CareTaker®

and Custom Versions

INSTALLATION INSTRUCTIONS

This document describes the procedures necessary for an experienced installer to install CareTaker Plus, WatchGard, and Security Pro 4000 security systems. Refer to the *CareTaker Plus and Custom Versions Installation Manual* (46-504) for UL installation requirements or if you need more detailed information.

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Installing the System

This section describes how to install the Panel and optional Panel hardware. Plan your system layout before starting the installation, using the worksheets provided in Appendix A.

Installing the Panel consists of the following procedures:

- Installing the Status Speaker Kit
- Installing the Radio Receiver Module
- Installing a Feature Expansion Module
- Connecting Hardwire Devices to the Panel
- Installing the Backup Battery
- Applying AC Power to the Panel

Note: Panel hardware can be added before or after mounting the Panel.

Installing the Status Speaker Kit (80-094)

Install the status speaker at the location on the Panel shown in Figure 1 and connect the speaker wires to Panel terminals 11 and 16 (no polarity).

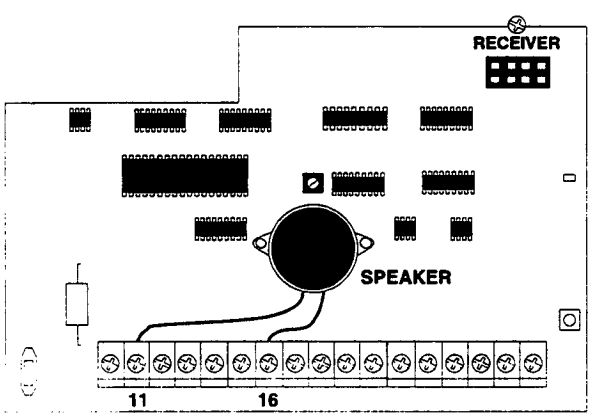

Figure 1. Installing the Status Speaker Kit

Installing the Radio Receiver Module (60-485-95)

This section describes how to install and connect the wireless receiver on the Panel.

Note: Some Panels are shipped with this module already installed.

CAUTION: You must be free of static electricity before handling circuit boards. Touch a grounded, bare metal surface before handling circuit boards to discharge yourself of static electricity or wear a grounding strap.

1) Loosen, but do not remove the two Panel circuit board screws (see Figure 2).

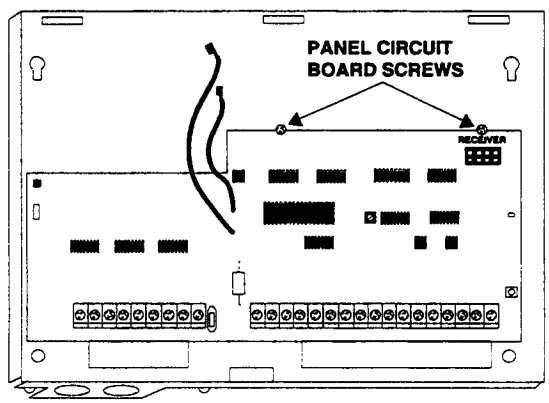

Figure 2. Panel Circuit Board Screw Locations

2) Align the two bottom notches on the module with the loosened screws.

3) Gently tighten the two circuit board screws and install two more screws (included) at the top of the module (see Figure 3).

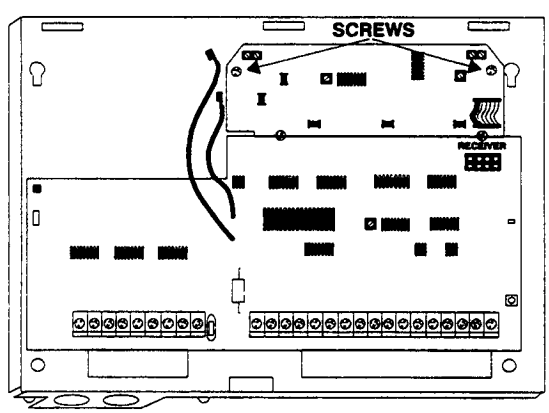

Figure 3. Receiver Module Top Screw Locations

4) Connect the module ribbon cable connector to the receiver pins on the Panel circuit board (see Figure 4).

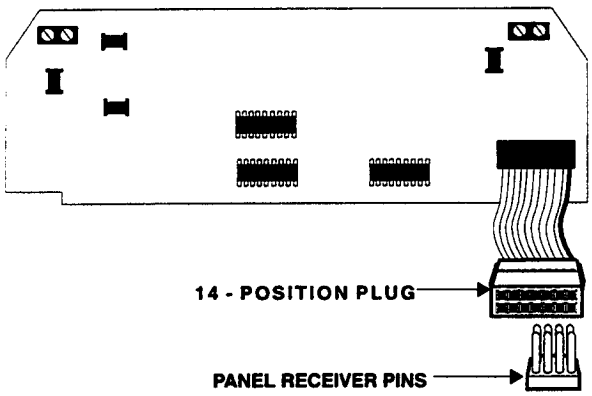

Figure 4. Connecting the Receiver Module Ribbon Cable to the Panel Pins

5) Insert one antenna into the inside screw terminal of each terminal block and gently tighten the screws using a small pocket-size screwdriver (see Figure 5).

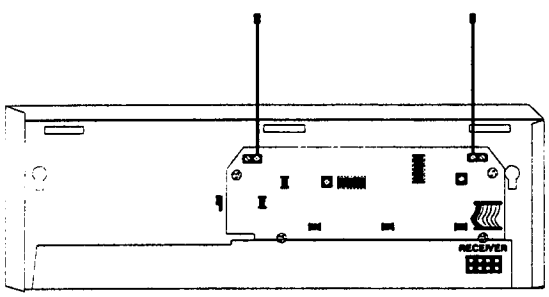

Figure 5. Installing the Receiver Module Antennas

CAUTION: Do not overtighten the terminal block screws; otherwise, permanent damage may result.

Installing a Feature Expansion Module (60-436 and 60-622)

A Feature Expansion Module is required if the installation includes any or all of the following:

- Exterior speakers
- Energy Saver Module
- Hardwired detectors that need an external power source
- Hardwired smoke detectors that require a switched power output for automatic reset after a fire alarm is canceled

Two Feature Expansion Modules are available; a 6-VDC model (60-436) and a 12-VDC model (60-622).

Note: If you are not powering hardwire detectors or 12-VDC smoke detectors from the Feature Expansion Module, we recommend using the 6-VDC model.

Both models attach to the Panel the same.

1) Align the two top notches on the module with the battery support brackets and secure the module by installing the two screws included (see Figure 6).

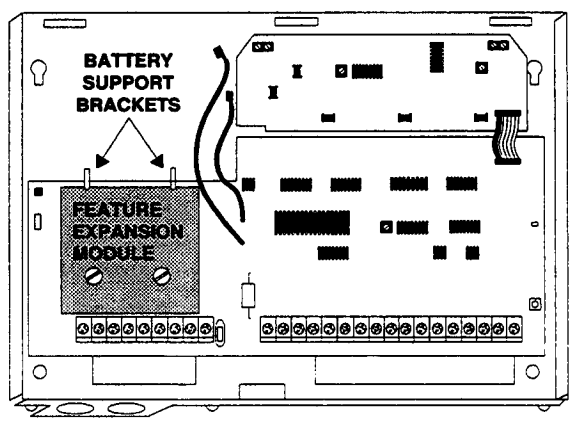

Figure 6. Installing a Feature Expansion Module

2) Make wiring connections from the module to the Panel as follows:

- For 6-VDC models, wire the module to the Panel as shown in Figure 7.

