

INSTALLATION
INSTRUCTIONS

InterrogatorTM
Alarm Verification Module



Interrogator

Alarm Verification Module

Interactive Technologies, Inc.
2266 North Second Street
North St. Paul, MN 55109

	Toll Free	FAX
General & Sales.....	800-777-1415.....	612-779-4890
Order Entry	800-777-4841.....	800-777-4842
Technical Assistance	800-777-2624.....	612-779-4888
RMA-Repair or Return.....	800-777-1415-ext 112.....	800-777-4842
RMA-Advanced Replacement	800-777-2624.....	N/A
Credit Department.....	800-777-1415.....	612-773-4633

Interrogator is a trademark of Interactive Technologies, Inc.
CareTaker, ITI, and Commander are registered trademarks of Interactive Technologies, Inc.

ITI 1994 Part Number 46-591 Rev. B
Issue Date 4/94

Content

Section 1 Overview	1-1
Features	1-1
Power Requirements	1-1
Control Panel Software Compatibility	1-2
Interrogator Components	1-2
Terminals and Descriptions	1-3
Programming Jumper Pins	1-3
Record Board (Optional)	1-3
Section 2 Installation	2-1
Installing Interrogator with Plastic Enclosure	2-1
Installing the Optional Record Board	2-4
Interrogator Module Wiring Connections	2-4
Wiring to the SX-V	2-5
Wiring to the CareTaker Plus	2-8
Wiring to the Commander 2000	2-9
Installing Microphones	2-11
Installing the Drill-Mount Microphone (60-595)	2-11
Installing the Speaker Cover Microphone (60-596)	2-12
Installing the Microphone and Speaker on the Interrogator Module Enclosure	2-13
Connecting Microphones and Speakers	2-14
Section 3 Programming	3-1
Programming Commands	3-1
Programming the Module	3-4
Programming Requirements	3-4
Off-Site Programming Access	3-4
8-Ring Method	3-4
3 Rings, Hang-up, 1-Ring Method:	3-4
On-Site Programming	3-5
What to Listen for When Programming	3-6
Programming for the SX-V	3-6
Programming for the CareTaker Plus	3-7
Programming for the Commander 2000	3-7
Operating the Interrogator Module with Hot Key Commands	3-8
Section 4 Testing	4-1
Off-Site Access Testing	4-1
On-Site Testing with the Central Station	4-2
Steps for the On-Site Operator	4-2
Steps for the Central Station Operator	4-2
Auxiliary Output Testing	4-3
Section 5 Troubleshooting	5-1
Control Panel	5-1
Phone System	5-1
Central Station Communication	5-2

Wireless Interior Siren (WIS)	5-2
Hardwire Sirens	5-3
On-Site Programming	5-4
Record Board	5-4
Microphones	5-4
Section 6 Notices	A-1
FCC PART 68 Notice	A-1
FCC Part 15 Class B Notice	A-1
CANADA NOTICE	A-2

Overview

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 comes with or without a plastic enclosure that 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. 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.
Microphone mapping	The module can use up to 12 sensors, which when tripped activates one, two, or all three microphones.
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: <ul style="list-style-type: none"> -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.

Power Requirements

Table 1.2 shows the Interrogator Module power requirements.

Table 1.2. Power Requirements

Power Requirements	Description
Input voltage	12 VDC; 6.8 VDC to 14 VDC
Input current	Inactive - 45 mA to 55 mA Active - up to 300 mA
Overvoltage protection	15 V

Control Panel Software Compatibility

Table 1.3 describes the Control Panel software requirements for use with the Interrogator Module.

Table 1.3 Control Panel Software Compatibility

Control Panel	Software Version	Compatible Reporting Formats w/ Interrogator
CareTaker <i>Plus</i>	1.0	None
	2.0	ITI only
	2.1	ITI and 4/2
Commander 2000	All Versions	ITI and 4/2
SX-V	Rev. K and later	ITI only

Interrogator Components

This section describes the Interrogator Module physical features. Figure 1.1 shows the Interrogator components.

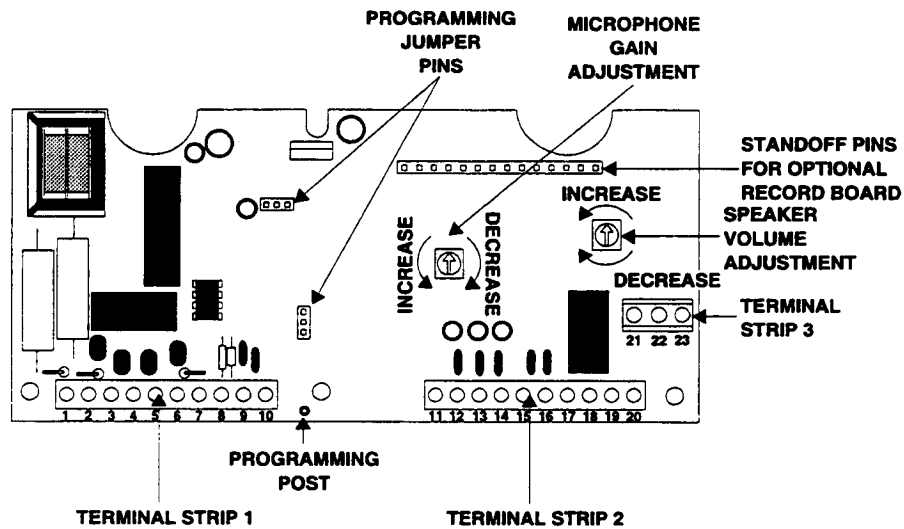


Figure 1.1. Interrogator Components

Terminals and Descriptions

Table 1.4 describes the terminals on the Interrogator Module.

Table 1.4. Interrogator 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 20. These relay contacts are rated at 1 A at 30 VDC.

Programming Jumper Pins

The jumper position on these pins determines which parameters are enabled for programming. Refer to reset procedures in Section 3 "Programming."

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.

Installation

This section describes the following:

- Mounting the Interrogator Module with the plastic enclosure
- Installing microphones
- Installing the optional record board
- Wiring the Interrogator Module to a SX-V, CareTaker *Plus*, and Commander 2000

Installing Interrogator with Plastic Enclosure

The Interrogator Module has two types of packaging, with or without a plastic enclosure. To install the module with the plastic enclosure, the enclosure must be partially disassembled.

Use the following steps to install the module with the plastic enclosure:

Note: Run all necessary wiring before beginning installation. Use shielded 22-gauge stranded wire for the microphones and 22-gauge stranded for all other wire runs.

