and secure it with the center outlet screw so that it cannot be unplugged accidentally.

CAUTION: Use extreme caution when securing the WIS to a metal outlet cover. You could receive a serious shock if the metal outlet cover drops down onto the prongs of the plug while you are securing the WIS and cover to the outlet box.

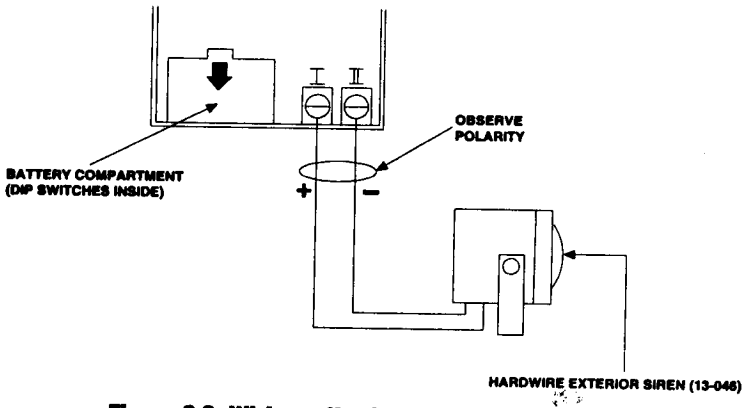


Figure 6.3. Wiring a Hardwire Exterior Siren to the WIS

Programming the WIS

The house code is a unique 3-digit identification number that the panel uses to communicate with the WIS and X-10 Lamp Modules. The WIS will not respond unless the panel house code and the WIS house code are the same. When you plug the WIS into an outlet, the default WIS house code is 000. The WIS must be programmed so that its house code matches the panel house code.

To program the WIS:

1) Change the house code at the panel, as desired. Refer to "Programming Panel Configuration Options" in Section 5.
2) Take the panel *out* of program mode if the panel is in program mode.
3) Plug the WIS into any outlet not controlled by a switch.
4) Press the STATUS button on the panel or on a wireless touchpad.

   The WIS sounds one short beep and its LED flashes to indicate that it received the data signal from the panel.

   If the WIS does not respond, unplug the WIS and disconnect the battery. After at least 30 seconds, reconnect the battery and repeat steps 3 and 4. If the WIS still does not respond, proceed to Section 10 "Troubleshooting."
5) If you're connecting an external siren to the WIS, unplug the WIS and make the wiring connections at the WIS terminals as discussed in "Connecting the Hardwire Exterior Siren to the WIS."
6) Plug the WIS into the outlet and secure it with the center outlet screw so that it cannot be unplugged accidentally.

CAUTION: Use extreme caution when securing the WIS to a metal outlet cover. You could receive a serious shock if the metal outlet cover drops down onto the prongs of the plug while you are securing the WIS and cover to the outlet box.

To change the WIS programming:

1) Change the house code at the panel, as desired. Refer to "Programming Panel Configuration Options" in Section 5.
2) Take the panel *out* of program mode if the panel is in program mode.
3) Unplug the WIS and disconnect the battery.
4) Wait at least 30 seconds.
5) Reconnect the battery and plug in the WIS.
6) Press the STATUS button on the panel or on a wireless touchpad. The WIS sounds one short beep and its light flashes to indicate that it received the data signal from the panel.

Note: If the WIS does not respond, repeat steps 4-7. If the WIS still does not respond, proceed to Section 10 "Troubleshooting."

Installing X-10 Lamp Module

The X-10 Lamp Module turns on lamps during auxiliary/medical and fire alarm conditions. These lamps can also be manually turned ON and OFF using the Lights button on a 4-Button Keychain Touchpad. Do not use extension cords to connect several lamps to one module. X-10 Lamp Modules can only be used with incandescent lighting. Do not plug the X-10 Lamp Module into an outlet controlled by a switch.

Note: You must power the system with the Line Carrier Power Transformer when using the X-10 Lamp Modules.

SECTION 7
PROGRAMMING FROM THE CENTRAL STATION

Some system options can only be programmed from the CS-4000. System configuration settings can be changed either at the panel or from a CS-4000 using version 5.2 software or later.

The central station programming procedures may be done in any order. In this section, the central station programming information appears in the following order:

- Selecting Communication Locking
- How to request CS-4000 programming during an installation
- Descriptions of the available PMODES (phone modes)

Refer to Appendix A "Central Station 4/2 Format Reporting" for a description of how the central station handles information from the panel in 4/2 reporting format.

Selecting Communication Locking

The Communication Locking feature determines if the dealer or the central station has control over the customer account. The Communication Locking feature accomplishes this with two independent locking methods:

- Phone Lock
- Central Station Lock

If your company does not own the CS-4000 that will provide monitoring, but you want to maintain control of customer accounts, Phone Lock must be enabled before the panel reports to a central station.

WARNING: The CS-4000 can place a central station lock on any panel account that has not already been phone locked by the dealer.

Note: A panel can operate with or without a locking method; however, it is not possible for a panel to use both methods simultaneously. If the panel's dealer programming code is not the default, Phone Lock is enabled and a CS-4000 cannot enable Central Station Lock for that panel. If the panel's security code is not the default, Central Station Lock is enabled and the panel will not allow the dealer to change the dealer programming code.

Refer to the *CS-4000 Installation and User's Manual* (46-056) for a complete discussion of the Central Station Locking feature.

Phone Lock

Phone Lock uses the dealer programming code to determine who has programming privileges for the primary phone number, used for panel reports to the CS-4000.

The dealer programming code and installer programming code share the same default. When the dealer programming code is changed from the default, the dealer programming code and phone number are protected, but the installer can perform all other panel programming.

WARNING: Clearing memory does not reset the dealer programming code. When Phone Lock is used, other than using the dealer programming code, the primary phone number and dealer programming code can only be reset by sending the panel to ITI for repair. If the dealer programming code is changed from the default, make sure to keep the new code in a safe place.

To change the dealer programming code:

1) While in program mode, press CANCEL + CANCEL + TEST.
2) Enter the new DEALER PROGRAMMING CODE twice.

Note: If possible, avoid using the same code as any other code being used with the system.

Example: 54325432

The system confirms the change by announcing, *OK.*

If the code was not repeated exactly, or if Central Station Lock is enabled, the system announces, *Invalid, Try Again.* Return to step 1 to try again.

3) Exit program mode by replacing the battery door.

Requesting CS-4000 Central Station Programming

Although most information can be programmed from the panel, some information must be programmed from the central station. Table 7.1 shows the central station programming commands that are unique to this system. For more information about CS-4000 programming, see the *CS-4000 Central Station Installation and User's Manual* (46-056).

WARNING: Before the initial communication between the panel and the central station, read "Selecting Communication Locking."

Note: For support of this system, the CS-4000 requires version 5.2 software or later.

To request CS-4000 Central Station programming:

1) Contact your central station and ask the operator to program the panel.
2) Give the operator the panel's account number and the phone number of the premises, and ask them to call back immediately.
3) Hang up the phone.
4) When the phone rings, press and hold the TEST button on the panel for 3 seconds. The LEDs scroll. The premises phone line is tied up while the central station is programming the system.
5) When the central station releases the panel, the LEDs stop scrolling. The operator may call you to discuss the programming.