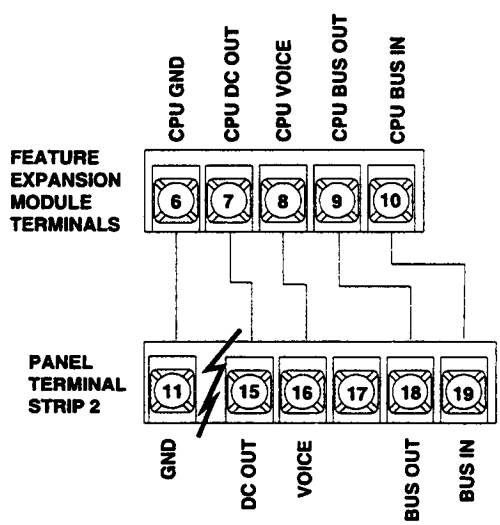

Figure 7. Wiring the 6-VDC Feature Expansion Module to the Panel

- For 12-VDC models, slide the wire harness (included) onto the pins on the lower-right corner of the module and connect the harness wires to the Panel as shown in Figure 8.

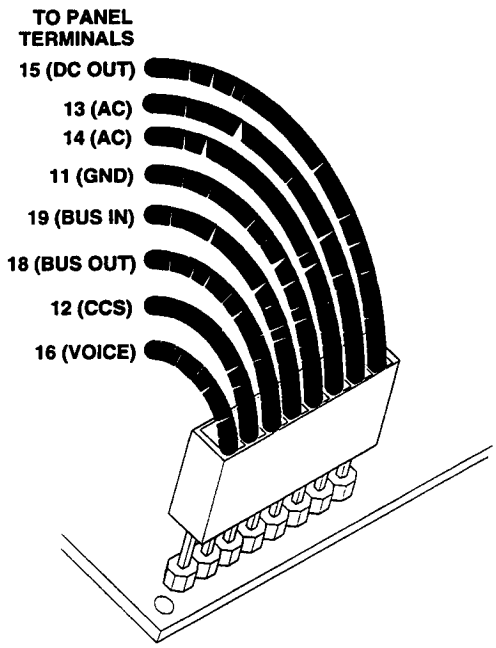

Figure 8. Connecting the Harness Wires to the Panel

Note: Since wire colors may change over time, Figure 8 shows how any wire harness included with the module connects to the Panel terminals, starting with the top wire.

Connecting Hardwire Devices to the Panel

This section shows how to connect the following hardwire devices to the Panel:

- Hardwire smoke detectors
- Hardwire intrusion detectors
- Hardwire speakers, sirens, and piezos
- Energy Saver Module
- RJ-31X (CA-38A) phone jack
- AC Power Transformer

For detailed information on installing hardwired devices, see the *CareTaker Plus and Custom Versions Installation Manual* (46-504) and the installation sheets that accompany each device. Refer to A.2 to calculate the hardwire device limit for the system.

Wiring Hardwire Smoke Detectors to the Panel

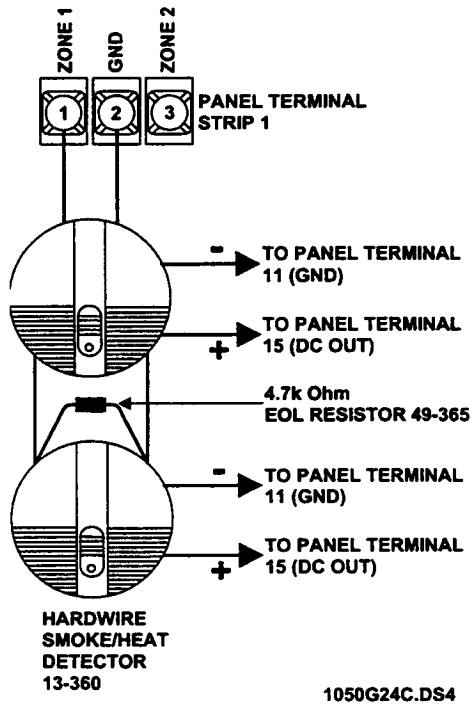

Figure 9. Multiple Hardwire Smoke Detectors in Parallel

Wiring Hardwire Intrusion Detectors to the Panel

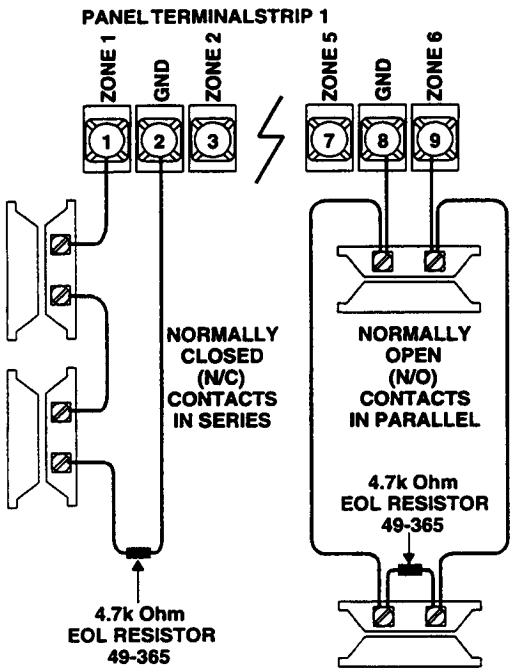

Figure 10. Wiring Hardwire Door/Window Contacts in Series (left) and Parallel (right)