1. Remove the two cover screws, lift cover off the cover tabs, and set aside. (See Figure 2.1.)

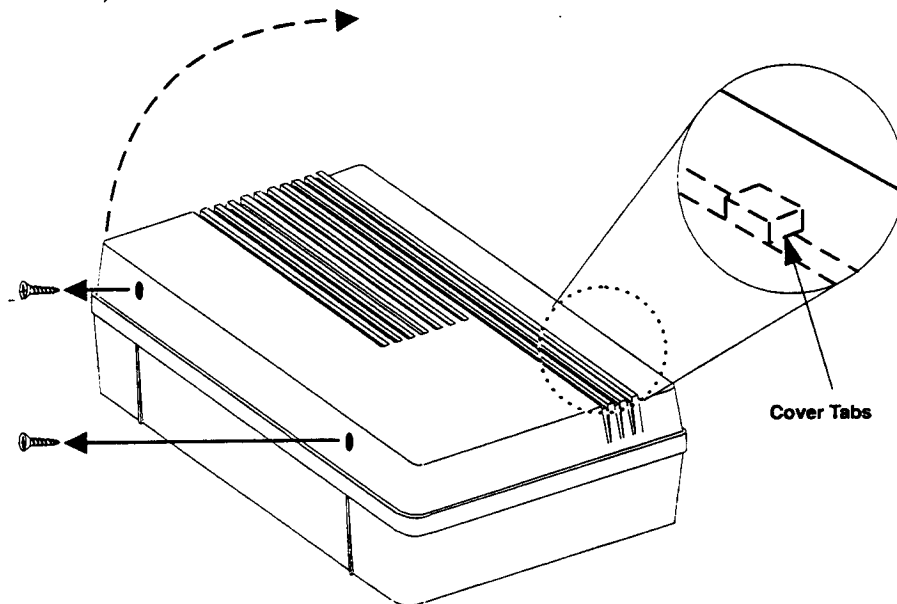


Figure 2.1 Plastic Enclosure Cover Removal

SECTION 2 Installation

2. Remove speaker plate by removing the four speaker plate screws. (See Figure 2.2.)

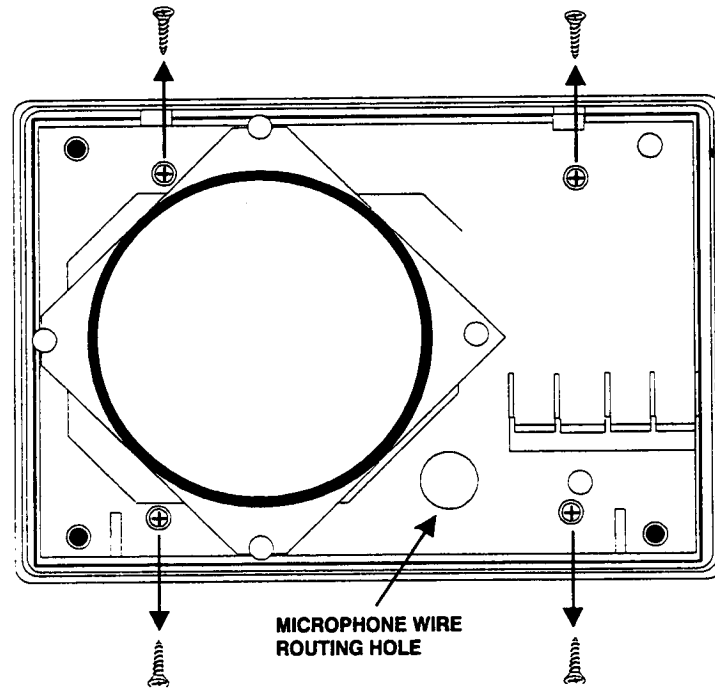


Figure 2.2 Speaker Plate Screw Removal

WARNING: You must be free of all static electricity when handling the Interrogator Module. Touch a grounded, bare metal surface before touching a circuit board, or wear a grounding strap.

3. Remove the three back box screws from the module and remove the circuit board. (See Figure 2.3.)

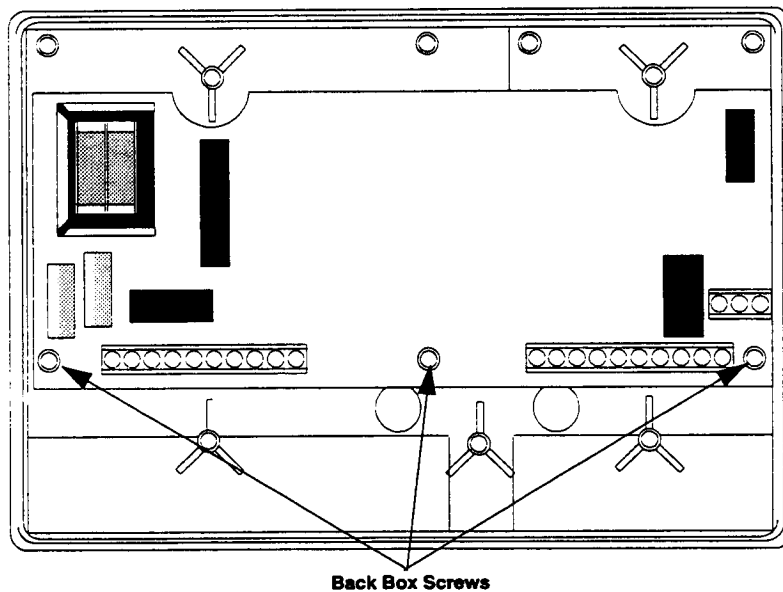


Figure 2.3 Removing Back Box Screws

- Place the back box on the surface where you intend to mount it and mark the wall through the key holes. (See Figure 2.4.)

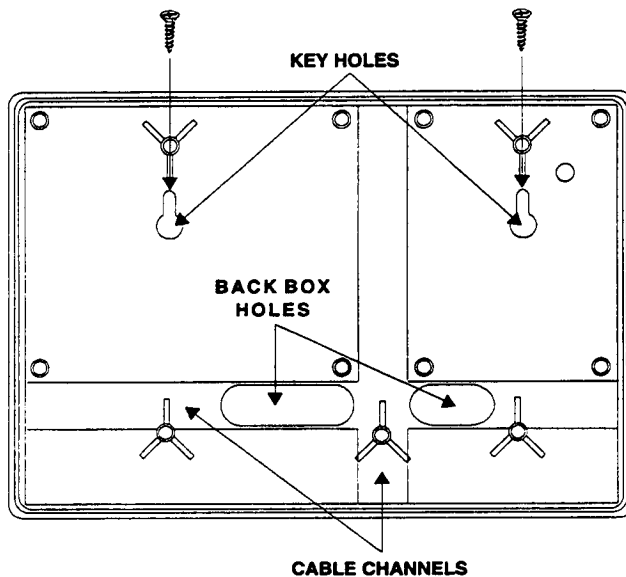


Figure 2.4 Back Box and Key Holes

- Feed the prerun wires through one of the back box holes. (See Figure 2.4.)
- Note:** Use the cable channels for wire runs that are run on top of the mounting surface. Knockouts are provided at either end of the cable channels.
- Mount the back box to the wall, using the appropriate fasteners. (See Figure 2.4.)
 - Replace the circuit board and the back box screws.

Installing the Optional Record Board

Use the following steps to install the record board:

1. Align the female connector on the record board with the male connector on the Interrogator board (see Figure 2.5).
2. Firmly press the record board and the Interrogator board together.

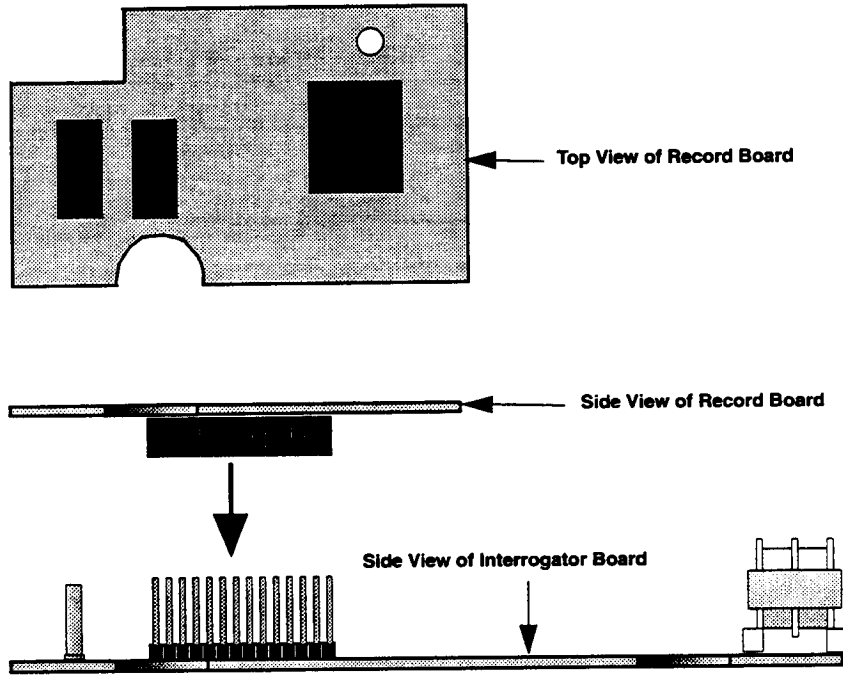


Figure 2.5 Record Board Alignment

Interrogator Module Wiring Connections

The following pages describe the wiring connections from Control Panels, microphones, and speakers to the Interrogator Module terminals. The Interrogator Module terminal blocks are removable to make wiring connections easier.