Table 7.1. Central Station Programming Commands

Parameter	Command	Value	Default
House Code	HOUSE NNN	001–254	001
Siren Time-out	SIREN N	2–15 (minutes)	5
Account Number	ACCT NN-NNN	Any 5 digits, letters, or combination of both.	00-000
Primary Phone Number	PHO NNNNNNN	3–18 digits including pauses. Enter D for a pause, or * and # as needed.	None
Secondary Phone Number	PHO2 NNNNNNN	Same as above.	None
CS Reporting Format	PFORMAT N	00 (ITI); 01 (4/2 @ 1400/1900), 02 (4/2 @ 2300/1800)	00 (ITI)
Phone Mode *	PMODE N	0–5	0
Initialize Sensor Numbers	INIT NN	80–87, 89, 90–96, 98	80–83, 86–87, 89, 91–92, 94–96
Delete Sensor Numbers	DELETE NN	Same as above.	N/A
Optional (F) Features	OPTION FNN ON/OFF	F20–F27	N/A
Supervisory Report Time	STIME hh:mm	hh = 00–23 (hours) mm = 00–59 (minutes)	12 hours after power up.
Auto Phone Test Freq.	PTFREQ n N	n = 1-255 (days in cycle); N = 1-254 (days left in cycle)	35
Zone Dump	ZONES	N/A	N/A
Event Buffer Dump	EVENT ALL	N/A	N/A
Battery Life/Sleep Mode	BATTLIFE NNN	002–255 (hours)	005
SUPSYNC	SUPSYNC NN	03-24 (hours)	12

* See "PMODE Options" for a description of PMODES and how they are used.

PMODE Options

PMODES are methods in which the panel sends central station reports. Except for PMODE 0, the panel must have both a primary and secondary phone number (PHO2) programmed to use the PMODE features. PMODES are described in Table 7.2.

Note: Panels do not send restore reports except for upper sensor numbers 90, 91, and 92.

Table 7.2. PMODE Characteristics

PMODE	Reporting Format	How the PMODE reports:
PMODE 0	ITI or 4/2	All reports made to the primary phone number.
PMODE 1	ITI or 4/2	If three attempts fail on primary phone number, panel switches to PHO2.
		If three attempts fail on PHO2, panel returns to primary phone number.
		If five more attempts fail on primary phone number, panel returns to PHO2 and makes five more attempts.
PMODE 2	ITI only	All alarm, cancel, and restore reports are sent to the primary phone number.
		All trouble reports are sent to PHO2.
PMODE 3	ITI only	All alarm, cancel, and restore reports are sent to the primary phone number.
		All reports are sent to PHO2.
PMODE 4	ITI only	All alarm, cancel, and restoral reports (except opening and closings) are sent to the primary phone number.
		All reports are sent to PHO2.
PMODE 5	4/2	All alarm, cancel, and restore reports are sent to primary phone number.
	ITI	All reports are sent to PHO2.

SECTION 8
TESTING THE SYSTEM

This section describes how to test sensors, phone communication, and communication with the central station. You should test the system whenever you do one of the following:

- Install a new panel.
- Service the system.
- Add or remove devices from the system.

Testing Sensors

The sensor test lets you determine if sensor signals are being received by the panel and how many data rounds transmitted by each sensor were received by the panel. This helps evaluate the quality of the sensor location in relation to the panel.

We recommend that you do a sensor test at the beginning of every installation, before the sensors are permanently mounted. You should also do a sensor test whenever a sensor-related problem occurs.

Note: While the sensor test is a valuable installation and service tool, it tests only sensor operation for the current conditions. You should perform a sensor test after any change in environment or equipment.

Performing the Sensor Test

To perform the sensor test:

1) Place all sensors in their secured state, normally open or normally closed.
2) Replace the battery door on the panel if the door is off.
3) Cover PIR lenses.
4) Press the TEST button on the panel once.

   The system sounds one long beep, and then announces, *Sensor test is on.* You have 15 minutes to complete the sensor test.
5) Trip each sensor as described in Table 8.1.

   The panel sounds transmission beeps as each sensor is tripped. Each beep represents one data round.
6) Count the number of transmission beeps and refer to Table 8.2 for minimum requirements.

   After the beeps, the panel speaker announces, *Sensor [sensor #] OK,* confirming the sensor number tested. If the system does not respond or if the sensor does not meet the minimum transmission beep requirements, refer to "If a Sensor Fails the Sensor Test."
7) Press the STATUS button when you think all the sensors have been tested.

   The system announces untested sensor numbers.
8) Test all untested sensors.
9) Press the TEST button while the system is still in sensor test if you need more time to complete the sensor test.

   The system stays in sensor test for 15 minutes.

10) Press both CANCEL buttons to exit sensor test.

The panel announces, *Sensor test is off.*

Table 8.1. Trip Sensors for Sensor Test

Sensor *	Action
Door/Window † ‡	Open the door or window. After counting the beeps, close the door or window.
Freeze	Apply ice or freeze spray to the detector. Do not allow the sensor to get wet.
PIR Motion	Avoid the PIR's view for 5 minutes. Enter its view, or use the PIR's walk test feature.
Rate of Rise	Rub your hands together until warm, and then place one hand on the detector for 30 seconds.
Smoke	Press and hold the test button until the system sounds transmission beeps.
Emergency buttons on Touchpads and panel §	Press the appropriate button(s) until the system transmission beeps stop.

* Refer to a particular sensor's *Installation Instructions* for details on tripping sensors.
† D/W includes standard, Recessed, and Slim Line Door/Window Sensors.
‡ Listen for the appropriate number of beeps before restoring the sensor. Restoring the sensor too soon results in a mixture of transmission and restoral beeps.
§ Activate all portable Emergency buttons and wireless touchpads from various locations on the premises.

Table 8.2. Minimum Transmission Beeps

Type of Sensor	Number of Beeps
Activity Sensors	7-8 beeps
24-Hour/Emergency Sensors	7-8 beeps
Hardwire Loops	1
Panel Emergency Buttons	1

If a Sensor Fails the Sensor Test

If the system does not beep when the sensor is tripped, use an RF Sniffer[1] (60-401) to verify that the sensor is transmitting. Constant beeps from the RF Sniffer indicate a *runaway sensor.* Remove the sensor's battery and replace the sensor.

Locate sensors within 100 feet of the panel whenever possible. While a transmitter may have a range of 500 feet of more, the environment at the installation site can have a significant effect on transmitter range. Sometimes a change in sensor location can help overcome adverse premises conditions.

To improve sensor communication, you can:

- Reposition the sensor.
- Relocate the sensor.
- If necessary, replace the sensor.

1. Not investigated by UL

To reposition the sensor:

1) Rotate the sensor and test for improved sensor communication at 90° and 180° from the original position.
2) If poor communication persists, relocate the sensor as described below.

To relocate the sensor:

1) Test the sensor a few inches from the original position.
2) Increase the distance from the original position and retest until an acceptable location is found.
3) Mount the sensor in the new location.

or– If no location is acceptable, replace the sensor as described in the next procedure "To troubleshoot and replace the sensor."

To troubleshoot and replace the sensor:

1) Test a working sensor at the same location.
2) If the transmission beeps remain below the minimum level, avoid mounting a sensor at that location.
3) If the replacement sensor works, contact ITI for repair or replacement of the problem sensor.

Testing Phone Communication

Perform a phone test to check the phone communication between the panel and the central station. A phone test takes a maximum of 15 minutes to complete; however, most of the time the phone test is much shorter.

WARNING: Set the communication lock before performing any phone test. For more information about communications lock, see "Selecting Communication Locking" in Section 7.

To perform a phone test:

1) Press and hold the TEST button on the panel for 3 seconds.

   The panel speaker and all interior sirens sound one long beep, and the panel announces, *Phone test is on.*

   When the phone test is complete, the panel announces, *Phone test is off.*
2) Press the STATUS and TEST buttons at the same time for 3 seconds.

   The panel announces, *Phone test OK.* Proceed to "Testing Central Station Communication."

   If the panel announces, *Phone test failure,* check to be sure the panel is plugged into the panel's phone jack. Proceed to the next procedure "If the phone test fails."

If the phone test fails:

1) Check to be sure the panel is plugged into the RJ-31X Jack.
2) Press and hold the TEST button for 3 seconds.