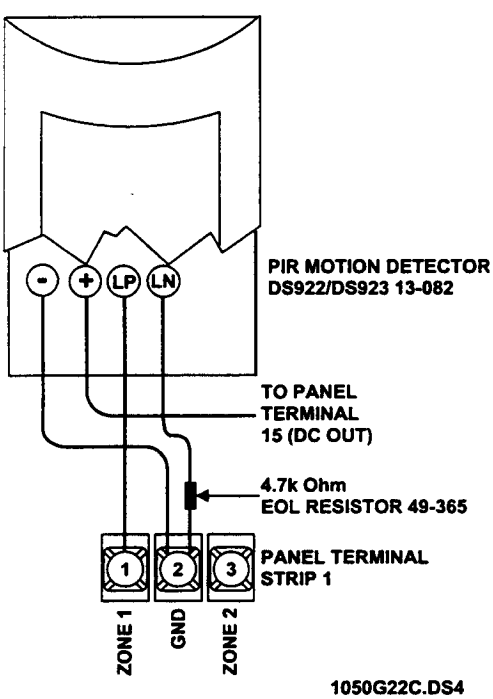

Figure 11. Wiring a Hardwire PIR Motion Detector to the Panel

Wiring Piezos, Hardwire Sirens, and Speakers to the Panel

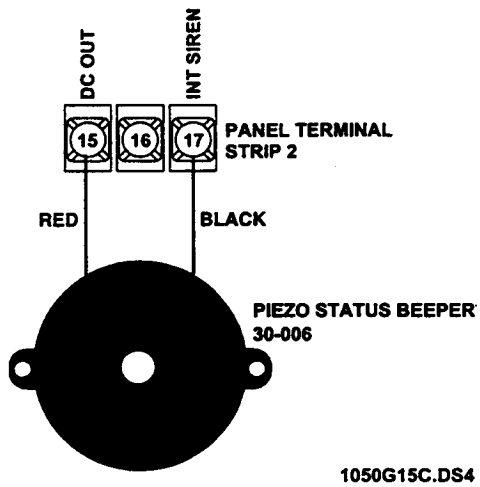

Figure 12. Wiring the Piezo Status Beeper to the Panel

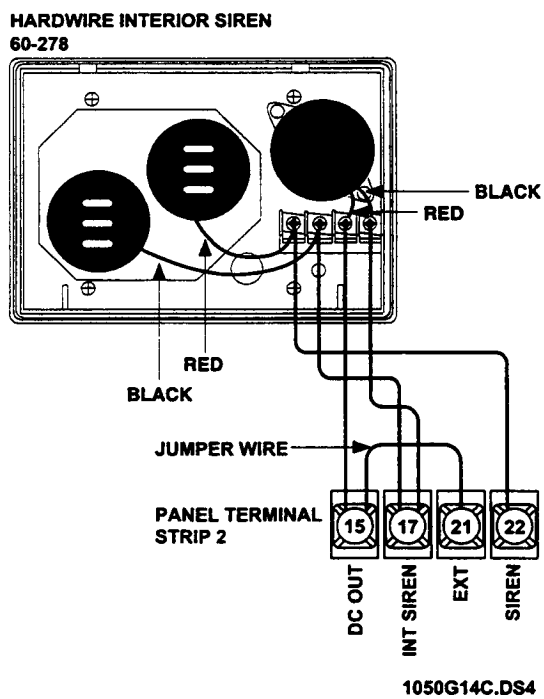

Figure 13. Wiring the Hardwire Interior Siren to the Panel

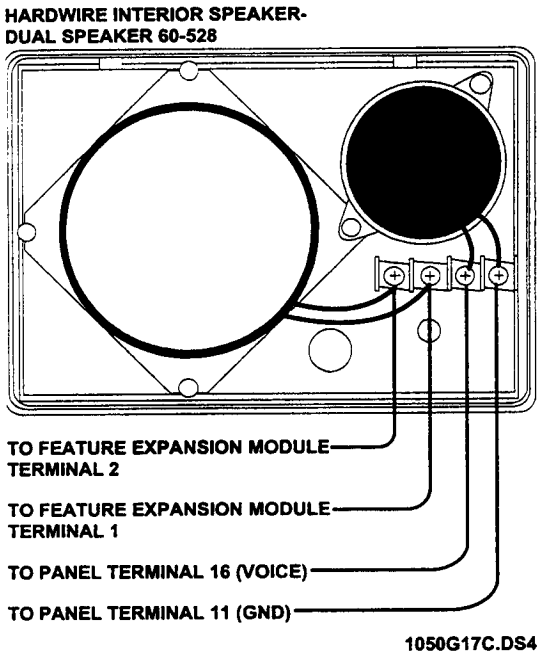

Figure 14. Wiring the Hardwire Interior Speaker - Dual Speaker to the Panel

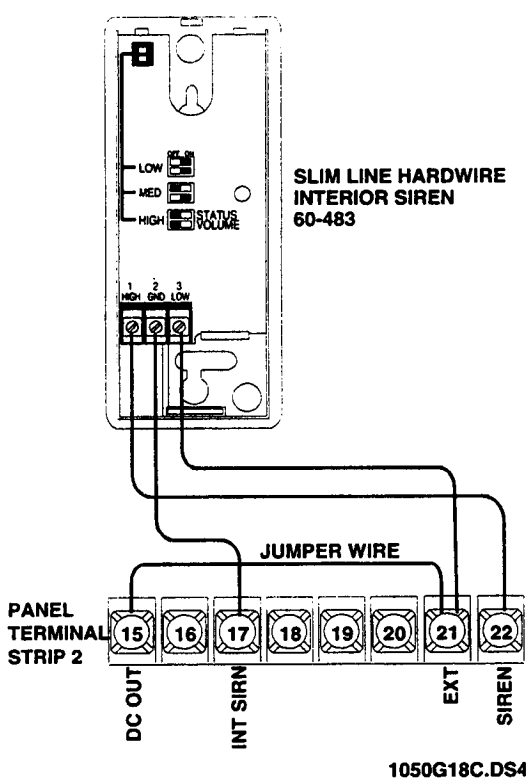

Figure 15. Wiring the Slim Line Hardwire Interior Siren to the Panel

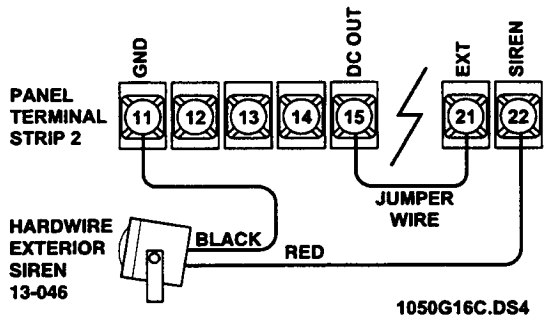

Figure 16. Wiring the Hardwire Exterior Siren to the Panel

Wiring External Speakers to the Feature Expansion Module

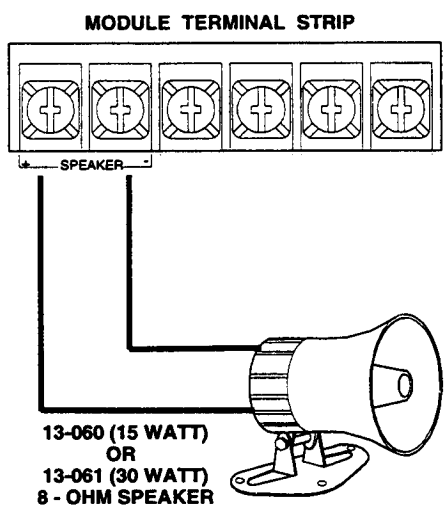

Figure 17. Wiring One 8-Ohm Speaker to the Feature Expansion Module

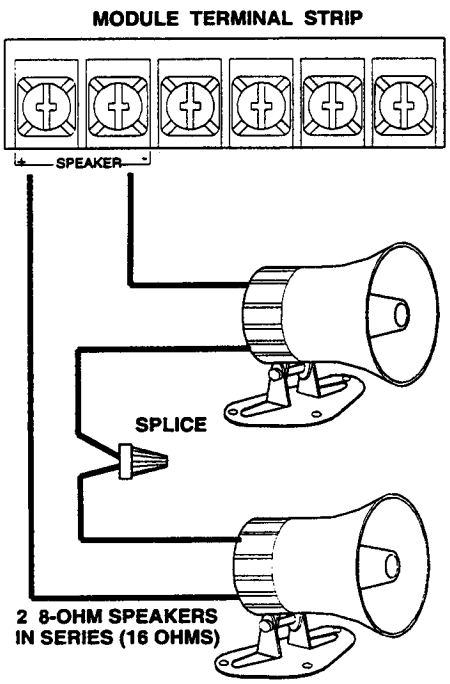

Figure 18. Wiring Two 8-Ohm Speakers in Series to the Feature Expansion Module

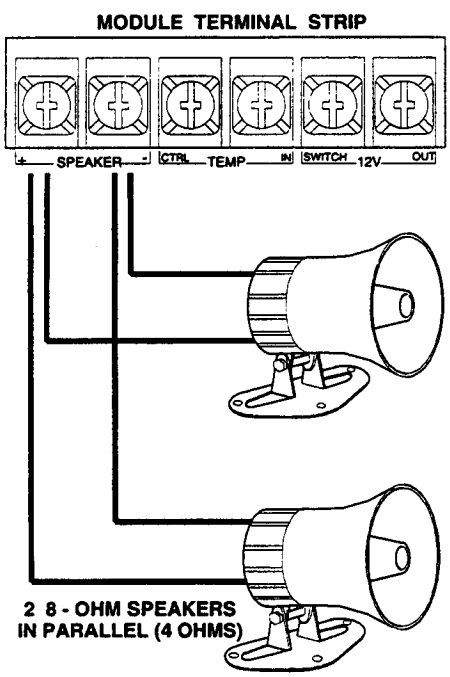

Figure 19. Wiring Two 8-Ohm Speakers in Parallel to the Feature Expansion Module

Wiring the Alphanumeric Touchpad to the Panel

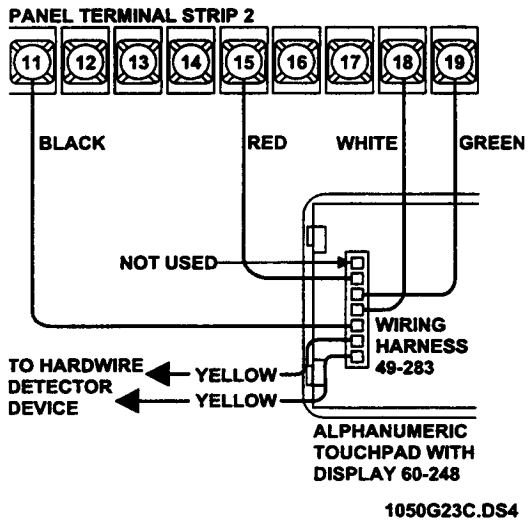

Figure 20. Wiring the Alphanumeric Touchpad to the Panel

Wiring the Energy Saver Module (ESM) to the Panel

CAUTION: Do not power up the Panel with the ESM voltage jumper removed; otherwise, the ESM can be permanently damaged. Be sure the ESM voltage jumper is installed for 6-volt operation.