Wiring to the SX-V

To simplify the installation to an SX-V Control Panel, this subsection explains:

- Wiring the SX-V to the Interrogator Module
- Wiring the phone connections to both the SX-V and the Interrogator Module

Use the following steps for wiring the Interrogator Module to an SX-V:

1. Turn the SX-V power switch OFF.
2. Wire the Interrogator Module to the SX-V, using a 6-conductor 22-gauge stranded wire (see Figure 2.6).

Note: The wire from SX-V terminal 3 to Interrogator terminal 7 is optional and is needed only if the SX-V is using Wireless Interior Sirens (WIS).

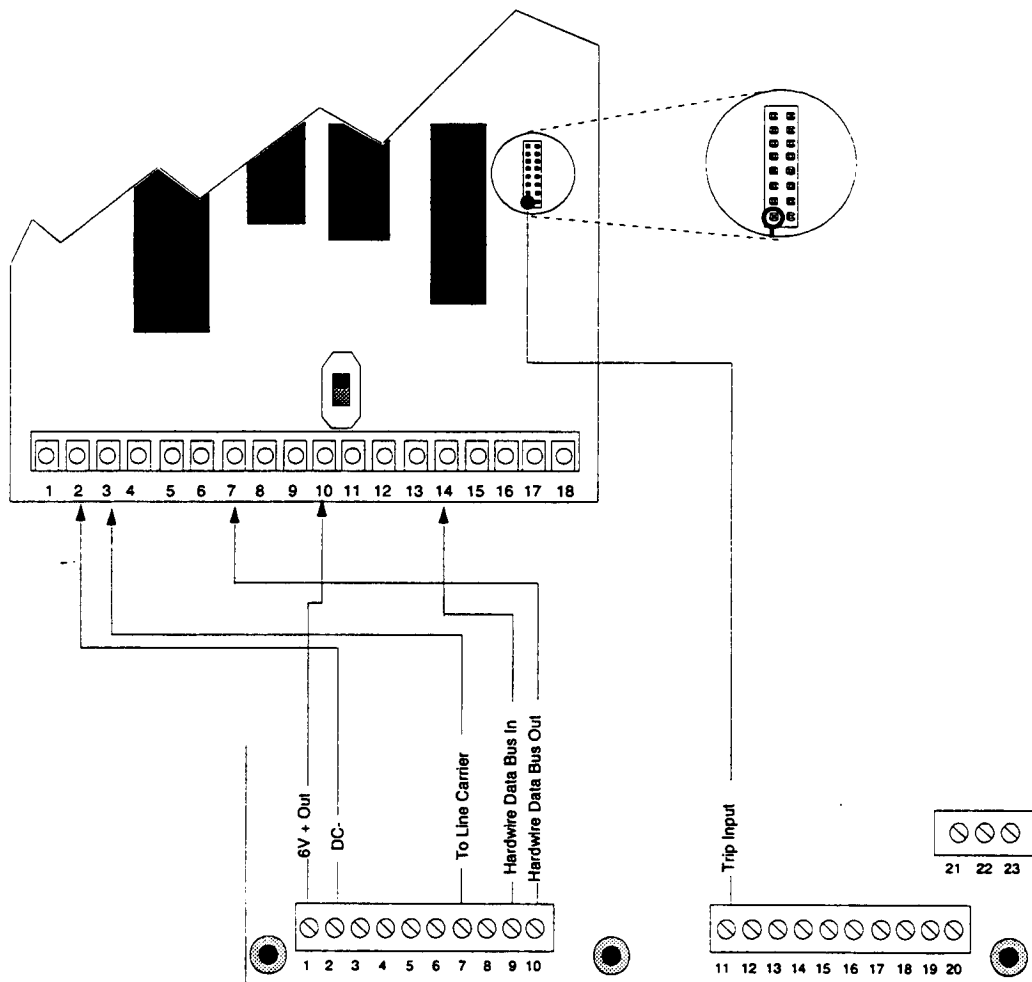


Figure 2.6 SX-V to Interrogator Wiring Diagram

SECTION 2 Installation

3. Connect the SX-V interior and exterior sirens through the Interrogator Module relays (terminals 18 through 23) so that sirens are cut off during listen-in or talk-back mode. (Refer to Figure 2.7.)

Note: The siren sounds from SX-V Alphanumeric Touchpads are not silenced when the Interrogator Module is in the listen-in or talk-back mode.

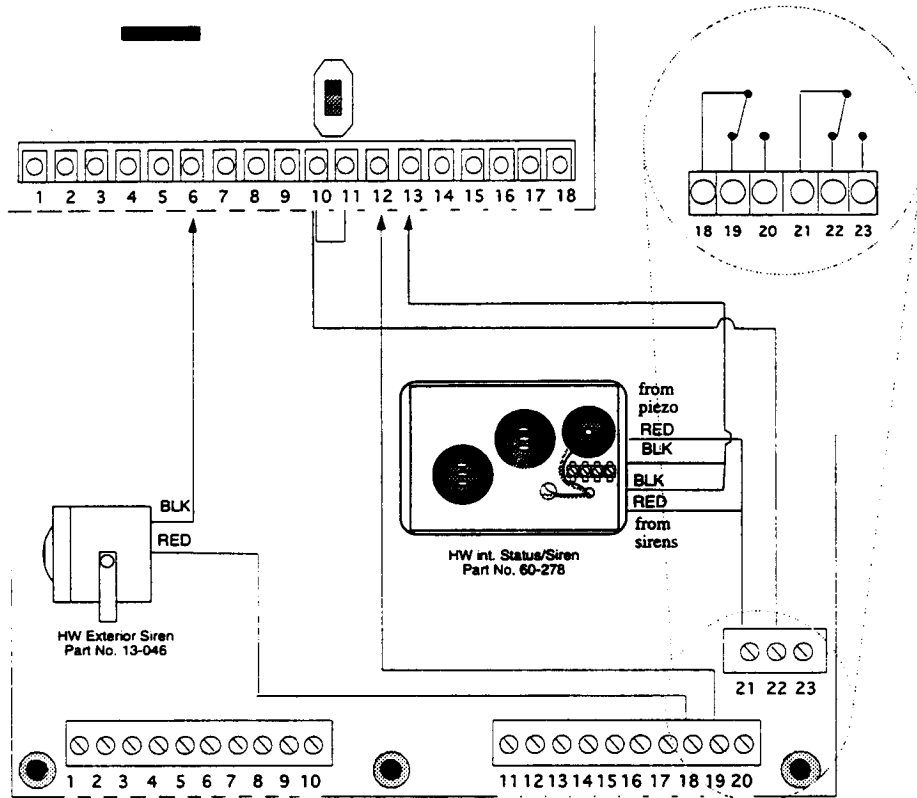


Figure 2.7 SX-V Siren Wiring

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 20. These relay contacts are rated to 1 A at 30 VDC.

5. Connect the phone line so that the Interrogator Module is ahead of the SX-V Control Panel and the on-site phones. (Refer to Figure 2.8.)