3) If the phone test still fails, check to be sure the phone number that you programmed is correct. Refer to "Programming Panel Configuration Options" in Section 5. If necessary, change the phone number and enter the phone test command again.

4) If the phone test still fails, check the phone connection wiring. Refer to Section 3 "Installing the System."

Testing Central Station Communication

After performing the sensor and phone tests, test the system to verify that the central station correctly receives alarm information from your system. At this point, you should also verify that the X-10 Lamp Module is operating correctly.

To test communication with central station:

1) Call the central station and tell the operator that you will be testing the system.

2) Trip at least one sensor of each type—fire, auxiliary/medical, etc.—to verify that the appropriate alarms are working correctly.

3) If X-10 Lamp Modules are installed, check to be sure they operate correctly.

   The lights should come on steady during the fire and auxiliary/medical alarms.

4) When you finish testing the system, call the central station to verify that the alarms were received.

Testing the Interrogator Module

This section describes the testing procedures for the following:

- Off-Site access testing
- On-Site testing with the central station
- Microphone and speaker testing
- Auxiliary output testing

Before you begin the following test procedures, the CS-4000 operator must have a parallel phone connected to line the panel calls in on. (Radio Shack Part No. 279-357 can be used to parallel a touch-tone phone.)

Off-Site Access Testing

This procedure describes how to test both off-site access methods, along with the dial-back and hang-up commands.

To test the two off-site access methods:

Note: While testing the off-site accessing methods, the dial back and hang up commands will be tested also.

1) Use the 8-ring method to gain access to the module.

2) Test the Log On command by pressing * + # + 10 + PSWD + #. The module responds with an ACK.

3) Program the phone number in the module to the phone number where you

are by pressing * + # + 32 desired phone number + #. The module responds with an ACK.

4) Press 9 9 to disconnect.

5) Use the ring 3 times, hang up, wait, and ring 1 method to gain access again. (See "Off-Site Programming Access.")

Note: If no phone number is programmed for dial back, skip to step 11.

6) Press 8 8. The module disconnects.

7) Hang up your phone.

8) The module calls back. Pick up the phone, and listen for the beeps, and acknowledge the module by pressing *.

9) Enter Log On command.

10) Press * + # + 12 + # and the Interrogator Module responds with DTMF tones, which represent the account number.

11) Press 9 9 to disconnect.

On-Site Testing with the Central Station

The following describes how the central station becomes interactive with the module to test for listen-in/talk-back, recording playback, and microphone gain adjustment.

Steps for the On-Site Operator

1) Program the panel phone number for the CS-4000 receiver line with the parallel phone.

2) Arm the system. Interior sirens/Wireless Interior Siren (WIS) beep to indicate that the system is armed.

3) Trip an entry delay sensor. No sirens will be heard for 17 seconds while the module is in the record mode (if record board is used). The phone line is seized.

Steps for the Central Station Operator

The following describes the testing procedure for CS-4000 with software version 4.0. For CS-4000s with software version 5.0, use the ATRAP commands described in your *CS-4000 Release Notes* (46-700).

1) Use the procedure that matches the module trip action setting:

   a) **Trip Action 0 or 1**: Once the panel is trapped, pick up the in-parallel phone. You hear the data communication between the CS-4000 and the panel. Type REL and press ENTER on the CS-4000 keyboard.

   b) **Trip Action 2, 3, or 4:** When the panel is trapped, type REL and press ENTER.

2) Use the procedure that matches the module trip action setting:

   a) **Trip Action 0**: After releasing the panel and hearing the module beeping on the phone, press *. The microphones are active. No one should hear sirens.

   b) **Trip Action 1**: Pick up the phone and press *. The microphones are active and neither the central station operator nor the on-site technician should hear sirens.

   c) **Trip Action 2:** Pick up the phone and dial the number at the module site.

After the module picks up after the first right and starts beeping, press *. The microphones are active and neither the central station operator nor the on-site technician should hear sirens.

d) **Trip Action 3:** The module dials back immediately. Pick up the phone and listen for the module beeping, then press *. The microphones are active. No one should hear sirens.

e) **Trip Action 4:** Pick up the phone and dial the number at the module site. After the module picks up after the first ring (on-site phones don't ring) and starts beeping, press *. The microphones are active. No one should hear sirens.

3) Press 5 to play back the 17-second recording (if the record board is installed).

4) Press 4 to turn the speakers on enabling you to talk.

5) Press 0 and all the microphones turn on. Now the on-site technician can respond.

Note: The module is half duplexed, which means that if the microphones are turned on to listen, you cannot talk through the speakers and vice versa.

6) Press 0 again and the volume of the microphones increases. If you press 0 again, the volume decreases to the previous level.

7) Repeat steps 4 through 7 for each microphone at the installation site, button 1 for Mic 1, button 2 for Mic 2, and so on.

Auxiliary Output Testing

If no device is connected to the auxiliary output, you can still test the output by connecting an LED in series with a 4.7 K ohm resistor to terminals 1 (6 VDC+) and 8 on the module.

1) To test auxiliary output, press * + # + 11 + 1. If the LED is used, it will light up. If you are using a relay to activate a door strike or other device, the output activates until you press * + # + 11 + 0. The on-site technician should verify test results through the microphones.

2) Inform the on-site technician that you are done testing, then press 9 9 to disconnect.

SECTION 9
OPERATION

After the system is installed, programmed, and tested, show the user how to operate the system. This section describes the basic operation of the system:

- Panel communication with the user
- Using day, night, and away modes
- Day and night activity time-outs
- Pill reminder times
- Activating emergency alarms
- Controlling lights
- Checking the system status
- Checking alarm memory
- Adjusting panel speaker volume

Panel Communication with the User

The panel uses alarm sounds, status beeps, voice messages, and indicator lights to communicate system information. This section describes these signals and what they mean.

Alarm Sounds

The exterior and interior sirens produce alarm sounds on the premises that indicate the conditions described in Table 9.1. Fire alarm sounds take precedence over auxiliary/medical alarm sounds, which in turn take precedence over police alarm sounds.

Table 9.1. Siren Alarm Sounds

Siren Type	Description of Siren Sounds	
Fire Alarm	Steady tone	————
Police Alarm	Slow ON-OFF-ON-OFF	——— ———
Auxiliary/Medical Alarm*	Fast ON-OFF-ON-OFF	— — — —

* Interior sirens only

System Status Beeps

The panel speaker and all interior sirens or piezos sound status beeps to give you information on the current state of the system. Table 9.2 describes the status sounds you may hear from the panel. Table 9.3 describes the conditions under which trouble beeps occur and when they begin.

Table 9.2. System Status Beeps

Number of Beeps	Indicates
2 (1 long, 1 short)	Exterior sensor from sensor group 25 (Local Special Chime) has been opened.
6 every minute	System has AC power failure, failure to communicate, hardware sensor trouble, panel low battery, RF device low battery, or RF device supervisory (see Table 9.3 for information on when these beeps begin to sound). Press STATUS for a voice message of the problem (see Section 10 "Troubleshooting").

Table 9.3. Trouble Beep Conditions

Condition	When Beeps Begin
AC Power Failure	15 minutes after failure is detected (when the report is called in).
Failure to Communicate	After third dial attempt.
Hardwire Sensor Trouble	The first time the condition is detected.
Panel Low Battery	The first time the condition is detected and at STIME.
RF Device Low Battery	At STIME.
RF Device Supervisory	At STIME or SUPSYNC time, whichever occurs first.

Voice Messages

The panel uses voice messages to announce system and sensor information. Voice messages are produced by the panel speaker. They are explained in detail throughout this manual.