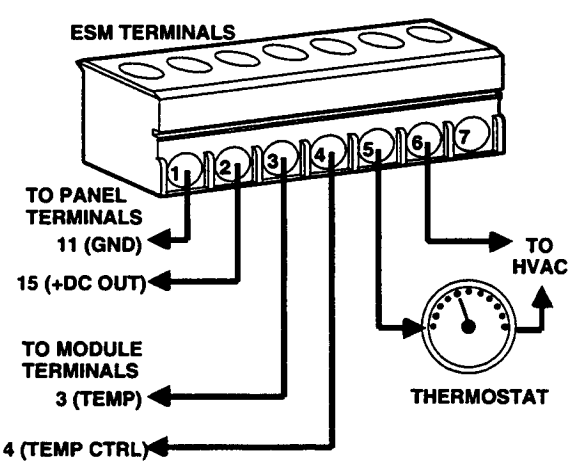

Figure 21. Wiring the ESM to the Feature Expansion Module

Wiring the RJ-31X (CA-38A) to the Phone Line

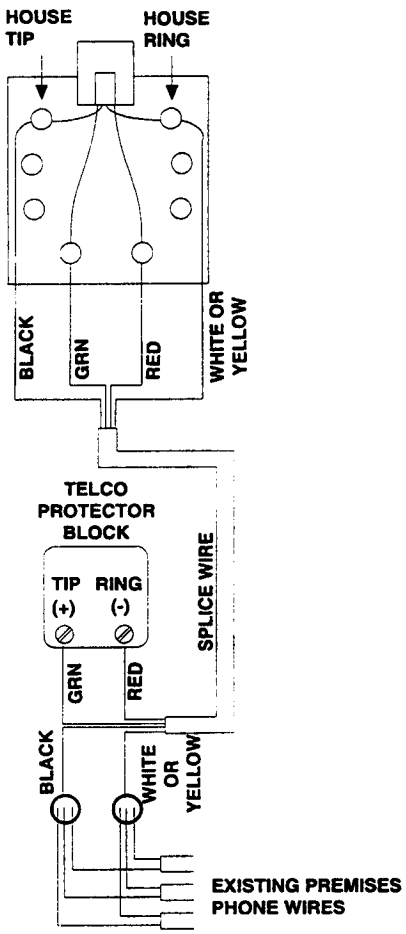

Figure 22. Installing the RJ-31X (CA-38A) Jack

Connecting the DB-8 Phone Cord to the Panel

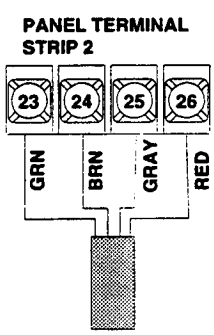

Figure 23. Connecting the DB-8 Phone Cord to the Panel

Wiring the Standard AC Power Transformer to the Panel

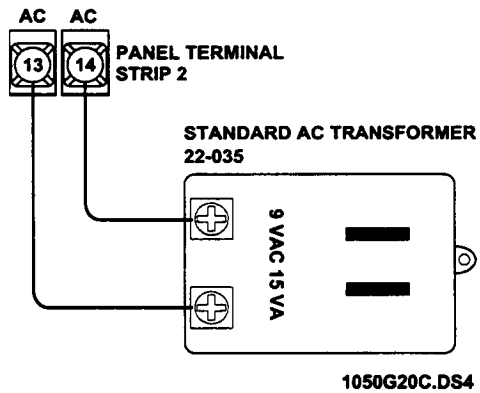

Figure 24. Wiring the Standard AC Transformer to the Panel

Wiring the Optional Line Carrier Transformer to the Panel

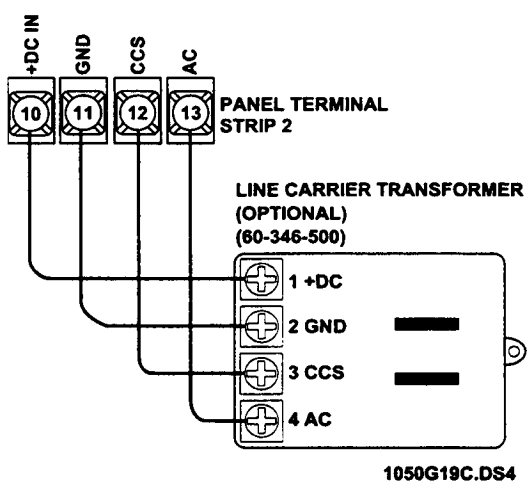

Figure 25. Wiring the Optional Line Carrier Transformer to the Panel

Installing the Backup Battery

The Panel uses one lead-acid backup battery. To install backup battery:

1) Make sure the Panel power switch is off.
2) Verify all wiring at the Panel and devices for correct terminations.
3) Place the battery on the battery support brackets, with the terminals facing to the right and the battery printing facing you.

4) Secure the battery in place by gently tightening the screw on top of the chassis.
5) Connect the black wire from the Panel circuit board on the negative (-) battery terminal.
6) Connect the red wire from the Panel circuit board on the positive (+) battery terminal.

Applying AC Power to the Panel

After connecting all hardwire devices to the Panel and installing the backup battery, you are ready to power up the Panel.

To power up the Panel:

1) Plug the transformer into an outlet that is not controlled by a switch.
2) Make sure the tamper bypass switch is set to BYPASS.
3) Turn on the Panel power switch and note the following:
   - The green power LED on the Panel turns on.
   - Interior sirens and piezos sound one beep and interior speakers announce the message, *Alarm system is off.*
   - Alphanumeric touchpads perform a self-test, automatically.
   - After completing self-tests, touchpads display 1 - OFF with the 1 flashing, indicating the Panel is at default settings (not programmed).
   - Interior sirens and piezos sound six beeps every minute, indicating the Panel is unprogrammed.

Note: If the Power LED is off or flashing and no beeps or voice messages sound, turn off the Panel power switch, disconnect the backup battery, and unplug the transformer. Refer to Appendix D "Troubleshooting."

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

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

5) Hold the outlet cover in place and plug the transformer into the lower receptacle.
6) Use the screw supplied with the transformer to tighten the transformer to the outlet cover.

Adjusting Status Sound Volume

The Panel allows you to set the volume level for status sounds and status messages from speakers connected to Panel terminal 16 (VOICE). Alarm sounds and messages are always at full volume.

To adjust the status sound volume:

1) Locate the speaker volume adjustment potentiometer (pot) on the Panel.
2) Press COMMAND + STATUS.
3) While listening to the full status message, increase or decrease the volume level by turning the pot counterclockwise or clockwise, respectively.

   Repeat steps 2 and 3 until the desired volume level is reached.

Programming the Panel

Programming the panel includes the following procedures:

- Entering program mode
- Clearing memory
- Learning wireless sensors and hardwire zones
- Programming panel configuration options
- Programming upper sensor numbers
- Programming feature numbers
- Exiting program mode
- Programming from the CS-4000

Note: All on-site programming must be done using an Alphanumeric Touchpad.

Entering Program Mode

The Panel must be in program mode to perform on-site programming.

To enter program mode:

- Set the tamper bypass switch to NORMAL.

Alphanumeric touchpads display PROGRAM MODE and interior speakers, sirens, and piezos sound six beeps every minute as a reminder that the Panel is in the program mode.

Clearing Memory

You must clear the memory of all new Panels before programming.

To clear Panel memory:

- Press and hold the memory clear button on the Panel for at least 3 seconds, then release the button.

After releasing the button, interior speakers announce, *Memory good-bye.*

Learning Wireless Sensors and Hardwire Zones

After completing the group assignment for each sensor in Table A.3, use the following procedure to learn all wireless sensors and hardwire zones.