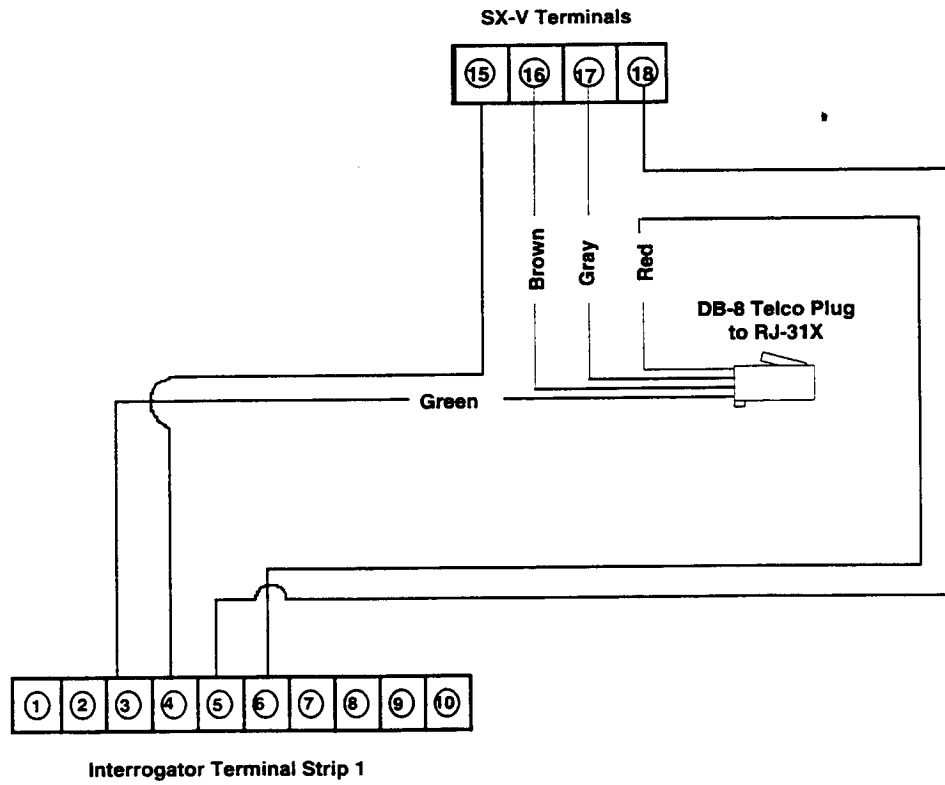


Figure 2.8 Wiring Diagram for Phone Line Seizer through Interrogator Module

Wiring to the CareTaker *Plus*

The following describes how to wire the Interrogator Module to a CareTaker *Plus* Control Panel.

Note: This procedure is valid only with CareTaker *Plus* Control Panels with software versions 2.0 and later.

Use the following steps for wiring the Interrogator Module to a CareTaker *Plus* Control Panel:

1. Turn the CareTaker *Plus* power switch OFF.
2. Wire the Interrogator Module to the CareTaker *Plus*, using 22-gauge stranded wire. Follow the wiring diagram in Figure 2.9.
3. Connect the phone circuits as shown in Figure 2.9.

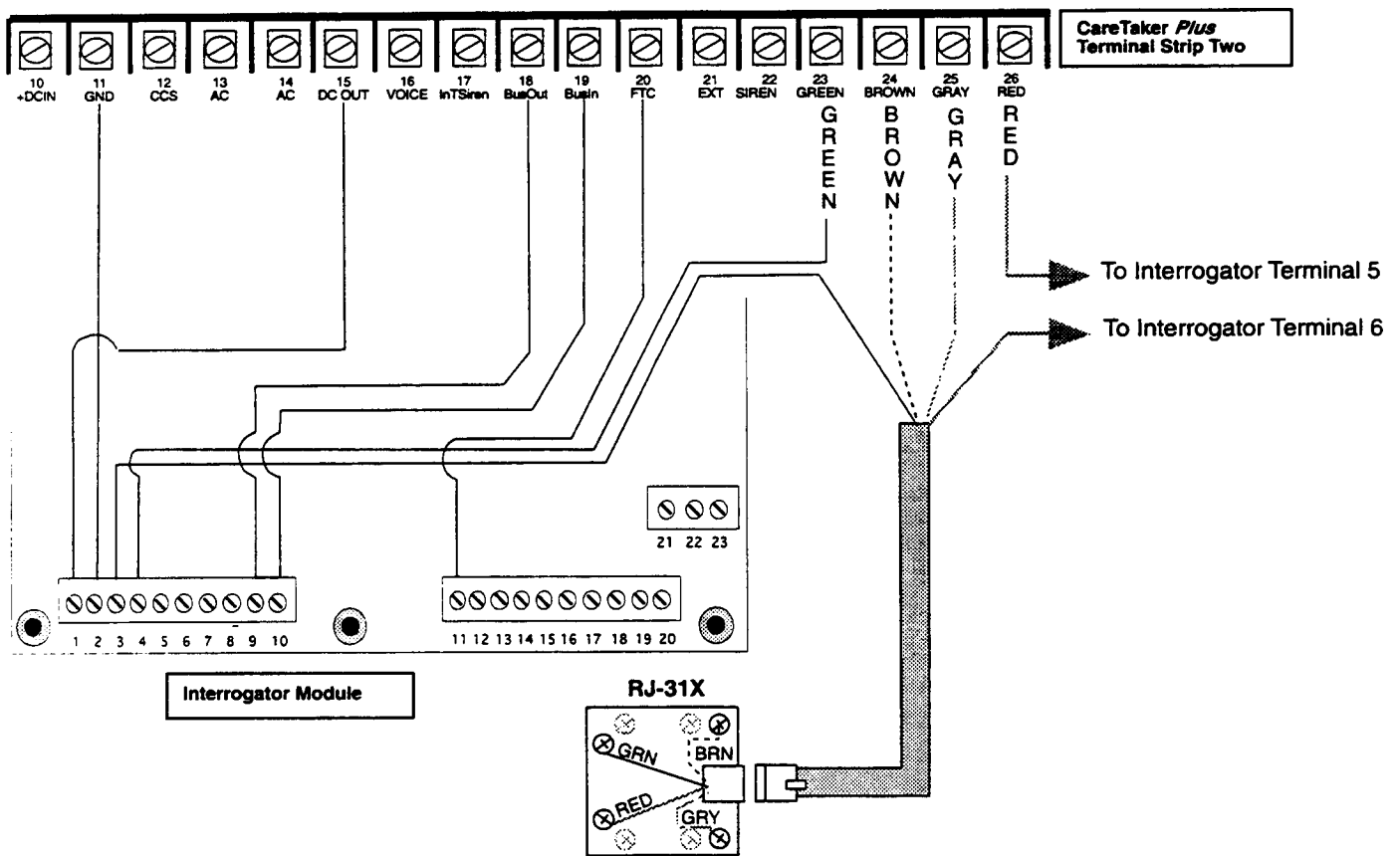


Figure 2.9 CareTaker *Plus* Wiring Diagram

Wiring to the Commander 2000

The following describes how to wire the Interrogator Module to a Commander 2000.

1. Remove power from the Control Panel by unplugging the transformer and disconnecting the backup battery bucket from the terminal strip.
2. Connect the Interrogator Module to the Control Panel as shown in Figure 2.10.

Note: Use two 22-gauge 4-conductor wire runs; one for the phone circuit and one for the Control Panel power and trip.