Stopping Trouble Beeps and Voice Messages

Pressing the STATUS button or both CANCEL buttons while the panel has a trouble condition stops trouble beeps and voice messages. Trouble beeps begin again when new trouble conditions occur or when STIME occurs, until the trouble condition is resolved.

Panel Indicator Lights

The indicator lights on the panel provide a visual system status check. Table 9.4 describes each light.

Table 9.4. Panel Indicator Lights

Indicator Light *	ON †	OFF	Flashing ‡
POWER	AC power is on, and backup batteries are good.	AC power is OFF, and backup batteries are good.	AC power is on, and backup batteries are bad.
CALLING	—	System is not calling the central station.	System is calling the central station.
TROUBLE	—	System is operating normally.	System is not operating properly. Press STATUS for a voice message of the problem.
DAY	System is in day mode.	System is not in day mode.	Day activity time-out has expired, and panel will call the central station in 5 minutes.
NIGHT	System is in night mode.	System is not in night mode.	Night activity time-out has expired, and panel will call the central station in 5 minutes.
AWAY	System is in away mode.	System is not in away mode.	—

* All lights scrolling indicate either a phone test or sensor test is on, or a sensor is activated. Press STATUS for a description of the condition.
†All lights on steady indicate that the panel has lost its memory.
‡All lights flashing indicate that the system is in program mode.

Using Day, Night, and Away Modes

The system uses day, night, and away modes, depending on the level of activity within the premises. Set the system to day mode when you are on premises and active, set the system to night mode when you are less active (for example, when you are sleeping), and set the system to away mode when you are away from the premises.

Note: Upper sensor number 79 must be turned on for the day, night, and away modes to work.

To change modes from the panel:

- Press the ACTIVITY LEVEL button.

  The panel switches between day, night, and away modes. The panel beeps once and the appropriate mode light turns on.

  Note: If feature number 35 is turned on, the panel can switch between day, night, and away modes. If feature number 35 is turned off, the panel can only switch between day and away modes.

To change modes from a 2-Button Keychain Touchpad:

- Press the Lock button.

  The panel switches between day, night, and away modes. The panel beeps once and the appropriate mode light turns on.

Note: If feature number 35 is turned on, the panel can switch between day, night, and away modes. If feature number 35 is turned off, the panel can only switch between day and away modes.

Day and Night Activity Time-outs

An activity time-out is the programmable period of time during which the panel must see some activity (for example, a transmission from a sensor or a press of a panel button) or a No Activity Report is sent to the central station.

There are two activity time-outs:

- day activity time-out
- night activity time-out

The day activity time-out is only active when the system is in day mode, and the night activity time-out is only active when the system is in night mode. There are two different time-outs because, for example, a shorter time-out can be used during the day when a person is more active, and a longer time-out can be used at night when a person is sleeping.

Recognizing an Activity Time-out

If no activity is seen before the activity time-out expires, the panel starts to beep for 5 minutes and the DAY or NIGHT light flashes (depending on which mode the system is in) to warn the user a No Activity Report is about to be sent.

Responding to an Activity Time-out

When the panel starts to beep and the DAY or NIGHT light flashes, you can stop the beeping and prevent a No Activity Report from being sent by doing one of the following:

- Activating an activity sensor (for example, walking in front of a PIR or opening a door).

or– Pressing any button on the panel.

Pill Reminder Times

The system has four programmable pill reminder times that alert the user when it is time to take medication by causing the panel to beep once every 2 seconds for one minute. The beeping can be canceled by doing one of the following:

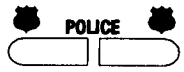
- Pressing both CANCEL buttons on the panel.

or– Pressing the Unlock button on a 2-Button Keychain Touchpad.

Activating Emergency Alarms

Use emergency buttons on emergency sensors, the panel, or 2-Button Keychain Touchpads to activate the appropriate emergency alarm.

Police, Fire, and Auxiliary/Medical Alarms



Use the POLICE, FIRE, or HELP alarm buttons in an emergency.

Press the POLICE buttons to set off interior and exterior sirens and to send a police alarm to the central station. The central station should respond by contacting the police.

Press the FIRE buttons to set off interior and exterior sirens and to send a fire alarm to the central station. The central station should respond by contacting the fire department.

Press the HELP button to set off interior sirens and to send an auxiliary/medical alarm to the central station. The central station should respond by contacting the service or agency you have designated. Discuss how the users want to use the HELP button, and make arrangements with the central station for dispatching the proper authorities.

The system recognizes the emergency buttons as sensors, as shown in Table 9.5.

Table 9.5. Emergency Button Sensor Numbers

Emergency Button	Sensor Number
POLICE	81
FIRE	80
HELP	82

To activate a police or fire alarm from the panel:

- Press and hold both emergency buttons at the same time, for at least 3 seconds.

or– Press both emergency buttons twice within 3 seconds.

The interior and exterior sirens and the panel sound the appropriate alarm.

To activate an auxiliary/medical alarm from the panel:

- Press the HELP button.

The interior sirens and the panel sound the appropriate alarm.

To cancel a police, fire, or auxiliary/medical alarm from the panel:

- Press both CANCEL buttons.

Sirens are silenced and the panel announces, *Sensor [sensor #] [alarm type] Alarm memory* (see Table 9.5).

To cancel police, fire, or auxiliary/medical alarm from a 2-Button Keychain Touchpad:

- Press the Unlock button.

Sirens are silenced and the panel announces, *Sensor [sensor #] [alarm type] Alarm memory* (see Table 9.5).

Panel Light Control

The panel instructs the X-10 Lamp Module to control lights as follows:

- During a fire or auxiliary/medical alarm, lights turn on and remain on until canceled or until 12 hours have passed.
- During a police alarm, lights flash until the siren time-out ends. Then, the lights remain on steady until the alarm is canceled or until 12 hours have passed.

Checking the System Status (STATUS)

STATUS

The users should check the system status every time they experience system problems. When they check the system's status, the panel announces the following information, if applicable:

- Sensors that are open or have covers off
- Sensors with low batteries
- Condition of AC power
- Condition of backup batteries
- Sensor alarms that occurred
- Sensor with communication (supervisory) failure

To check system status:

- Press the STATUS button.

  The panel and interior sirens sound one beep, and the panel announces the current status of the system.

Note: If a sensor is open, the system announces the open sensor number instead of announcing the complete system status.

Table 9.6 describes a few of the system status messages that may be announced.

Table 9.6. Status Voice Messages and Their Meanings

Voice Message	Meaning
System battery is OK, AC power is OK.	All sensors are closed, and no system problems exist.
Sensor [sensor #] open.	A perimeter sensor is open.
Sensor [sensor #] low battery.	A sensor has a low battery. Replace sensor battery.
Sensor [sensor #] trouble.	Sensor cover is off. Put sensor cover on, and then activate the sensor. For example, on a motion sensor, walk through its range of coverage.
Invalid, try again.	An incorrect or incomplete command was entered at the panel.
Sensor [sensor#] failure.	A sensor isn't working.

Checking Alarm Memory

The panel saves a record of any alarms that occurred. Use this procedure to have the panel repeat the same alarm messages it announced when the alarms were canceled.

To hear alarm memory:

- Press the STATUS and TEST buttons at the same time for 3 seconds.

  The panel announces, *Sensor [sensor #] [alarm type] Alarm Memory.* If no alarms have occurred, the panel announces, *Alarm memory is OK.*

To clear alarm memory:

1) Press the TEST button.

   The panel and interior sirens sound one long beep, and the panel announces, *Sensor test is on.*

2) Press both CANCEL buttons to exit sensor test.

   The panel announces, *Sensor test is OFF.* The alarm memory is now empty.

Adjusting Panel Speaker Volume

The panel has eight volume levels to choose from. Alarm sounds and alarm messages are always at full volume.