To learn wireless sensors:

1) Using the Alphanumeric Touchpad, press STATUS or BYPASS repeatedly until the display reads PROGRAM SENSORS.
2) Press COMMAND and the display reads LEARN GROUP __ __.
3) Enter the appropriate group number (01 to 29, 32).
4) Press COMMAND and the display reads LEARN Sn01, with the 01 flashing.
5) Press COMMAND if sensor 01 is correct or enter another number (01 to 32 for CareTaker *Plus*; 01 to 40 for Security Pro 4000) and then press COMMAND.
6) The display reads TRIP Sn01. Trip the sensor as described in the sensor's installation instructions. The display reads TRIP Sn02 and interior speakers announce, *Sensor one okay. Sensor two.*

   Continue learning sensors into the current group number by repeating steps 5 and 6.
   To learn wireless sensors into other groups, press FIRE and follow steps 2 through 6.
7) Exit from programming sensors pressing FIRE.

Deleting Wireless Sensors and Hardwire Zones

If you want to reassign a sensor to another group, you must delete that sensor first.

To delete a sensor from a group:

1) Press STATUS or BYPASS until the display reads DELETE SENSORS.
2) Press COMMAND and the display reads DELETE Sn01.

Note: After pressing COMMAND in step 2, the display shows the lowest programmed sensor number.

3) Press COMMAND if sensor 01 is correct or enter another number (01 to 32 for CareTaker *Plus*; 01 to 40 for Security Pro 4000) and then press COMMAND.
4) Press COMMAND and the display reads DEL Sn01 - OK.

   Continue deleting sensors by repeating steps 3 and 4.
5) Exit from deleting sensors by pressing FIRE.

Learning Wireless Touchpads

The system can learn up to four wireless touchpads.

To add wireless touchpads:

1) Press STATUS or BYPASS until the display reads LEARN TOUCHPADS.
2) Press COMMAND and the display reads PRESS TP 01 BYP.
3) Press BYPASS on the wireless touchpad and the display reads PRESS TP 02 BYP.

   Repeat step 3 until all wireless touchpads are learned.
4) Exit from learning touchpads by pressing FIRE.

CAUTION: After exiting from learning touchpads, re-entering the learn touchpads menu and pressing COMMAND automatically deletes all learned touchpads. When adding wireless touchpads to the system, you must also re-learn existing touchpads.

Programming Sensor Text

This section describes how to program sensor names. Use the word and character numbers you recorded in Appendix A to program sensor text.

1) Press BYPASS or STATUS until the display reads PROGRAM SENSOR TEXT.
2) Press COMMAND and the display reads Sn _ _.
3) Enter a sensor number from 01 to 40 and the display reads Sn01.
4) Press COMMAND and the display reads A 00.
5) Enter the appropriate word number or character number.
6) Press COMMAND and the display reads B 00.
7) Repeat steps 5 and 6 until the whole sensor name is entered.
8) Press FIRE and the display shows the sensor number and name.

9) Press BYPASS to cycle to the next sensor number and repeat steps 1 through 9 until all sensor names are programmed.

10) Exit from programming text by pressing FIRE.

Programming Panel Configuration Options

This section describes how to program the following:

- Phone Number
- Phone Format
- Siren Timeout
- Duress Code
- Account Number
- Entry Delay 1
- Entry Delay 2
- Exit Delay
- Activity Timeout
- House Code**
- Freeze Temp
- Alphanumeric Touchpad Loop Input
- Unit Number
- Touchpad Quiet
- Chime Display

Use the Panel configuration settings you recorded on Table A.4 to program the system.

Programming the Phone Number

1) Press BYPASS until the display reads PHONE NUMBER.
2) Press COMMAND and the display shows _ _ _ _.
3) Enter the central station receiver phone number (up to 18 digits). If you need a pause between digits, press POLICE for each pause.
4) Press COMMAND and the display reads OK.

Programming the Phone Format

1) Press BYPASS until the display reads PHONE FORMAT.
2) Press COMMAND and the display reads SET ITI FMT.
3) Press BYPASS or STATUS to cycle to the desired setting: ITI, 4/2 1400, or 4/2 2300.
4) Press COMMAND and the display reads SET OK.

Programming the Siren Timeout

1) Press BYPASS until the display reads SIREN TIMEOUT.
2) Press COMMAND and the display reads SET SIREN _ _ MIN.
3) Enter two-digit time (01 to 15).
4) Press COMMAND and the display reads SET SIREN OK.

Programming the Duress Code

1) Press BYPASS until the display reads DURESS CODE.
2) Press COMMAND and the display reads SET DURESS.
3) Enter any two digits (00 to 99).
4) Press COMMAND and the display reads SET DURESS OK.

Programming the Account Number

1) Press BYPASS until the display reads ACCOUNT NUMBER.
2) Press COMMAND and the display reads SET NUMBER.
3) Enter any five digits.
4) Press COMMAND and the display reads SET NUMBER OK.

Programming Entry Delay 1

1) Press BYPASS until the display reads ENTRY DELAY 1.
2) Press COMMAND and the display reads SET ENTRY _ _ SEC.
3) Enter two-digit time (08 to 88 seconds).
4) Press COMMAND and the display reads SET ENTRY OK.

Programming Entry Delay 2

1) Press BYPASS until the display reads ENTRY DELAY 2.
2) Press COMMAND and the display reads SET ENTRY _ _ MIN.
3) Enter one-digit time (1 to 8 minutes).
4) Press COMMAND and the display reads SET ENTRY OK.

Programming the Exit Delay

1) Press BYPASS until the display reads EXIT DELAY.
2) Press COMMAND and the display reads SET EXIT _ _ SEC.
3) Enter two-digit time (08 to 88 seconds).
4) Press COMMAND and the display reads SET EXIT OK.

Programming the Activity Timeout

1) Press BYPASS until the display reads ACTIVITY TIMEOUT.
2) Press COMMAND and the display reads SET TIMEOUT _ _ H.
3) Enter two-digit time (01 to 24 hours).
4) Press COMMAND and the display reads SET TIMEOUT OK.

Programming the House Code

1) Press BYPASS until the display reads HOUSE CODE.
2) Press COMMAND and the display reads SET CODE.
3) Enter three-digit number (002 to 254).
4) Press COMMAND and the display reads SET CODE OK.

Programming the Freeze Temp

1) Press BYPASS until the display reads FREEZE TEMP.
2) Press COMMAND and the display reads SET TEMP.
3) Enter two-digit temperature (40 to 90).
4) Press COMMAND and the display reads SET TEMP OK.

Programming the Alphanumeric Touchpad Loop Input

1) Press BYPASS until the display reads LOOP IS Nc (normally closed, open on alarm). Press FIRE to leave loop normally closed, or proceed to step 2.
2) Press COMMAND and the display reads LOOP IS No (normally open, closed on alarm).

Programming Touchpad Quiet

1) Press BYPASS until the display reads TOUCHPAD QUIET Y (yes). Press FIRE to leave setting as is or proceed to step 2.
2) Press COMMAND and the display reads TOUCHPAD QUIET N (no).

Programming Chime Display

1) Press BYPASS until the display reads CHIME DISPLAY N (no). Press FIRE to leave setting as is or proceed to step 2.
2) Press COMMAND and the display reads CHIME DISPLAY Y (yes).

Programming Upper Sensors

Upper sensors are features you turn on or off, depending on your customer's needs. We recommend upper sensors that default on, remain on.

Use the settings you recorded in Table A.5 when programming upper sensors.

To program upper sensor numbers:

1) Press BYPASS or STATUS until the display reads UPPER SENSORS.
2) Press COMMAND and the display reads Sn77 OFF - TOUCHPAD TAMPER.
3) Press COMMAND to toggle upper sensor 77 on, or press BYPASS to cycle to the next upper sensor.

Repeat steps 2 and 3 until all upper sensors are programmed to suit the installation.

Requesting CS-4000 Programming

Although most information can be programmed from the Panel, some information must be programmed from the central station. Use the information you recorded in Table A.7 to inform the central station of your installation's programming requirements for the following:

- Optional Feature Numbers
- Secondary phone number
- Phone modes (PMODEs)
- Secondary access codes
- Automatic phone test frequency

Note: The CS-4000 requires version 5.1 software (80-105) or greater to support Security Pro 4000 Panels.