3. Connect the phone circuit so the Interrogator Module is ahead of the Commander 2000. (Refer to Figure 2.10.)

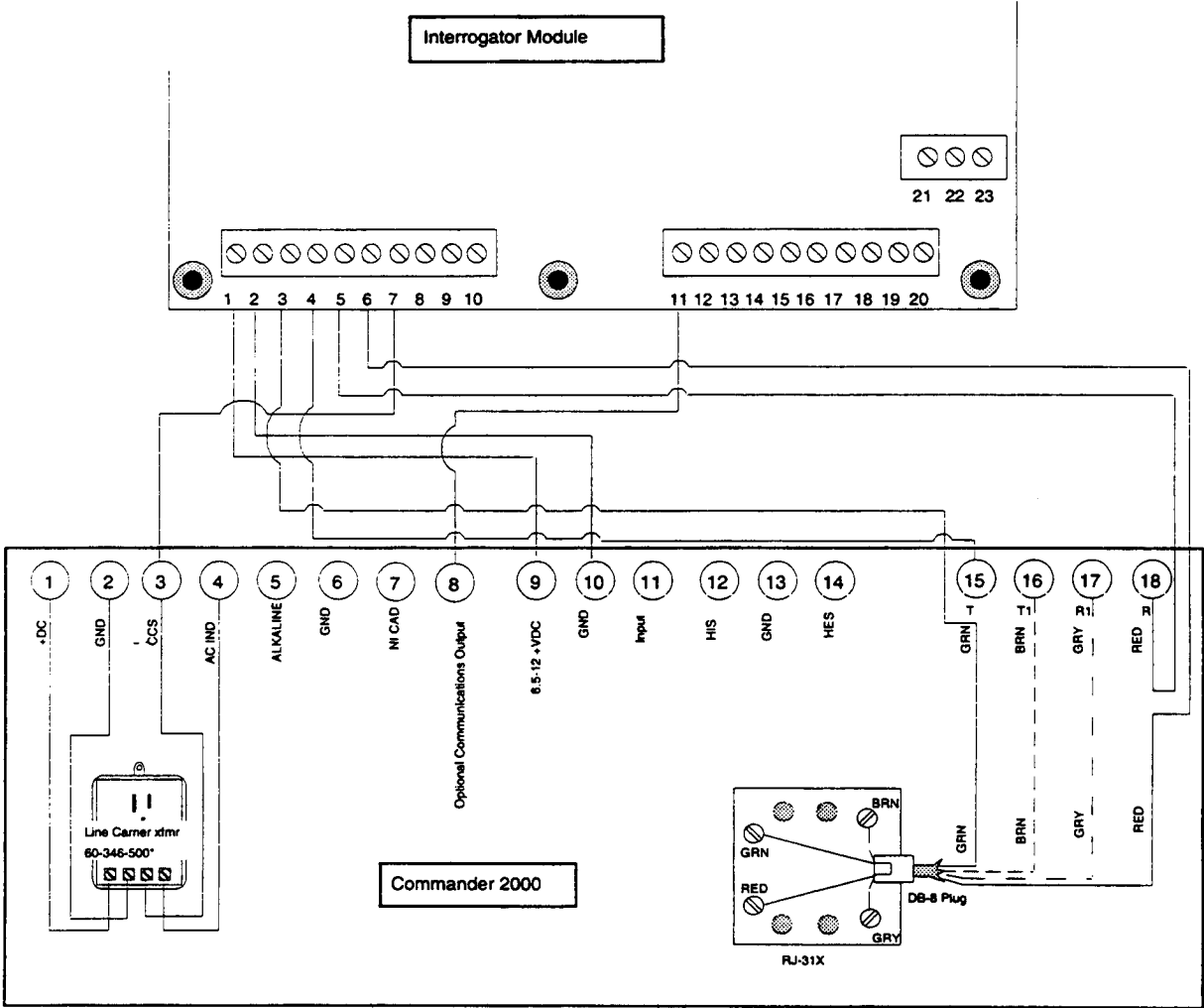


Figure 2.10 Commander 2000 Wiring Diagram

SECTION 2 Installation

5. Connect the sirens through the Interrogator Module relays (terminals 18 through 23) so that sirens are cut off during listen-in or talk-back mode (see Figure 2.11).

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 20. These relay contacts are rated at 1 A at 30 VDC.

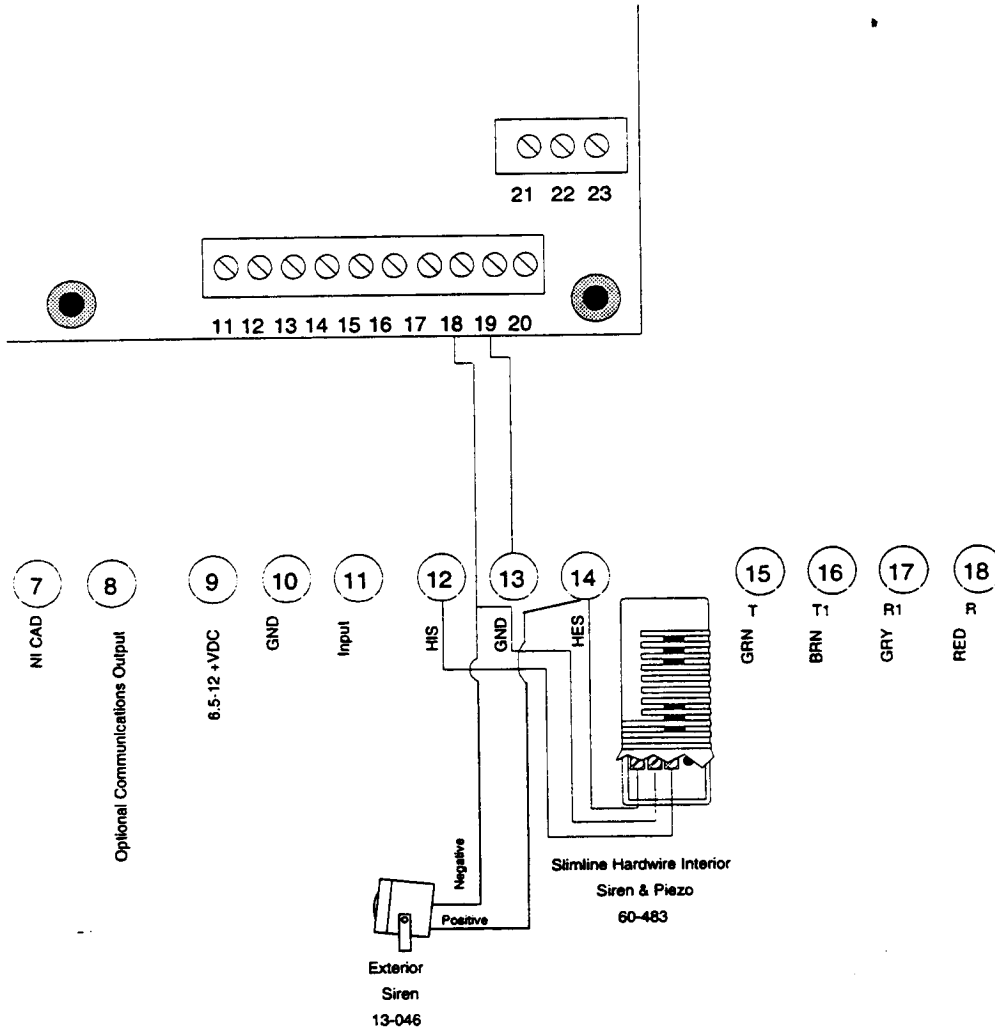


Figure 2.11 Commander 2000 Siren Wiring Diagram

Installing Microphones

This subsection describes how to mount and wire 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" 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 2.12).

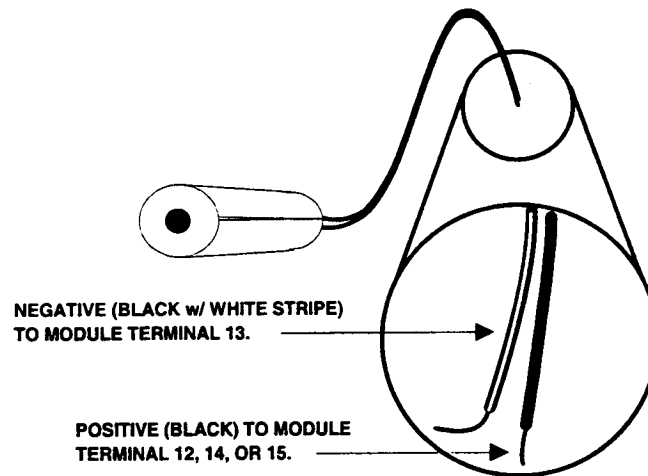


Figure 2.12 Drill-Mount Microphone Wiring Polarity and Termination

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 2.13).