To adjust panel speaker volume:

- Press both CANCEL buttons and hold until the desired volume is heard.

  The panel announces, *Hello!....hello....hello...hello...* with a steadily decreasing volume and then returns to full volume and starts decreasing volume again.

SECTION 10
TROUBLESHOOTING

This section contains a summary of system troubleshooting techniques.

Table 10.1. Troubleshooting System Problems

Device	Problem	Solution
Batteries		
	Panel announces, *System Battery Failure.*	
		Replace the panel backup batteries.
	Panel announces, *Sensor [sensor #] low battery.*	
		Replace the sensor batteries.
Central Station Reporting		
	Central station is not receiving reports.	
		1. Check that the DB-8 Cord is plugged into the RJ-31X Jack. 2. Check for proper wiring of the RJ-31X Jack. 3. Verify the phone number of the receiver line with the central station operator. Reprogram the phone number and retest, if necessary. 4. Replace the RJ-31X Jack. 5. Check that the DB-8 Cord is properly wired to the panel terminals. 6. Replace the DB-8 Cord. 7. Check that the premises phone line is working. 8. Perform a phone test.
False Alarm		
	Alarm is being sent.	
		Press both CANCEL buttons to cancel the alarm. This command bypasses the alarm if done within 8 to 20 seconds.
Hardwire Input		
	Panel does not respond to hardwire input activation.	
		Check that sensor 18 is programmed into panel memory, and add if necessary.
	Panel announces, *Sensor one eight, trouble.*	
		1. Check that the 4.7K ohm resistor is installed correctly in the circuit. 2. Check a normally open (N/O) circuit for a break in the wires. 3. Check a normally closed (N/C) circuit for a short in the wires. 4. Check feature number F24 for the correct setting.
Hardwire Siren		
	Exterior sirens are not producing alarm sounds.	
		Check for correct wiring at the siren and panel terminals.
	Exterior sirens produce status sounds.	
		Move the siren's positive (+) wire from panel terminal 12 to 14.
	Interior sirens are not producing sounds.	
		Check for correct wiring at both the siren and panel terminals.

Table 10.1. Troubleshooting System Problems (Continued)

Device	Problem	Solution
	Interior sirens produce low-volume alarm and high-volume status sounds.	
		Reverse the interior siren wires at panel terminals 12 and 14.
Lights		
	Light using X-10 Lamp Module does not work.	
		1. Check light bulbs. 2. Check that the light switch on the lamp is turned ON. 3. Check that the lamp is plugged into an X-10 Lamp Module. 4. Check that the lamp is plugged into a non-switched outlet.
Panel		
	Panel does not power up.	
		1. Check the circuit breaker to be sure the circuit is live. 2. Check that the backup batteries are installed correctly, the battery bucket wires are connected to the panel, and the transformer is plugged in. 3. Check for proper wiring at the panel and the transformer. 4. Measure the incoming voltage at the panel terminals. A standard transformer reads 9 VAC at terminals 1 and 4. A 4-wire line carrier transformer reads between 9-12 VDC at terminals 1 (+) and 2 (-).

Table 10.1. Troubleshooting System Problems (Continued)

Device	Problem	Solution
Panel (Continued)		
	POWER LED is flashing, the TROUBLE LED is flashing, and pressing the STATUS button announces, *System Battery Failure.*	
		1. Check the circuit breaker to be sure the circuit is live. 2. Check that the backup batteries are installed correctly, the tabs are making contact, the battery bucket wires are connected to the panel, and the transformer is plugged in. 3. Check for proper wiring at the panel and the transformer. 4. Measure the incoming voltage at the panel terminals. A standard transformer reads 9 VAC at terminals 1 and 4. A 4-wire line carrier transformer reads between 9-12 VDC at terminals 1 (+) and 2 (-). If using alkaline batteries, install new batteries. If using NiCd batteries, perform steps 5 and 6. 5. Remove the backup battery power by either disconnecting the battery bucket's red wire from terminal 7 or by taking the batteries out of the bucket. 6. With a voltmeter, check the voltage at panel terminals 6 and 7. The reading may range from 9 to 12 VDC. When the panel is running a backup battery test, the reading at terminals 6 and 7 may range from 3.6 to 5.2 VDC. The panel automatically runs a backup battery test (1) during the sensor test, (2) during the first 2 minutes after activating the panel's tamper (including removing or installing the battery door), (3) during initial panel power up, (4) after clearing memory, and (5) once every 24 hours, at the programmed STIME. If the voltage at terminals 6 and 7 is **not** within the range described in step 6, call Technical Services. If the voltage at terminals 6 and 7 is within the range described in step 6, continue on to step 7. 7. Restore the backup battery power by either reconnecting the battery bucket's red wire to terminal 7 or by reinstalling the batteries in the battery bucket. While the AC power transformer is plugged in, the panel charges the batteries. Once the batteries reach 6.8 VDC (measured while in battery test), the TROUBLE LED turns off and the POWER LED stops flashing. If the trouble condition persists after 24 hours, replace the NiCd batteries.

Table 10.1. Troubleshooting System Problems (Continued)

Device	Problem	Solution
Panel (Continued)		
	Panel powers up but does not remain on when using NiCd batteries.	
		1. Check the circuit breaker to be sure the circuit is live. 2. Check that the backup batteries are installed correctly, the tabs are making contact, the battery bucket wires are connected to the panel, and the transformer is plugged in. 3. Check for proper wiring at the panel and the transformer. 4. Measure the incoming voltage at the panel terminals. A standard transformer reads 9 VAC at terminals 1 and 4. A 4-wire line carrier transformer reads between 9-12 VDC at terminals 1 (+) and 2 (-). 5. Check the voltage at panel terminals 6 and 7. The voltage should rise slowly, indicating the batteries are charging. When the voltage reaches approximately 6.65 VDC, the panel should turn back on. The panel now runs a 2-minute battery test. At the completion of the battery test, the panel should remain operational. If the panel fails to remain operational, continue to step 6. 6. Remove the batteries from the battery bucket and check each battery's voltage using a voltmeter. Replace any batteries that are lower than approximately 1 volt or that vary significantly in voltage from the other batteries. 7. Reinstall the batteries. If the panel fails to remain operational, return to step 5. Note: While the panel is charging low batteries, it is important to avoid performing a sensor test for at least 30 minutes. The panel runs a battery test for the entire duration of sensor test, draining the batteries.
	Incoming voltage reading is 0.	
		1. Unplug the transformer. 2. Disconnect the wires from the transformer and the panel. 3. Check for continuity (short) between any two wires or any open circuit on any wire.
	POWER LED is off, and pressing the STATUS button confirms, *AC Power Failure.*	
		1. Check if the transformer is plugged into an outlet. Secure the transformer to the outlet with the screw provided. **CAUTION:** Use extreme caution when securing the transformer to a metal outlet cover. You could receive a serious shock if the metal outlet cover drops down onto the prongs of the plug while you are securing the transformer and cover to the outlet box. 2. Check the connection from the transformer to the panel.
Phones		
	Loss of dial tone on-premises phones after wiring the RJ-31X Jack, or connecting the DB-8 Cord.	
		1. Check the RJ-31X Jack's wiring. 2. Check the wiring from the panel terminals to the DB-8 Cord. 3. Replace the RJ-31X Jack. 4. Replace the DB-8 Cord. 5. Perform a phone test after troubleshooting the phone line.