To request CS-4000 Central Station programming:

1) Contact your central station and ask the operator to program the Panel for the values you have recorded in Table A.7.
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, enter CODE + 8 at the Alphanumeric Touchpad. The display reads 8 - PHONE TEST.

5) When the central station releases the Panel, the display reads 1 - OFF. The operator may call you to discuss the programming.

Installing Line Carrier Devices

This section describes how to install the following wireless devices:

- Wireless Interior Siren (WIS)
- X-10® Lamp Module

Installing and Programming the WIS

Installing and programming the WIS includes:

- Setting the DIP switches and installing the battery
- Connecting an external siren to the WIS
- Programming the house code

Note: You must power the system with the optional Line Carrier Power Transformer (60-346-500) when using the WIS.

Setting the DIP Switches and Installing the Battery

A 9-volt backup battery (not included) powers the WIS during an AC power failure. The battery type can be alkaline, lithium, or NiCd. When backup battery voltage gets low, the WIS sounds a single beep every 60 seconds until the battery is replaced.

To set DIP switches and install the backup batteries:

1) Remove the battery cover on the back of the WIS (see Figure 26).

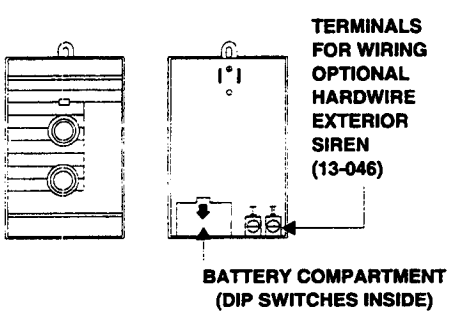

Figure 26. WIS Battery Cover Location

2) Set DIP switches as appropriate (see Figure 27).

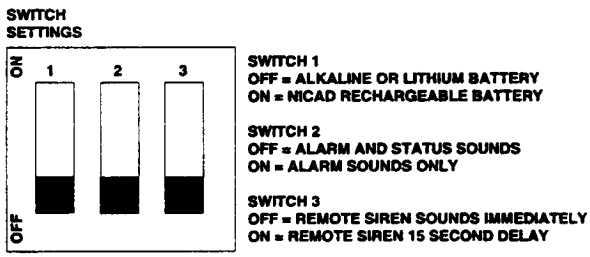

Figure 27. DIP Switch Settings

WARNING: Never turn ON switch 1 when installing an alkaline or lithium battery. Personal injury may result if these batteries are recharged, short circuited, punctured, or discharged at higher than acceptable rates.

3) Connect the battery to the battery clip and insert the battery into the compartment.

4) Replace the battery cover.

Connecting an External Siren to the WIS

Figure 28 shows how to connect the Hardwire Exterior Siren (13-046) to the WIS terminals. These terminals activate for alarms only and provide 100 mA maximum current at 6 VDC.

CAUTION: Only the Hardwire Exterior Siren (13-046) can be connected to the WIS terminals. Other sirens may draw more current than the WIS can provide and can cause permanent damage to the WIS.

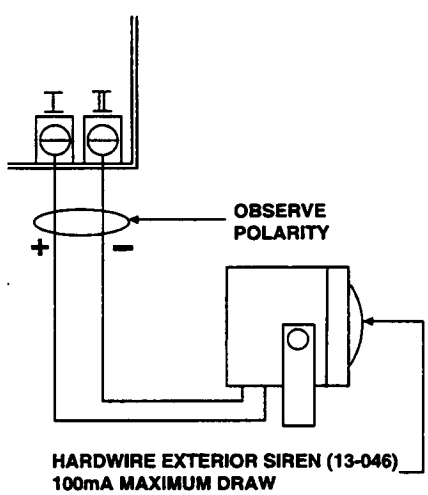

Figure 28. Connecting the Hardwire Exterior Siren to the WIS

Programming the WIS House Code

1) Plug the WIS into an outlet that is not controlled by a switch.
2) Press STATUS on a wireless or alphanumeric touchpad.

   The WIS sounds one beep and the WIS LED flashes, indicating the WIS received the signal from the Panel.
   If the WIS does not respond, unplug it and disconnect the battery. Wait at least 30 seconds, then reconnect the battery and repeat steps 1 and 2. If the WIS still does not respond, proceed to Appendix D "Troubleshooting."
3) Unplug the WIS and remove the outlet cover screw.
4) Plug the WIS into the outlet and secure it with the outlet screw.

WARNING: 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.

Installing X-10 Lamp Modules

When installing X-10 Lamp Modules:

- You must power the Panel using the optional Line Carrier Power Transformer (60-346-500).
- Do not use extension cords to connect several lamps to one module.
- Use only lamps with incandescent lighting.
- Do not plug X-10 Lamp Modules into outlets controlled by a switch.

To install the X-10 Lamp Module:

1) Plug the lamp cord into the bottom of the module.
2) Plug the module into a lower AC outlet.
3) Refer to Table A.4 for the house code you programmed into the Panel, then find the letter that corresponds to that house code from Table B.2. Each letter setting represents 16 house codes.

   Example: House code 113 corresponds with B on the X-10 Lamp Module's house dial.
4) Set the house dial on the module to the appropriate letter.
5) Set the unit number dial to 1 (for Security Pro 4000 systems use any number, 1 to 9).

Testing the System

This section describes how to perform the following test procedures:

- Testing sensors
- Testing phone communication
- Testing central station communication

You should test the system after installing a new system, after servicing the system, and after adding or removing devices from the system.

Testing Sensors

We recommend that you do a sensor test after all programming is completed and whenever a sensor-related problem occurs.

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

1) Set the tamper/bypass switch to normal and attach the Panel cover.
2) Place all sensors in their secured (non-alarm) state.
3) Enter CODE + 9 at an alphanumeric touchpad.

   The Panel speaker announces *Sensor test is on*, interior sirens and speakers sound one long beep, and the display reads 9 - SENSOR TEST.
4) Trip each sensor.

   Interior sirens and speakers sound transmission beeps as each sensor is tripped. Each beep represents one data round.
5) Count the number of transmission beeps and refer to Table 1 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."
6) Press the STATUS button when you think all sensors are tested.

   The system announces untested sensor numbers.
7) Test all untested sensors.
8) Enter CODE + 9 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 an additional 15 minutes, preserving the list of untested sensors.

After 15 minutes, the Panel disarms to level 1.

9) Enter CODE + 1 to exit sensor test.

The system disarms to level 1, and the Panel speaker announces, *Alarm system is off.*

Table 1. Minimum Transmission Beeps

Type of Sensor	Number of Beeps
Intrusion Sensors	7 - 8 beeps
Wireless Environmental/Panic Buttons	7 - 8 beeps
Hardwire Loops	1
Panel Emergency Buttons	1

If a Sensor Fails the Sensor Test

If sirens do not beep when a sensor is tripped, use an RF Sniffer (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 or 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.

To reposition a 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 a 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 replace a sensor."

To replace a 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.

or-- 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.

To perform a phone test:

- Enter CODE + 8 at an alphanumeric touchpad.

The display reads 8 - PHONE TEST, the Panel speaker and all interior sirens sound one long beep, and the Panel speaker announces, *Phone test is on.*

When the Panel completes the test, the system returns to level 1, and the Panel speaker announces, *Alarm system is OFF.*

If the Panel announces, *Phone test failure,* 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 (CA-38A) jack.
2) Enter ACCESS CODE + 8 again.
3) If the phone test fails again, check the phone number programmed into the Panel.
4) If the phone test fails again, check the phone connection wiring.

Testing Central Station Communication

After performing sensor and phone tests, check that the system is reporting alarms successfully to the central station. Also verify that X-10 Lamp Modules are 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) Arm the system.
3) Trip at least one sensor of each type—fire, intrusion, etc.—to verify that the appropriate alarms are working correctly.
4) If X-10 Lamp Modules are installed, check to be sure they operate correctly.