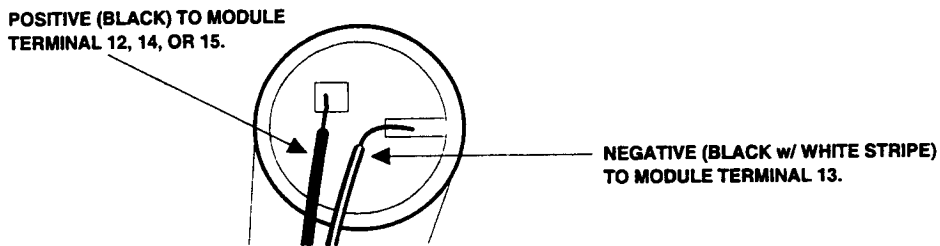


Figure 2.13 Speaker Cover Microphone Wiring Polarity and Termination

5. Install the microphone inside the speaker cover by pressing it into the velcro (see Figure 2.14).

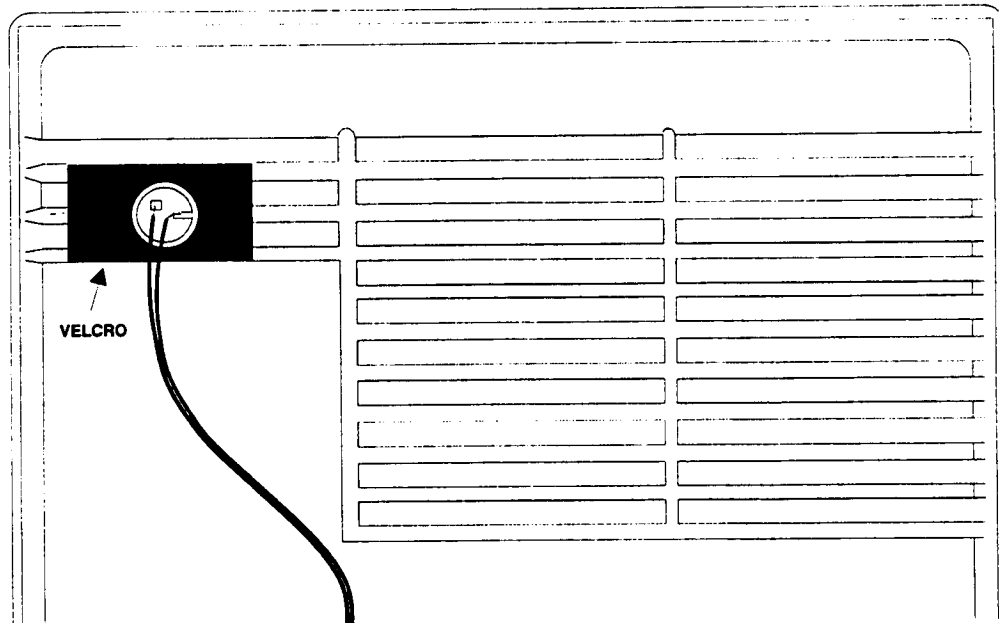


Figure 2.14 Installing the Microphone in the Cover

6. Secure the speaker cover to the siren housing.

Installing the Microphone and Speaker on the Interrogator Module Enclosure

The Interrogator Module includes one microphone and one speaker. Use the following procedure for installation:

1. Connect the microphone to the Interrogator Module terminals (see Figure 2.13).
2. Connect the speaker wire (included) to the Interrogator Module terminals (see Figure 2.15).

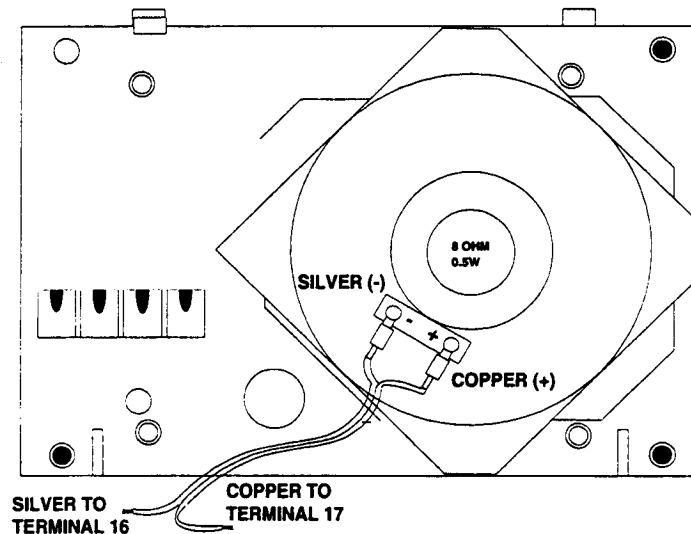


Figure 2.15 Speaker Wiring Connections

3. Connect the fast-on speaker wire ends to the speaker on the speaker plate (see Figure 2.15).
4. Set the speaker plate on top of the Interrogator Module housing.

Note: Don't install the microphone on the Interrogator Module enclosure at this time. Since the enclosure must be attached to the module, wait until all programming is completed.

Connecting Microphones and Speakers

Connect all microphones and speakers as shown in Figure 2.8.

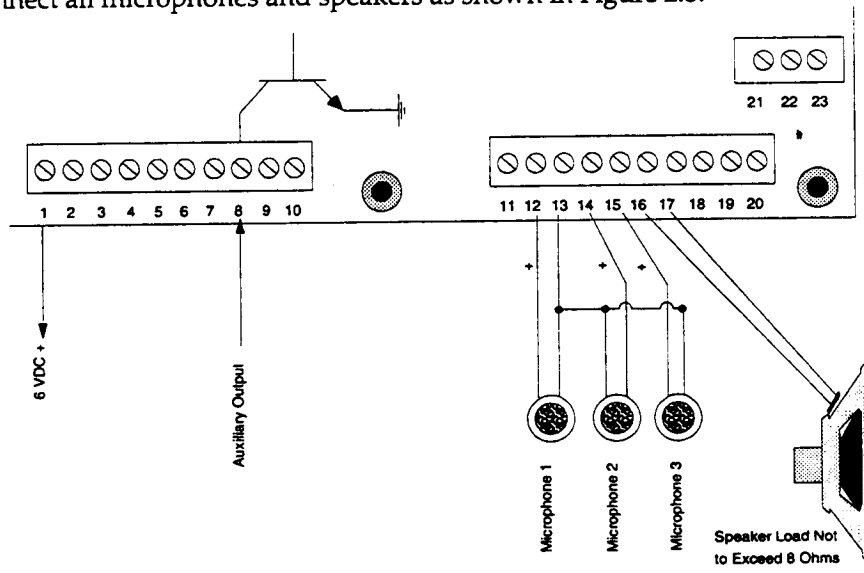


Figure 2.16 Microphone and Speaker Connections

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).

Programming

This section describes the following:

- Programming commands
- Programming the module
- Off-Site programming access
- On-Site programming access
- Programming for *SX-V*, *CareTaker Plus*, and *Commander 2000*
- Operating with hot key commands

Programming Commands

Table 3.1 describes the commands used for programming the Interrogator Module.

Table 3.1. 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 + # + 0 (OFF) * + # + 11 + # + 1 (ON)	Manually turns the auxiliary output OFF and ON. (Default = none.)
Retrieve Account Number	* + # + 12 + #	Retrieves Interrogator account number, which is given in DTMF tones. (Default = none.)
Interrogator Password	* + # + 30 + nnnn + # (n = any 4 digits)	Sets the password used for Log On. (Default = 1 2 3 4)
Dialing Format	* + # + 31 + 0 + # (pulse) * + # + 31 + 1 + # (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 (see Table 3.2). (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 (<i>CareTaker Plus</i> and <i>SX-V</i> only). (Default = 0.)
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.) For example, to map <i>SX-V</i> sensor 63 to activate microphone 1, enter the following: * + # + 35 + 63 + 1 + #

Table 3.1. Commands and Descriptions

Command Name	Command	Command Description
Delete Microphone Mapping	* + # + 36 + nn + # (nn = sensor number)	Deletes programmed microphone mapping. To delete all microphone mapping, enter the command without a sensor number. (Default n/a.)
Account Number	* + # + 38 + nnnnn + # (nnnnn = any 5 digits)	Sets the Interrogator Module account number (numerical only). Can be the same as the Control Panel account number if no alpha characters exist. (Default = none.)
Control Panel Type	* + # + 39 + n + # n = 0 (SX-V) 1 (CareTaker Plus) 2 (Commander 2000)	Sets the Interrogator Module for use with the connected Control Panel. (Default = 1.)
Trip Input and Trip Action	* + # + 40 + x + y + # x = Trip Input 0 (falling edge) 1 (rising edge - SX-V) 2 (ITI trip - CareTaker Plus, Commander 2000) 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 Control 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.)