Table 10.1. Troubleshooting System Problems (Continued)

Device	Problem	Solution
Phones (Continued)		
	Constant dial tone, preventing dial-out on premises phones.	
		Polarity-sensitive phones exist on the premises. Reverse the wires you connected to the brown and gray wire terminals on the RJ-31X Jack.
Sensor		
	Panel announces, *Sensor [sensor #] Trouble.*	
		Put the sensor's cover on, if it is off. Activate the sensor.
	Panel announces, *Sensor [sensor #] Failure.*	
		The sensor is not communicating with the panel.
	Panel announces, *Sensor [sensor #] low battery.*	
		Replace the sensor's battery.
Smoke Sensor		
	Beeps once every minute.	
		Batteries are low. Replace both smoke sensor batteries.
Telephone		
	Telephone does not work.	
		Disconnect the panel from the phone jack. If the phone still doesn't work, the system is OK.
Trouble Beeps (see also *Panel*)		
	Press the STATUS button for a voice message of the problem. This disables the trouble beeps until the panel calls in its daily report.	
Wireless Interior Siren (WIS)		
	No sound or LED activity from the WIS.	
		1. Check that the panel transformer is plugged into an outlet. 2. Check that the WIS is not plugged into an outlet controlled by a switch. Relocate, if necessary. 3. Program the house code into the panel and set the DIP switches on the WIS. 4. Check that the panel is powered by the 4-wire Line Carrier Transformer, not the Class II Power Transformer. 5. The WIS may not be on the same electrical phase as the Line Carrier Transformer. Relocate the WIS to various outlets to identify compatible locations. 6. Move the WIS to a circuit that is not used by any other appliances.
	Intermittent WIS operation.	
		1. Check that the WIS is not plugged into an outlet controlled by a switch. Relocate, if necessary. 2. Move the WIS to a circuit that is not used by any other appliances.
	The WIS sounds one beep every minute.	
		1. The WIS may have a low battery. Replace the battery. 2. The WIS has no battery. Install the appropriate battery based on the setting of DIP switch 1. (ON = NiCd, OFF = alkaline or lithium)

Table 10.1. Troubleshooting System Problems (Continued)

Device	Problem	Solution
Wire less Interior Siren (WIS) (Continued)		
	WIS will not shut off for record time	
		1. Make sure each device connected to the hardwire buss has a different unit ID code. 2. Make sure the Interrogator Module and control panel house codes match.
Wireless Sensors		
	The panel does not respond to sensor activity. There are no alarm, chime, or sensor test sounds.	
		1. Check that the sensor battery is installed. 2. Check the sensor battery for low voltage. Replace alkaline or lithium batteries, if necessary. 3. Check that the sensor number is programmed into panel memory. Program the sensor, if necessary.
	The panel responds intermittently to sensor signals.	
		1. Rotate the position of the sensor from 90° to 180°. 2. Mount the sensor in a different location.
Wireless Touchpads		
	The panel does not respond to touchpad commands.	
		1. Operate touchpads from different locations within the premises to identify areas of intermittent operation. 2. Program the touchpads into the panel.
X-10 Lamp Modules		
	Lights controlled by the X-10 Lamp Module do not work.	
		1. Check that the lamp has a working bulb. 2. Confirm the lamp's operation at a working outlet. 3. Check that the lamps are plugged into X-10 Lamp Modules and the X-10 Lamp Modules are plugged into outlets that are not controlled by a switch. Relocate to nonswitched outlets, if necessary. 4. Check that the panel is powered by the 4-wire Line Carrier Power Transformer, and not the 2-wire standard Class II Power Transformer. 5. Check that the HOUSE dial on the X-10 Lamp Module matches the house code programmed into the panel.
Interrogator Module		
	Hardware sirens do not shut off for the record time.	
		1. Check for proper siren connections to the module relays terminals 18 through 23.
	Interrogator Module won't program from on-site.	
		1. Make sure programming jumpers are in programming positions. 2. Try a different DTMF phone.
	No recording heard on playback.	
		1. Record board not installed. 2. Record board not installed correctly.

APPENDIX A
CENTRAL STATION 4/2 FORMAT REPORTING

If you are using 4/2 reporting format and the central station is using a CS-4000 for monitoring, the CS-4000 handles the incoming reports as described in Table A.1. In addition, the first digit of the Panel account number is not reported in 4/2 format, so if the account number is programmed as 57-234, the CS-4000 displays the account as X7-234. For more information about the CS-4000, see the *CS-4000 Central Station Receiver Installation and User's Manual* (46-056).

Note: Panels do not send restore reports except for upper sensor numbers 90 and 91. See Table A.1.

Table A.1. 4/2 Reporting Format

Description	System Sensor	Alarm Code	Trouble Code	Cancel Code	Restore Code
Sensor Number 1	01	01	B1	39	
Sensor Number 2	02	02	B2	40	
Sensor Number 3	03	03	B3	41	
Sensor Number 4	04	04	B4	42	
Sensor Number 5	05	05	B5	43	
Sensor Number 6	06	06	B6	44	
Sensor Number 7	07	07	B7	45	
Sensor Number 8	08	08	B8	46	
Sensor Number 9	09	09	B9	47	
Sensor Number 10	10	10	C0	48	
Sensor Number 11	11	11	C1	49	
Sensor Number 12	12	12	C2	50	
Sensor Number 13	13	13	C3	51	
Sensor Number 14	14	14	C4	52	
Sensor Number 15	15	15	C5	53	
Sensor Number 16	16	16	C6	54	
Sensor Number 17	17	17	C7	55	
Sensor Number 18	18	18	C8	56	
Touchpad Fire Emergency	80	80		F2	
Touchpad Police Emergency	81	81		F3	
Touchpad Auxiliary/Medical Emergency	82	82		F4	
Manual Phone Test	83	83			
RF Touchpad Low Battery or Supervisory	89		F9		
AC Power Failure	90	90			FC
Low Panel Battery	91	91			FD
Automatic Phone Test	93	93			
Receiver Failure	94	94			
Panel Back In Service	95	95			
Phone Failure	96	96			
Auto Event Buffer Dump	98	98			

APPENDIX B
COMMAND SUMMARY

This appendix contains a summary of all system commands and what each command does.

User Command Summary

Table B.1 provides a description of all commands for operating the system. While these are called *user commands*, you may need to use some or all of these commands during the installation and programming process.

Table B.1. Summary of User Commands

Action	Command	Voice Message Confirmation
Phone test On.	TEST (press and hold for 3 seconds)	*Phone test is ON.*
Sensor test On.	TEST	*Sensor test is ON*
Review alarm memory.	STATUS and TEST (press both buttons at the same time for 3 seconds)	*Alarm memory is OK*, or *Sensor [sensor #] [alarm type] alarm memory.*
Review panel status.	STATUS	(See Table 9.6 for possible messages.)
Adjust speaker volume.	CANCEL (press and hold both buttons)	*Hello!...hello....hello...hello...*

Program Mode Command Summary

Table B.2 provides a description of all system commands you can use when the panel is in program mode. To enter program mode, you can use either the installer programming code or the dealer programming code, unless otherwise indicated. Table notes for Table B.2 appear at the bottom of the table, on the next page.