   Lights should turn on steady during fire and auxiliary/medical alarms and flash during an intrusion alarm.
5) When you finish testing the system, call the central station to verify that the alarms were received.

Appendix A: System Planning Worksheets

Fill in customer information about this installation below.

*Customer*_____

*Address*_____

*City*_____ *State/Zip*_____

*County*_____ *Phone*_____

Table A.1 Wireless Sensors

Part No.	Description	Qty.
60-362	Door/Window Sensor	
60-409	Recessed Door Sensor	
60-499	Slim Line Door/Window Sensor	
60-107	Shock Sensor	
60-356	DS923 PIR Motion Sensor	
60-459	Sound Sensor	
60-462	Glass Guard Sensor	
60-352	System Smoke Sensor	
60-506	System Smoke Sensor	
60-460	Rate-of-Rise Heat Sensor	
60-589-319.5	Manual Fire Pull Sensor	
60-504	Freeze Sensor	
60-452	Pendant Emergency Sensor	
60-458	Single Button Emergency Sensor	
60-457	Dual Button Emergency Sensor	
60-578-10-95	Water-Resistant Emergency Sensor	
60-348-10-95	HandHeld Wireless Touchpad	
60-453-10-95	Wall-Mount Wireless Touchpad	

Table A.2 Hardwire Devices

Part No.	Description	Qty.	mA	Sub.
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	
13-028	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				
60-248	Alphanumeric Touchpad		100 mA	
60-436	Feature Expansion Module		300 mA	
60-470	Interrogator Module		290 mA	
Total Power Consumption cannot exceed				500 mA†

Table A.3 Sensor Groups and Locations

No.	Group	Type and Location
01		
02		
03		
04		
05		
06		
07		
08		
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17		
18		
19		
20		
21		

Table A.3 Sensor Groups and Locations

No.	Group	Type and Location
22		
23		
24		
25		
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27		
28		
29		
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31		
32		
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34		
35		
36		
37		
38		
39		
40		

Table A.4 Panel Configuration Settings

Feature	Choices	Setting
Primary Phone Number	2 to 18 digits, including pauses	
Phone Format	ITI 4/2, 1400 Hz 4/2, 2300 Hz	
Siren Timeout	01-15 minutes	
Duress Code	00-99	
Account Number	00000-99999	
Entry Delay 1	08-88 seconds	
Entry Delay 2	1-8 minutes	
Exit Delay	08-88 seconds	
Activity Timeout	1-24 hours	
House Code	001-254	
Freeze Temp	40-90	
Loop Is	N/C or N/O	
Unit Number	1-7	
Touchpad Quiet	Y (yes) or N (no)	
Chime Display	Y (yes) or N (no)	

Table A.5 Upper Sensor Numbers

No.	Description	Default	Setting
77	Touchpad Tamper	OFF	
78	Freeze Sensor	OFF	
79	No Activity	OFF	
80	Touchpad Fire Emergency	ON	
81	Touchpad Police Emergency	ON	
82	Touchpad Auxiliary Emergency	ON	
83	Manual Phone Test	ON	
84	Opening Report	OFF	
85	Closing Report	OFF	
86	Duress Alarm	ON	
87	Force Armed	OFF	
87	Auto Force Armed, always ON	ON	ON
88	Energy Saver Enable	OFF	
89	RF Touchpad Supervisory or Low Battery	OFF	
90	AC Power Failure	OFF	
91	Low Panel Battery	ON	
92	Panel Tamper	ON	
93	Automatic Phone Test	OFF	
94	Receiver Failure	ON	
95	Panel Back In Service	ON	
96	Phone Failure	ON	

Table A.6 Feature Numbers

No.	Description	Default	Setting
F00	Remote Phone Access	ON	
F01	RING twice - hang-up - RING - answer	ON	
F02	Exterior Siren Delay	OFF	
F03	Toll Saver	ON	
F04	Low Battery Reports	ON	
F05	Sensor Supervisory Reports	ON	
F06	Dialer Abort	ON	
F07	Access Key Type - * (off) or # (on)	OFF	
F11	Interior Siren Sounds	OFF	
F12	Alarm Restoral Reports	OFF	
F13	Low Battery Restoral Reports	OFF	
F14	Hourly Phone Test	OFF	
F15	Alarm Verification	OFF	
F16	Trouble Beeps - Off for U.L. systems.	OFF	
F17	24-Hour Sensor Tamper Alarm	OFF	
F21	Immediate Trouble Beeps -On for ULC systems.	OFF	
F25	Keychain Touchpad Arming	OFF	
F32	Energy Saver/No Delay	OFF	

Table A.7 Central Station Programming

Feature	Choices	Setting
Automatic Phone Test Frequency †	1-255 days	
BATTLIFE	002- 255	
Extended Delay	1-8 minutes	
Secondary Phone Number	Up to 18 digits, including pauses	
PMODE	**0 (ITI and 4/2)** - all reports to PHO1. **1 (ITI and 4/2)** - Alternates between PHO 1 and PHO2 until successful or all attempts fail. **3 (ITI only)** - all alarms, opening, and closing reports to PHO1; all reports to PHO2. **5 (ITI and 4/2)** - All reports to PHO1 using 4/2; all reports to PHO2 using ITI.	
Secondary Access Codes	Up to 4 codes	User #2 _ _ _ _ User #3 _ _ _ _ User #4 _ _ _ _ User #5 _ _ _ _
STIME	hh = 00-23 mm = 00-59	
SUPSYNC	hh = 03-24	

† This feature only functions if upper sensor 93 is ON.

Appendix B: Programming Tables

This appendix contains tables for selecting sensor group numbers and X-10 Lamp Module house codes. Table notes for Table B.1 appear at the bottom of the table, on the next page.

Table B.1 Sensor Group Characteristics

No.	Name	Application	Alarm	Delay	Restoral	Supervisory	CS Report	Chime	Arming Levels
00	Fixed Panic	24-hr audible fixed emergency buttons.	Police	Instant		√	√		1, 2, 3
01	Portable Panic	24-hr audible portable emergency buttons.	Police	Instant			√		1, 2, 3
02	Fixed Panic	24-hr silent fixed emergency buttons.	Silent	Instant		√	√		1, 2, 3
03	Portable Panic	24-hr silent portable emergency buttons.	Silent	Instant			√		1, 2, 3
04	Fixed Auxiliary	24-hr auxiliary sensor, such as Pendant Panic or holdup button.	Auxiliary	Instant		√	√		1, 2, 3
05	Fixed Auxiliary	24-hr auxiliary emergency button. Siren cutoff confirms CS report.	Auxiliary	Instant		√	√		1, 2, 3
06	Portable Auxiliary	24-hr portable auxiliary alert button.	Auxiliary	Instant			√		1, 2, 3
07	Portable Auxiliary	24-hr portable auxiliary button. Siren cutoff confirms CS report.	Auxiliary	Instant			√		1, 2, 3
08	Special Intrusion	Special belongings, such as gun cabinets and wall safes.	Police	Instant	√	√	√		1, 2, 3
09	Special Intrusion	Special belongings, such as gun cabinets and wall safes.	Police	Standard	√	√	√		1, 2, 3
10	Entry/ Exit Delay	Garage doors and entrances that require a standard delay time.	Police	Standard	√	√	√	√	2, 3
11	Entry/ Exit Delay	Garage doors and entrances that require an extended delay time.	Police	Extended	√	√	√	√	2, 3
12	Entry/ Exit Delay x 2	Driveway gates and other entry/exit points that require a twice-extended delay time.	Police	Twice Extended	√	√	√	√	2, 3
13	Instant Perimeter	Exterior doors and windows.	Police	Instant	√	√	√	√	2, 3
14	Instant Interior	Interior doors.	Police	Follower	√	√	√		2, 3
15	Instant Interior	Interior PIR motion sensors.	Police	Follower		√	√		2, 3
16	Instant Interior	Interior doors.	Police	Follower	√	√	√		3

Table B.1 Sensor Group Characteristics (Continued)