Table 3.1. Commands and Descriptions

Command Name	Command	Command Description
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: <ul style="list-style-type: none"> • 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.

Programming the Module

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.

Programming Requirements

- A TouchTone phone must be used to program the Interrogator Module.

Note: Some TouchTone 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 after 3 rings hang up.

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 3.1).

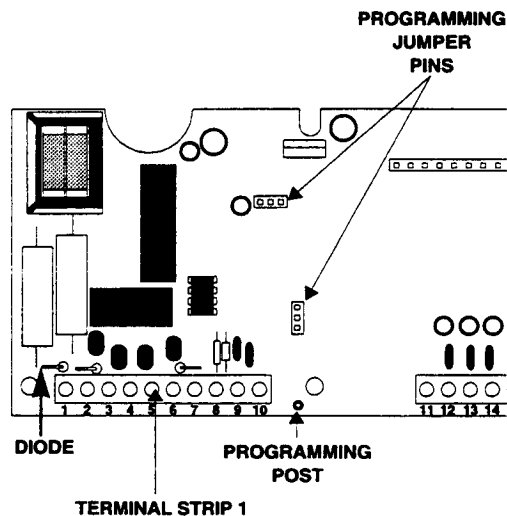






Figure 3.1 Locations of Programming Post, Programming Jumpers, and Diode.

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 , remove the jumper and place it in the Program position . 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 SX-V

The following steps describe the basic programming for use with an SX-V Control Panel:

Note: SX-V Control Panels must have software version K or later, installed to work with the module.

1. Set trip input to 1 by pressing * + # + 40 + 1 + y + #, where y is the trip action (see Table 3.1).
2. Set Control Panel type to 0 by pressing * + # + 39 + 0 + #.
3. Set off-site access by pressing * + # + 33 + n + #, where n is 0 (off) or 1 (on).
4. Set unit number by pressing * + # + 34 + n + #, where n is a number from 0 to 7.
5. Set any additional programming features (see Table 3.1).
6. Press 9 9 to log off and hang up.

Notes:

- For SX-Vs, command 40 must be set to 1 when using the output from the pulse dial driver.
- The module initiates an automatic 1-minute delay before dialing out when used with an SX-V.
- Alarms from sensor groups 11, 13, and 15 are ignored.
- Sensor groups 04 - 10 and 12 record, activate the module, and turn sirens off. Sensor groups 00 - 03 and 14 activate the module but sirens remain on.
- Sensor numbers 00, 01, and sensors 12 - 17 are always ignored even if regrouped.
- If the SX-V uses PMODE 3 or 4, the trip action in command 40 must be set to 2.
- After the first alarm, the module activates on all successive phone calls by the SX-V Control Panel, until the SX-V is disarmed.

Programming for the CareTaker *Plus*

The following steps describe the basic programming for use with a CareTaker *Plus*.

Note: CareTaker *Plus* Control Panels must have software version 2.0 or later, installed to work with the module.

1. Set trip input to 2 by pressing * + # + 40 + 2 + y + #, where y is the trip action (see Table 3.1).
2. Set control panel type to 1 by pressing * + # + 39 + 1 + #.
3. Set off-site access by pressing * + # + 33 + n + #, where n is 0 (off) or 1 (on).
4. Set unit number by pressing * + # + 34 + n + #, where n is a number from 0 to 7.
5. Set any additional programming features (see Table 3.1).
6. Press 9 9 to log off and hang up.

Notes:

- If the CareTaker *Plus* uses PMODE 3 or 5, the trip action in command 40 must be set to 2.
- Only sensor numbers 0 - 32 can be used for microphone mapping (command 35).
- Sensor 77 must be ON.

Programming for the Commander 2000

The following steps describe the basic programming for use with a Commander 2000.

1. Set trip input to 2 by pressing * + # + 40 + 2 + y + #, where y is the trip action (see Table 3.1).
2. Set control 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 3.1).
5. Press 9 9 to log off and hang up.

Notes:

- Sensor number 18 cannot be programmed into sensor group 26 when the module is used.
- Commander 2000 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 3.2 describes the hot key commands.

Table 3.2. 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 that it interferes with central station communication. To correct this, press and hold the number 5 button for five seconds on a TouchTone phone. This toggles all microphones to low gain.

Testing

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 Control Panel calls in on. (Radio Shack Part No. 279-357 can be used to parallel a TouchTone 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 (see Section 3).
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 and to disconnect.
5. Use the ring 3 times hang up, wait, and ring 1 method to gain access again (see Section 3).

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

6. Press 8 8 and 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 Control 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-4000s 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:** Once the Control Panel is trapped, pick up the in-parallel phone. You hear the data communication between the CS-4000 and the Control Panel. Type REL and press ENTER on the CS-4000 keyboard.
 - b) **Trip Action 1:** Once the Control Panel is trapped, pick up the in-parallel phone. You hear the data communication between the CS-4000 and the Control Panel. Type REL and press ENTER on the CS-4000 keyboard.
 - c) **Trip Action 2:** When the Control Panel is trapped, type REL and press ENTER.
 - d) **Trip Action 3:** When the Control Panel is trapped, type REL and press ENTER.
 - e) **Trip Action 4:** When the Control 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 Control Panel and hearing the module beeping on the phone, press *. The microphones are active and neither the central station operator nor the on-site technician 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 ring 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 and neither the central station operator nor the on-site technician 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 and neither the central station operator nor the on-site technician should hear sirens.

3. Press 5 to play back the 17-second recording (if 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 on to listen, you cannot talk through the speakers and vice versa.

6. Press 0 again and the volume or "gain" of the microphones increases. If you press 0 again, the gain decreases to the previous volume.
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 Ω 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.

Troubleshooting

This section contains troubleshooting information to help you identify and solve problems you may encounter with the system and its components. Use this section with the testing information in Section 4 to test the system.

This section is organized by components of the system, as follows:

- Control Panel
- Phone system
- Central station communication
- Alphanumeric Touchpad
- Wireless Interior Siren (WIS)
- Hardwire sirens
- Record board
- Microphones

Control Panel

Problem • Unit won't power-up.

Corrective Actions

- Check that power transformer for the Control Panel is plugged in.
- Check for proper wire termination at the Control Panel and power transformer.
- Use a voltmeter to check the incoming voltage at the Control Panel terminals. (Refer to that Control Panel's installation manual for proper voltages.)
- If the voltage reading is 0, turn Control Panel power switch OFF. Disconnect wires from the Control Panel and transformer terminals. Use an ohmmeter to check for continuity (short) between any two conductors or an open on any conductor.
- Check to see that there is between 6.8 and 14 VDC at terminals 1 (positive) and 2 (negative) of the Interrogator Module.

Phone System

Problem • No dial tone on house phones after wiring RJ-31X/CA-38A Jack or no dial tone on house phones after plugging in DB-8 Cord.

Corrective Actions

- Check for improper wiring of RJ-31X/CA-38A Jack. See Section 2 for proper Control Panel wiring diagrams and check the wiring.

- Check for improper wiring of DB-8 Cord to Control Panel and Interrogator Module terminals. See Section 2 for proper Control Panel wiring diagrams and check the wiring.
- Check for defective RJ-31X/CA-38A Jack. If defective, replace jack.
- Check for defective DB-8 Cord. If defective, replace cord.