Table B.2. Summary of Program Mode Commands

Action	Command	[n] Variable	Voice Message Confirmation	Default *
Add wireless touchpad.@	ACTIVITY LEVEL + ACTIVITY LEVEL + [touchpad ID]	From 1 to 4	*n Hello*	
Add 2-Button Keychain Touchpad.@	ACTIVITY LEVEL + ACTIVITY LEVEL + [ID#]	From 1 to 4	*[ID#] Hello*	
Clear Panel memory.	POLICE + POLICE + CANCEL + CANCEL		*Memory good-bye, [system #] [version #]*	
Delete a learned sensor.	TEST + [sensor #]	From 01 to 18	*Sensor nn good-bye*	
Delete primary phone number	FIRE + FIRE + TEST + 1	Clears primary phone number.	*Phone...OK*	
Delete wireless touchpad.	TEST + TEST + [touchpad ID]	From 1 to 4	*n good-bye*	
Exit selected group during sensor programming.	STATUS	n/a	*Invalid, try again*	
Select group number for sensor programming.	ACTIVITY LEVEL + [group #]	From 00 to 29	*Sensor level nn*	
Set account number.	FIRE + FIRE + ACTIVITY LEVEL + [account number]	Any five digits	*nnnnn OK*	00-000
Set day activity time-out.	STATUS + FIRE + FIRE + [activity time-out]	From 02 to 24	*nn OK*	12
Set dealer programming code. †	CANCEL + CANCEL+ TEST+ [new dealer programming code] + [new dealer programming code]	Any four digits, repeated		4321
Set feature number. ‡	CANCEL + CANCEL + ACTIVITY LEVEL+ [feature number]	From 20 to 24, 27, and 30, 34, and 35	*nn On* or *nn Off*	
Set house code.	FIRE + FIRE + [house code]	From 001 to 254	*nnn OK*	001
Set night activity time-out.	STATUS + STATUS + [activity time-out]	From 02 to 24	*nn OK*	12
Set pill reminder time (1).	STATUS + POLICE + POLICE + 1 + [pill reminder time]	From 00:00 to 24:00	*nnnn OK*	00:00
Set pill reminder time (2).	STATUS + POLICE + POLICE + 2 + [pill reminder time]	From 00:00 to 24:00	*nnnn OK*	00:00
Set pill reminder time (3).	STATUS + POLICE + POLICE + 3 + [pill reminder time]	From 00:00 to 24:00	*nnnn OK*	00:00
Set pill reminder time (4).	STATUS + POLICE + POLICE + 4 + [pill reminder time]	From 00:00 to 24:00	*nnnn OK*	00:00
Set primary phone number. ‡ §	FIRE + FIRE + TEST + [primary phone number]	From 2 to 14 digits, including pauses. Press FIRE + FIRE to insert pauses.	*Phone nnnnnnn OK*	none
Set reporting format.	STATUS + CANCEL + CANCEL + [reporting format]	Either 00 (ITI), 01 (4/2, 2300 Hz), or 03 (4/2, 1400 Hz)	*nn OK*	00
Set siren time-out.	CANCEL + CANCEL + [siren time-out]	From 02 to 15	*nn OK*	05

Table B.2. Summary of Program Mode Commands (Continued)

Action	Command	[n] Variable	Voice Message Confirmation	Default *
Turn off upper sensor number. **	TEST + [upper zone number]	From 79 to 98, except 86-88, 92 and 97	*Sensor nn good-bye*	
Turn on upper sensor number. **	ACTIVITY LEVEL + [upper zone number]	From 79 to 98, except 86-88, 92 and 97	*Sensor nn OK*	

@You may use a maximum of 4 touchpads.
*All programmed options with entries in the Default column, except dealer programming code, can be reviewed for the current setting. Review programmed settings by entering the corresponding command, leaving off the [n] variable.
†If the dealer programming code has been changed, Phone Lock is enabled and the primary phone number can only be changed using the new dealer programming code. The installer programming code will not allow you to program the primary phone number.
‡ Refer to Table 5.3 for feature number descriptions.
§Primary phone number can be up to 18 digits including pauses, if set from the CS-4000. A secondary phone number is also programmable from the CS-4000.
**Refer to Table 5.2 for upper sensor number descriptions.

Interrogator Commands

Table B.3 describes the commands used for programming the Interrogator Module.

Table B.3. Interrogator Commands and Descriptions

Command Name	Command	Command Description
Log On	* + # +10 + PSWD +#	Log on for programming from on or off-site.
Auxiliary Output Manual Control	* + # +11 + PSWD +0 (OFF) * + # +11 + PSWD +1 (ON)	Manually turns the auxiliary output OFF and ON. (Default = none.)
Retrieve Account Number	* + # +12 +1 +#	Retrieves Interrogator account number, which is given in DTMF tones. (Default = none.)
Interrogator Password	* + # +30 +nnnn +# (n = any 4 digits)	Sets the password for Log On. (Default = 1 2 3 4)
Dialing Format	* + # +31 +0 +n + # (pulse) * + # +31 +1 +n +# (DTMF)	Sets the dialing format for either DTMF or pulse. (Default = DTMF)
Interrogator Phone Number	* + # +32 +n +# (n= up to 20-digit phone number)	Stores the phone number used by the Interrogator Module when the dial-back feature is used. (Default = none.) For pauses, press and hold 7 for five seconds.
Off-Site Access	* + # +33 + 0 +# (OFF) * + # +33 + 1+# (ON)	Controls whether the Interrogator Module can be accessed from off-site. Default = 1.)
Unit Number	* + # +34 + n+# (n = 0-7)	Sets the unit identification number for the ITI bus. (Default = none.)
Microphone Mapping	* + # +35 + nn + n +# nn = sensor number n = 0 (all microphones) 1 (microphone 1) 2 (microphone 2) 3 (microphone 3)	Determines which sensor numbers activate which microphone(s). (Default = none.)
Delete Microphone Mapping	* + # +35 + nn + n +# nn = sensor number	Deletes programmed microphone mapping. To delete all microphone mapping, enter the command without a sensor number. (Default = none.)
Control Panel Type	* + # +39 + n +#	Sets the Interrogator Module for use with the connected panel. (Default = 1.)

Table B.3. Interrogator Commands and Descriptions

Command Name	Command	Command Description
Trip Input and Trip Action	* + # +40 + x + y + # x= Trip Input 2 (ITI trip) y = Trip Action 0 = instant on with activation beeps from Interrogator Module 1 = instant on without activation beeps from Interrogator Module 2 = call back and answer after first ring 3 = dial out after trip detect 4 = call back without on-site phones ringing	Sets the trip input to match the output from the connected panel, and sets the trip action mode. (Trip input default = 2.) (Trip action default = 0.)
Auxiliary Output Option	* + # + 41 + n + # n = 0 (disabled) 1 (enabled)	When the Interrogator trip input is activated and command 41 is set to 1 (ON), the Interrogator Module provides a switched closure to ground, providing up to 50 MA at the auxiliary output (#8 on terminal strip 1).For example, this could be used to trip a relay that controls an electric door strike. If set to 0 (OFF), the auxiliary output is disabled. (Default = 0.)
Auxiliary Output Time/ Recording Save time	* + # +42 + x + y + # x= Auxiliary Output Time 0 (5 seconds) 1 (10 seconds) 2 (5 minutes) 3 (10 minutes) y = Recording Save Time 0 (10 minutes) 1 (20 minutes) 2 (1 hour) 3 (5 hours)	Sets the auxiliary output time and the recording save time. The auxiliary output time determines how long the auxiliary output is active, after the Interrogator Module is tripped. (Default = 0.) The recording save time determines how long the Interrogator Module saves the recording. (Default = 0.) Notes: Command 11 overrides command 41 unless there is time left on the timer (command 42). If command 41 is set to 1 (enabled), the time period that the auxiliary output will be ON is determined by command 42.
House Code	* + # + 43 + n + # (n = 001-255)	Sets the house code If used, it must match the control panel house code (Default = none.)
Switch Hot Key Assignment	* + # + 44 + n + # n = 0 (default) 1 (switch)	When set to 1, switches hot key assignments as follows: 0 to 3, 3 to 0, 1 to 4, or 4 to 1.
Reset	* + # + 49 + #	Resets all programming to default settings

GLOSSARY

account number

A five-character string that identifies the panel to the central station.

alarm

Any sensor activation that occurs while that sensor is monitored by the panel.

alarm memory

A brief history of alarm events. Alarm memory stores the numbers of all sensors tripped. Alarms remain in memory until an alarm occurs after all previous alarms have been canceled.

alarm report

Alarm information sent over telephone lines from the panel to the central station.

auxiliary/medical alarm

A condition that occurs when: 1) Sensors in an auxiliary/medical group are tripped, or 2) HELP button on the panel is manually activated. In this condition, interior sirens sound low-volume, fast ON-OFF-ON-OFF tones, and exterior sirens are not activated.