No.	Name	Application	Alarm	Delay	Restoral	Supervisory	CS Report	Chime	Arming Levels
17	Instant Interior	PIR motion sensors.	Police	Follower		√	√		3
18	N/A. If this group is entered, group 17 is actually assigned.								
19	Delayed Interior	Interior doors that initiate a delay before going into alarm.	Police	Standard	√	√	√		3
20	Delayed Interior	PIR motion sensors that initiate a delay before going into alarm.	Police	Standard		√	√		3
21	Local Instant Interior	24-hr local alarm zone protecting anything that opens and closes.	Police	Instant	√	√			1, 2, 3
22	Local Instant Interior	Same as group 21, plus activation initiates a delay before going into alarm.	Police	Standard	√	√			1, 2, 3
23	Local Instant Auxiliary	24-hr local alarm zone protecting anything that opens and closes.	Auxiliary	Instant	√	√			1, 2, 3
24	Local Instant Auxiliary	24-hr local alarm zone protecting anything that opens and closes. Sirens shut off at restoral.	Auxiliary	Instant	√	√			1, 2, 3
25	Local Special Chime	Notify the user when a door is opened. Sounds emit from a local annunciator.	Special Chime	Instant	√	√			1, 2, 3
26	Fire	24-hr fire, rate-of-rise heat, and smoke sensors. Ψ	Fire	Instant	√	√	√		1, 2, 3
27	Custom	Door/Window sensor. Δ	Silent	Instant	√	√			1, 2, 3
28	Custom	PIR motion sensor, sound sensor, or pressure mat. Δ	Silent	Instant		√			1, 2, 3
29	Auxiliary	Freeze sensor.	Auxiliary	Instant	√	√	√		1, 2, 3
32	Custom	On-site HOM device controlled by keychain touchpads.Δ							1, 2, 3

Note: Check marks (√) represent characteristics which are present in a group.
Ψ This group is required for UL listed residential fire alarm applications.
Δ This group has not been investigated by UL.

Table B.2 X-10 Lamp Module House Code Settings

X-10 Codes	Corresponding Panel House Codes															
A		16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
B	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
C	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
D	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
E	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
F	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
G	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
H	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
I	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
J	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
K	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
L	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
M	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
N	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
O	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
P	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255 †

† This house code is reserved for demo Panels only.

Appendix C: Command Summary

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

User Command Summary

Table C.1 provides a description of all commands for operating the system. For commands that require an access code, use either the primary access code or the temporary access code unless otherwise indicated. While these are called *user commands*, you may need to use some or all of these commands during the installation and programming process.

Table C.1 Summary of User Commands

Action	Command	Short Command Δ	Voice Message Confirmation
Disarm to level 1.	CODE + 1	COMMAND + 1 ‡	*Alarm system is OFF.*
Arm to level 2.	CODE + 2	COMMAND + 2 †	*Alarm system is ON, level 2.*
Arm to level 2, No Delay.	CODE + 2 + 4	COMMAND + 2 + 4 †	*Alarm system is ON, level 2, no delay.*
Arm to level 2, Indirect Bypass.	CODE + 2 + BYPASS		*Alarm system is ON, level 2. Sensor [sensor #] bypassed.*
Arm to level 3.	CODE + 3	COMMAND + 3 †	*Alarm system is ON, level 3.*
Arm to level 3, No Delay.	CODE + 3 + 4	COMMAND + 3 + 4 †	*Alarm system is ON, level 3, No delay.*
Arm to level 3, Indirect Bypass.	CODE + 3 + BYPASS		*Alarm system is ON, level 3. Sensor [sensor #] bypassed.*
Direct Bypass. ¥	CODE + BYPASS + [sensor #]		*Sensor [sensor #] bypassed.*
Chime On/Off.	CODE + 7	COMMAND + 7	*ON, OFF.*
Phone test On.	CODE + 8	COMMAND + 8 ‡	*Phone test is ON.*
Sensor test On.	CODE + 9	COMMAND + 9 ‡	*Sensor test is ON.*
Lights On/Off.	CODE + 0 or BYPASS + n (n= 1-9)	COMMAND + 0	*ON, OFF*
Define new primary access code.	CODE + STATUS + 8 + new CODE]		*[new primary access code], okay.*
Define new temporary access code.	primary CODE + STATUS + 7 + temp CODE]		*[new temporary access code], okay.*
Review alarm memory.	COMMAND + STATUS		*Alarm Memory is okay,* or *Sensor [sensor #] [alarm type] alarm memory.*
Review panel status.	STATUS, CODE + STATUS, or COMMAND + STATUS		*Hello! Alarm system is...* (see *Owner's Manual* for possible messages).
Adjust alphanumeric display brightness.	COMMAND (press and hold)		*Hello! ...Hello...hello!..hello...*

† This short command only works when arming to a higher level.
¥ This command only works if the sensor you are bypassing is active in the current security level.
Δ The COMMAND button will not work for arming and disarming if upper sensor numbers 84 and 85 are set to ON.

Appendix D: Troubleshooting

This appendix contains a summary of system troubleshooting techniques.

Table D.1 Troubleshooting System Problems

Device	Problem	Solution
Access Code		
	Customer cannot remember their access code.	
		1. Check your records to see if you have the customer's access code on file. 2. If Panel is monitored, trap the Panel and reset the access code from the CS-4000. 3. If Panel is not monitored, clear memory and reprogram the Panel locally.
Arming/Disarming		
	System won't arm.	
		1. If arming to level 2, be sure all monitored perimeter doors and windows are closed. 2. If arming to level 3, be sure all perimeter and interior sensors are closed. 3. Press the STATUS button for a voice message of the problem.
Batteries		
	Panel announces, *System Battery Failure.*	
		Check Panel battery fuse and replace if needed.
	Panel announces, *Sensor [sensor #] low battery.*	
		Replace the sensor batteries.
Bypass		
	Panel announces, *Invalid, Try again* when you attempt to bypass a sensor.	
		You are trying to bypass a 24-hour sensor that cannot be bypassed or a sensor that is not active in the current security level. You don't need to bypass this sensor.
	System cancels sensor bypass when you try to arm to level 2 or 3.	
		Arm to the desired level before you try bypassing a sensor.
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.

Table D.1 Troubleshooting System Problems (Continued)

Device	Problem	Solution
False Alarm		
	Alarm is being sent.	
		Enter CODE + 1 to cancel the alarm. This command bypasses the alarm if done within 8 to 20 seconds.
Hardwire Zones		
	Panel does not respond to hardwire zone activation.	
		Check that zones are programmed into Panel memory, and add if necessary.
	Panel announces, *Sensor nn 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.
Hardwire Siren		
	Exterior sirens are not producing alarm sounds.	
		Check for correct wiring at the siren and Panel terminals.
	Exterior sirens produce status sounds.	
		Check for correct wiring at both the siren and Panel terminals.
	Interior sirens are not producing sounds.	
		Check for correct wiring at both the siren and Panel terminals.
	Interior sirens produce low-volume alarm and high-volume status sounds.	
		Check for correct wiring at both the siren and Panel terminals.
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 battery is installed correctly 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 13 and14. A 4-wire line carrier transformer reads between 9-12 VDC at terminals 10 (+) and 11 (-).

Table D.1 Troubleshooting System Problems (Continued)

Device	Problem	Solution
Panel (Continued)		
	PANEL POWER LED is flashing and pressing the STATUS button confirms, *System Battery Failure.*	
		1. Check the circuit breaker to be sure the circuit is live. 2. Check that the backup battey is installed correctly and the transformer is plugged in. 3. Check the battery fuse and replace if needed. 4. Check for proper wiring at the Panel and the transformer. 5. 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 (-).
	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.
	PANEL 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. **WARNING:** 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.
	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.

Table D.1 Troubleshooting System Problems (Continued)

Device	Problem	Solution
Smoke Sensor		
	Beeps once every minute.	
		Batteries are low. Replace the 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 okay.
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)
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.

Table D.1 Troubleshooting System Problems (Continued)

Device	Problem	Solution
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.