Problem • Can't dial out on phones (constant dial tone).

Corrective Action

- This indicates there are polarity-sensitive phones on the premises. Reverse the wires you connected to the brown and gray wire terminals on the RJ-31X/CA-38A Jack.

Problem • Control Panel does not seize phone line.

Corrective Action

- RJ-31X/CA-38A Jack is wired between house phones. Jack must be wired between phones and incoming Telco block (phone protector block) for proper line seizure.

Central Station Communication

Problem • Central Station is not receiving any reports.

Corrective Actions

- DB-8 Cord not plugged into RJ-31X/CA-38A Jack. Plug cord into jack.
- Improper wiring of RJ-31X/CA-38A Jack. Check the wiring. See Section 2 for proper Control Panel wiring diagrams.
- Verify the phone number of the receiver line with the central station operator. Reprogram the phone number if necessary and re-test.
- Defective RJ-31X/CA-38A Jack. Replace jack.
- Improper wiring of DB-8 Cord to Control Panel terminals. See Section 2 for proper Control Panel wiring diagrams and check the wiring.
- Defective DB-8 Cord. Replace cord.

Wireless Interior Siren (WIS)

Problem • WIS will not shut off for record time.

Corrective Action

- Make sure that each device connected to the hardwire bus has a different unit ID code from each other.
- For Commander 2000 installations, make sure the Interrogator Module and Control Panel house codes match.

Problem • No sound or LED activation from WIS.

Corrective Actions

- Check that Control Panel Line Carrier Transformer is plugged into outlet.
- Check that WIS is not plugged into an outlet controlled by a switch. Relocate, if necessary.

- Program house code into Interrogator Module. Refer to the programming section to set the house code. (WIS operation requires a house code.)
- Make sure Control Panel is using 4-wire Line Carrier Transformer.
- WIS is not on same electrical phase as Control Panel Line Carrier Transformer. Relocate WIS to various outlets to identify working locations.
- Move WIS to a nonappliance occupied circuit.

Problem • Intermittent WIS operation.

Corrective Actions

- Check that WIS is not plugged into an outlet controlled by a switch. Relocate, if necessary.
- Move WIS to a nonappliance occupied circuit.

Problem • WIS piezos and LED won't turn off.

Corrective Action

- Unplug unit from outlet. Disconnect battery from WIS, then short battery clip terminals. Reconnect battery to WIS and plug into outlet. Program house code into WIS and test.

Problem • WIS emits alarm sounds only.

Corrective Action

- Switch number 2 inside WIS is ON. Set to OFF, if you want status sounds.

Problem • WIS emits chirps every minute.

Corrective Action

- Battery is low or missing.

Hardwire Sirens

Problem • Sirens do not shut off for the record time.
• Check for proper siren connections to the module relays terminals 18 through 23. (Refer to the wiring diagrams in Section 2.)

Problem • Exterior sirens don't emit any alarm sounds.

Corrective Actions

- Check for proper siren connections. (Refer to the wiring diagrams in Section 2.)
- Check for proper siren connections to the module relays terminals 18 through 23.

Problem • Interior sirens don't emit any sounds.

Corrective Action

- Check for proper siren connections. (Refer to the wiring diagrams in Section 2.)

On-Site Programming

- Problem**
- Interrogator Module won't program from on-site.

Corrective Action

- Make sure programming jumpers are in programming positions (see Figure 3.1).
- Try a different DTMF phone.

Record Board

- Problem**
- No recording heard on playback.

Corrective Actions

- Record board not installed.
- Record board not installed correctly.

Microphones

- Problem**
- Microphone gain is low with pot adjustment set to maximum.

Corrective Action

- Microphone wiring polarity is reversed. Correct wiring.

Index

A

- account number
 - programming 3-2
 - retrieve 3-1
- auxiliary output
 - enable or disable 3-2
 - testing 4-3
- auxiliary output time
 - programming 3-3

C

- Canada
 - Notice A-2
- CareTaker *Plus*
 - installation 2-8
 - programming 3-7
- command
 - auxiliary output 3-1
 - commands and descriptions (table) 3-1
 - dialing format (DTMF or pulse) 3-1
 - log on 3-1
 - retrieve account number 3-1
- Commander 2000
 - installation 2-9
 - programming 3-7
- commands
 - hot keys 3-8
 - using 3-1
- components
 - record board (optional) 1-3
 - reset jumper 1-3
 - terminals and descriptions 1-3
- control panel
 - software compatibility 1-2
- control panel type
 - programming 3-2

D

- delete
 - microphone mapping 3-2
- drill-mount microphone
 - installation 2-11

F

- FCC
 - Part 15 Class B A-1
 - Part 68 Notice A-1
- features
 - features and descriptions (table) 1-1

H

- hot keys
 - operating with 3-8
 - switch assignments 3-3
- house code
 - programming 3-3

I

- installation
 - CareTaker *Plus* 2-8
 - Commander 2000 2-9
 - Interrogator with plastic enclosure 2-1
 - microphones 2-11
 - record board 2-4
 - SX-V 2-5

M

- microphone mapping
 - delete 3-2
 - programming 3-1
- microphones
 - installation 2-11
 - installing drill-mount 2-11
 - installing speaker cover 2-12
 - installing with speakers 2-14
 - troubleshooting 5-4

N

- Notices
 - Canada A-2
 - FCC Part 15 Class B A-1
 - FCC Part 68 A-1

O

- off-site
 - programming access 3-4
 - testing 4-1
- off-site access
 - programming 3-1
 - testing 4-1
- off-site programming access
 - 3 rings, hangup, 1-ring 3-4
 - 8-ring 3-4
- on-site
 - access testing 4-2
 - programming 3-5
 - programming troubleshooting 5-4

P

- phone
 - troubleshooting 5-1

- phone number
 - programming 3-1
- phone trip level
 - programming 3-2
- plastic enclosure
 - installation 2-1
- power
 - requirements (table) 1-1
- programming
 - account number 3-2
 - auxiliary output (enable or disable) 3-2
 - auxiliary output manual control 3-1
 - auxiliary output time 3-3
 - CareTaker *Plus* 3-7
 - Commander 2000 3-7
 - control panel type 3-2
 - dialing format (DTMF or pulse) 3-1
 - house code 3-3
 - log on command 3-1
 - microphone mapping 3-1
 - off-site access 3-4
 - off-site access (on or off) 3-1
 - on-site 3-5
 - password 3-1
 - phone number 3-1
 - reset 3-3
 - retrieve account number 3-1
 - SX-V 3-6
 - trip action 3-2
 - trip input 3-2
 - troubleshooting on-site 5-4
 - unit number 3-1
 - what to listen For 3-6

R

- record board
 - description 1-3
 - installation 2-4
 - troubleshooting 5-4
- requirements
 - power (table) 1-1
- reset jumper
 - description 1-3

S

- software
 - control panel compatibility (table) 1-2
- speaker cover microphone
 - installation 2-12
- SX-V
 - installation 2-5
 - programming 3-6

T

- terminals (table) 1-3
- testing
 - auxiliary output 4-3
 - off-site access 4-1
 - on-site functions 4-2
- trip action
 - programming 3-2
- trip input
 - programming 3-2
- troubleshooting
 - central station communication 5-2
 - Control Panel 5-1
 - hardwire sirens 5-3
 - microphones 5-4
 - on-site programming 5-4
 - phone system 5-1
 - record board 5-4
 - Wireless Interior Siren 5-2

U

- unit number
 - programming 3-1

W

- wiring
 - CareTaker *Plus* 2-8
 - Commander 2000 2-9
 - SX-V 2-5
 - SX-V phones 2-7
 - SX-V sirens 2-6



Interactive Technologies, Inc.
2266 North Second Street
North St. Paul, MN 55109

©1994 Interactive Technologies, Inc.

46-591 Rev. B