The Interactive Technologies, Inc.

SX-IVB SECURITY SYSTEM

System Overview and
Installation Manual

§ Revised January 1987 §

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

(612) 777-2690
(800) 331-0400

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UNDERWRITERS LABORATORIES INC.
LISTING EXPLANATION

Interactive Technologies Inc. has submitted some, but not all, of its products to Underwriters Laboratories Inc. for investigation and listing.

This installation manual includes products and features that have been investigated and listed by UL, and those that have not been investigated or listed by UL.

We have clearly marked throughout the manual what products and features are and are not UL listed.

If you wish to install a UL system you must use only those products and features that have UL listings. All such products will bear a UL listing label.

SX-IVB NOTICE

This manual is for the Interactive Technologies, Inc. **SX-IVB** Security System. Although the SX-IV and the SX-IVB control panels look alike, the software in the two systems is different. Do not use this manual if you are installing an SX-IV, use it only with a SX-IVB. To tell the difference you should read the legend on the two microprocessors inside the panel.

	SX-IV	**SX-IVB**
ALARM PANEL MICROPROCESSOR	15-103	15-103-B
COMMUNICATOR MICROPROCESSOR	15-104	15-104-B

OLD INSTALLATION MANUALS

Keep your old installation manuals. This manual does not include installation instructions for discontinued items that you may have installed previously to the current model.

INTRODUCTION

This Installation Manual is designed to give you all the information necessary to install and test a typical residential or light commercial, Interactive Technologies **SX-IVB** Security System.

It is assumed that the technician reading this manual has thoroughly familiarized himself or herself with the operation of the system. You cannot be expected to understand how to install the SX-IVB system unless you already know how to use it.

If you are not yet very familiar with how to use the SX-IVB system then do the following before proceeding:

(1) Get an SX-IVB DEMONSTRATION KIT to practice with.
(2) Get a copy of UNDERSTANDING YOUR ITI DEMONSTRATION KIT.
(3) Get a copy of the customer's SX-IVB OWNER'S MANUAL and be sure you understand everything contained in it.
(4) Set up the DEMO KIT and all its components and practice all its functions including:
   a. How to arm and disarm to every level of protection
   b. Know the difference between each arming level
   c. Understand the status sounds
   d. Practice the BYPASS feature
   e. Try arming with a sensor violated to see & hear what happens
   f. Set a SECONDARY ACCESS CODE
   g. Become familiar with the alarm sounds, BURGLARY, FIRE & AUXILIARY
   h. Activate the silent DURESS CODE
   i. Be sure you understand all display information on the CPU
   j. Try a SENSOR TEST (level 9)
   k. Practice changing the PROGRAMMING of the CPU
   l. Check the ALARM MEMORY feature

PRE-INSTALLATION SET UP RECOMMENDATION

The installation of a hardwire security system must take place entirely at the installation site. With an ITI wireless system you have a unique opportunity to "install" much of the system before you even leave your office.

We strongly recommend that you adopt a procedure of completely pre-programming and testing every system in your office a day or two before the installation is scheduled. Dealers that do this have seen a 10% - 20% reduction in the TOTAL time spent. On-site time can be cut by as much as **50%**!

Set up a test bench in your office with all the proper tools and with a live RJ-31X jack nearby. You should completely program and test the CPU to your customers specifications. You should set the proper entry & exit delays, access code, duress code, etc. By connecting the CPU directly to a Interactive Receiver or to an RJ-31X jack, you can even program the account number and phone number into the CPU.

After the CPU is completely set up, you should set up and program (set dip switches or cut the programming comb) every transmitter that is going to be part of the installation. Even the Wireless Interior Sirens can be programmed and tested.

Finally, turn to the section of this installation manual entitled TESTING YOUR WORK and perform each of the ten final tests to verify that everything is working as you expect it to.

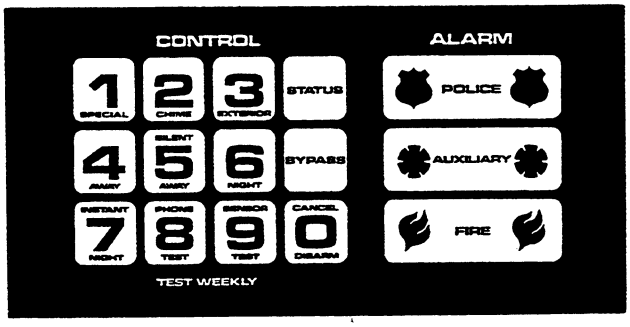
GENERAL SYSTEM OVERVIEW

Before we get to the actual installation procedures there are some general principles that you should become familiar with. These principles will be described on the next several pages.