AUXILIARY/MEDICAL emergency

Sensors assigned to the auxiliary/medical group.

auxiliary/medical group

Group used for 24-hour sensors that detect conditions other than fire. For example, portable panic buttons that summon emergency medical aid. If auxiliary/medical groups are used for nonmedical purposes, Freeze Sensors could be assigned to an auxiliary group. If any auxiliary/medical group is used for emergency medical purposes, then all medical/auxiliary sensors must be used only for emergency medical purposes.

auxiliary power output

The power available at panel terminals 9 (+) and 10 (-) to power system components such as hardwire detectors and the Interrogator Module. The total current draw available from this output (including sirens) is 290 mA.

battery supervision

The portion of a sensor's supervisory signal that indicates the condition of the sensor battery. If the panel receives a supervisory signal from a sensor that has a low battery, the panel TROUBLE indicator light flashes. When you press the STATUS button, a voice message announces, *Sensor [sensor #], low battery.*

central station

The place the system calls to report various system conditions. The central station then dispatches the appropriate authorities based on the signals received. When the central station uses the CS-4000, it can also be used to program the panel.

clear memory

Procedure that erases panel programming information and reverts to factory default values.

closed

The portion of a sensor's supervisory signal that indicates the sensor is closed.

control panel

See *panel.*

day activity time-out

When the panel is in day mode, the programmable period of time during which the panel must see some activity (for example, a transmission from a sensor or a press of a panel button) or a No Activity Report is sent to the central station.

dealer programming code

Four-digit number intended specifically for the dealer to program panel memory. The code's default is 4 3 2 1, the same as the installer programming code. The dealer programming code is the only code that can be used to change the primary phone number and dealer programming code.

event buffer

Software space that temporarily stores system history, such as alarms, troubles, and supervisories. The history is limited by buffer size. As new events occur, the oldest events are removed.

exterior siren

A siren mounted outside a protected building and hardwired to the panel or a WIS. Exterior sirens only sound police and fire alarms.

feature numbers

Optional panel characteristics that can be turned on or off.

FIRE emergency

1) Buttons located on front of the panel that, when pressed, activate an audible alarm and central station reporting.
2) Sensors assigned to the fire group.

group

A set of characteristics that determine how the panel responds to sensor transmissions.

hardwire input

Panel feature that allows connection of a hardwire protection loop that includes hardwire sensors.

Hardwire Interior Siren (HIS)

An indoor audible signaling device that must be wired to panel. The HIS alerts occupants with low-volume status beeps and high-volume fire alarms.

installer programming code

The 4-digit code (4 3 2 1) used to enter program mode to change system defaults and values. If the *dealer programming code* is different from the installer programming code, the installer programming code cannot be used to program the primary phone number or the dealer programming code.

house code

A 3-digit number that the panel uses to communicate with the WIS and X-10 Lamp Modules.

Learn Mode

1) The type of panel operation that allows sensors to be programmed into memory.
2) The technology of wireless sensors that enables the panel to identify wireless transmitters by a preassigned ID and type.

   A sensor is programmed into panel memory by simply tripping it while the panel is in learn mode.

local

Alarm conditions that are not reported to the central station. Systems not connected to premises phone lines are referred to as *local* systems.

monitoring service

The central station.

night activity time-out

When the panel is in night mode, the programmable period of time during which the panel must see some activity (for example, a transmission from a sensor or a press of a panel button) or a No Activity Report is sent to the central station.

panel

The main unit that houses the keypad and the indicator lights.

phone test

Feature that tests the communication from the panel to the central station.

PIR

Passive infrared motion sensor. A motion sensing device that detects movement in the interior of a structure.

pill reminder time

A programmable time that alerts the user when it is time to take medication by causing the panel to beep once every 2 seconds for 1 minute. There are four pill reminder times available.

PMODE

Option that determines which reports go to which central station phone numbers.

POLICE emergency

1) Buttons located on front of the panel that, when pressed, activate an audible alarm and central station reporting.
2) Sensors assigned to the police group.

primary phone number

The phone number that the panel always calls first. This number can be programmed locally or from the CS-4000, using the dealer programming code.

program mode

The type of panel operation that allows system defaults and values to be programmed with other values.

restore

Signal transmitted from a sensor when the sensor returns to its normal state.

RJ-31X Jack

Phone port connecting the panel to phone equipment. The jack enables the panel to take control of the premises phone and report to the central station.

secondary phone number

The alternate to the primary phone number. PMODE selection determines which events are reported using the number. The *secondary phone number* can be programmed only from a CS-4000.

sensor

A device that detects a condition and activates a transmitter, which reports to the panel.

sensor number

Identification of a sensor in a system. Sometimes referred to as a zone, the system has a maximum capacity for either 8 or 17 wireless sensors (01-17) and 1 hardwire sensor (preprogrammed as number 18).

sensor test

A mode that allows sensors to be tripped to verify that the signal strength is acceptable.

siren time-out

The length of time the sirens sound after the most recent alarm. The interval is reset when alarms are tripped during siren sounding.

shutdown mode

A state in which all panel activity ceases. The panel goes into shutdown mode 5 hours after the beginning of an AC power failure and remains in sleep mode until AC power is restored. Five hours is a default value that can vary from 2 to 255 hours and can be set with the CS-4000 *BATTLIFE* command.

sleep mode

A state the panel enters after 15 minutes of AC power failure. The panel shuts off LEDs to conserve battery power but remains fully operational. Pressing any button on the panel turns the LEDs on for another 2 minutes.

STIME

The time assigned for the panel to send its 24-hour supervisory report to the CS-4000. STIME is represented in military time and can range from 0000 to 2359 hours (see the STIME command in Table 7.1).

supervisory failure

Condition that occurs when the panel does not receive at least one supervisory signal from a wireless sensor within the programmed time period (see the SUPSYNC command in Table 7.1). The TROUBLE indicator light on the panel flashes and the failure is reported to the central station.

SUPSYNC

The time window assigned for the panel to receive an RF supervisory check-in. RF supervisory check-ins are sent every 64 minutes. SUPSYNC can range from 2 to 24 hours (see the SUPSYNC command in Table 7.1).

supervisory signal

The radio transmission sent from a wireless sensor to inform the panel of the sensor's current status.

trip, tripped

To activate or change a sensor from its normal state, forcing the sensor to transmit a signal to the panel (for example, opening a closed door with a sensor attached trips the sensor).

trouble

Condition indicated by a flashing TROUBLE indicator light and trouble beeps. Trouble conditions are caused by any of the following: low sensor battery, low panel batteries, supervisory failure, or a tripped tamper switch (sensor cover removed).

trouble beeps

Six successive beeps produced every 60 seconds by interior sirens and the panel speaker when a trouble condition is detected by the panel. Trouble beeps caused by supervisory or low-sensor battery conditions reactivate every 24 hours if not corrected.

upper zone number

A series of numbers that, when turned on, perform certain functions under specific conditions.

unsupervised

Sensor groups that do not require the panel to receive sensor supervisory signals.

Wireless Interior Siren (WIS)

A siren that plugs into a standard wall receptacle and receives panel commands through the AC power line.

Wireless Touchpad

A component that can be used to program the system.

24-hour sensor

Sensors that always monitor the premises. Examples of 24-hours sensors are heat sensors, freeze sensors, smoke sensors, and emergency sensors.

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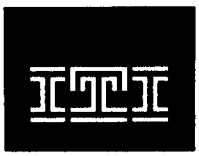

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