UL NOTE: I.T.I. has not had the digital communications features of our SX-IVB, or our Central Station Receiver, investigated by Underwriters Laboratories Inc.

PROTECTION LEVELS

Most security systems can only be armed to a couple of different levels of security. Typically they can be fully armed; or only armed with the perimeter sensors giving protection. The Interactive Technologies SX-IVB system has several arming levels and you need to understand each:



Level 0 DISARM/CANCEL - (One long beep)

All intrusion sensors off, full time sensors (fire, medical, panic, & environmental) ON. Full time sensors remain on in levels 0-8.

Level 1 SPECIAL - (One short beep)

Same as Level "0", but Special Intrusion Sensors (silver drawer, gun cabinet, wall safe, etc.) are now active and will remain active through level 7.

Level 2 CHIME - (Two short beeps)

Special Intrusion Sensors plus Chime Feature (all exterior sensors will cause chime tone when activated).

Level 3 EXTERIOR - (Three short beeps)

Special Intrusion Sensors plus Perimeter Sensors armed. All interior sensors disarmed. Typically used during daytime or early evening while at home.

Level 4 AWAY - (Four short beeps)

Special Intrusion Sensors plus ALL OTHER intrusion sensors, both interior and exterior, armed. Typically used when house is unoccupied.

Level 5 * SILENT AWAY - (Five short beeps)

Same as level four, but silent. No intrusion sirens would sound. NOT recommended if phone line is vulnerable or when anyone is in the home. Sirens would sound if there was a fire, medical emergency, police panic or if the communicator fails to reach the central station after 3 attempts.

* NOTE: This protection level not investigated by U.L.

Level 6 NIGHT - (One long & one short beep)

Same as level four, but will disarm pre-selected interior sensors to allow free movement within a portion of the protected interior. Typically used to give homeowner full access to bedroom - bathroom area at night. Delay times are active.

Level 7 INSTANT NIGHT - (One long & two short beeps)

Same as level six, but entry and exit delay times are instant. Used during night hours after all expected residents have arrived.

Level 8 * PHONE TEST - (One long & three short beeps)

This will send a communications test signal over the phone lines to the central station. Test is acknowledged at residence either by activation of each siren sound for 2 seconds or a personal phone call from the Central Station Operator.

Level 8 changes to level 0 after successfully communicating to the receiver. If it fails to reach the receiver after 8 tries the CPU will display 96 (fail to communicate).

Level 9 SENSOR TEST - (One long & four short beeps)

This level is used to test each sensor (transmitter). The CPU will acknowledge a successful test by first displaying the sensor number reporting in and then removing it from the sensor number display window scroll on the front of the CPU. The sirens connected to the CPU will emit a loud "beep" upon activation.

* NOTE: This protection level not investigated by U.L.

FULL TIME SENSORS

Activation of the sensors listed below will cause an alarm 24 hours a day in protection levels 0 through 8.

- All Three Manual Push buttons on the Wireless Touchpad
- Fire & Smoke Sensors
- Environmental Sensors (Gas, Freeze, Furnace Failure, etc.)
- 24 -hour Police Emergency Sensors (usually Portable Panic Buttons)
- 24 -hour Medical Emergency Sensors (usually Portable Panic Buttons)

FREQUENCY

Every system made by ITI is set on one of eight frequencies. The Central Processing Unit (main security control panel) and all associated devices (transmitters, motion sensors, & touchpads) used on a job must all have the same Frequency to communicate to each other. THE FREQUENCY FOR EACH SYSTEM IS ESTABLISHED AT THE FACTORY AND IS CLEARLY LABELED ON A SMALL STICKER ON EACH COMPONENT. Demo kits are shipped on a different frequency than regular systems, so you don't have to worry about setting off a neighbor's system when giving a demonstration.

HOUSE CODE

In addition to eight Frequencies there are also four HOUSE CODES (0, 1, 2, & 3) available for each of the eight Frequencies. Thus, there are thirty-two different combinations available to you. You must program the HOUSE CODES yourself for the Central Processing Unit, Wireless Touchpad, Wireless Interior Sirens, and ALL transmitters.

Once the FREQUENCY and the HOUSE CODE have been chosen for a particular job EVERY device installed on that job must be programmed with that same information.

SENSOR NUMBER

One of the features that makes the ITI system so advanced is that there are over 75 zones! Sixty-one of these zones are programmable for any purpose. This is enough zoning so that each transmitter can be programmed to its own unique zone number, or Sensor Number as we call it.

NOTE

In this manual we will often use the term SENSOR. Sensors are simply RF transmitters. We will also use the term SENSOR NUMBER, this is simply the zone number of that SENSOR.

The Central Processing Unit (CPU) recognizes different Sensor Numbers as having different functions. For example, some are used for fire, some for intrusion, some for medical, etc.

In order for you to install a Sensor you need to first pick the correct Sensor Number. Refer to the chart on the next page. For example, if you are installing a smoke sensor or rate-of-rise detector you would need to program it with a Sensor Number from 20 to 27. A medical emergency sensor could have a Sensor Number of either 10 or 11. A delayed entry door would have a Sensor Number of 34 to 37, etc.

Before proceeding, be sure you understand the purpose of all Sensor Numbers between 02 and 76. The Sensors between 30 and 76 are assigned to devices that detect intruders. Be especially sure you understand the differences between each group.

Sensor Numbers higher than 76 are factory assigned and not dealer programmable. Review the purpose of these Sensor Numbers too.

A detailed description of all the Sensor Numbers and their respective purpose follows.

SENSOR NUMBERS

The following sensors can be detected, displayed at the CPU and reported to the Central Station. All sensor numbers below are SUPERVISED except 2-5 and 10-11.

SENSOR NUMBER	ACTIVE LEVELS	SIREN SOUND	DESCRIPTION
02-03	0 - 8	POLICE	24 HOUR POLICE EMERGENCY -AUDIBLE-UNSUPERVISED. For use with ITI's unsupervised Portable Panic Buttons.
04-05*	0 - 8	NONE	24 HOUR POLICE EMERGENCY - SILENT - UNSUPERVISED. For use with ITI's unsupervised Portable Panic Buttons.
06*	0 - 8	POLICE	24 HOUR POLICE EMERGENCY - AUDIBLE - SUPERVISED. For use with regular transmitters wired to a panic or medical button.
07*	0 - 8	NONE	24 HOUR POLICE EMERGENCY - SILENT - SUPERVISED. For use with regular transmitters wired to a panic or medical button.
10-11*	0 - 8	AUXIL.	24 HOUR MEDICAL EMERGENCY - UNSUPERVISED. For use with an ITI Portable Panic Button. NOTE: The Central Station operator must use the GROUP command to re-program these zones to make them supervised if you plan to use a fixed panic button wired to a supervised transmitter.
12-17*	0 - 8	AUXIL.	24 HOUR ENVIRONMENTAL - SUPERVISED. For furnace failure, flood, freeze, power failure, etc.
20-27	0 - 8	FIRE	24 HOUR FIRE SENSORS.
30-33	1 - 7	POLICE	SPECIAL INTRUSION. For special belongings such as the contents of a silver drawer, gun cabinet or wall safe. Silent in Level 5.
34-37	3 - 7	POLICE	EXTERIOR DELAYED INTRUSION - SUPERVISED. For delayed entrance doors. Chime In Level 2, Instant In 7, Silent in Level 5. Disarmed during Entry/Exit Delay.
40-57	3 - 7	POLICE	EXTERIOR INSTANT INTRUSION. For instant doors & windows. Chime in Level 2, silent in Level 5.
60-63*	4 - 7	POLICE	INTERIOR INTRUSION - MOMENTARY DEVICES. For Motion Sensors, Mats, Sound Sensors, etc. Disarmed during entry/exit time delay. Silent in Level 5, instant in Level 7.
64-65*	4 - 5	POLICE	INTERIOR INTRUSION - MOMENTARY DEVICES. Same characteristics as 60-63, except disarmed in Levels 6 & 7. Typically used for sensors that are in the bedroom area that must be off at night.

*NOTE: These sensor numbers have not been investigated by U.L.

SENSOR NUMBER	ACTIVE LEVELS	SIREN SOUND	DESCRIPTION
66-67 *	4 - 5	POLICE	INTERIOR DELAYED INTRUSION - MOMENTARY DEVICES. Same characteristics as 64-65, except that sensors programmed to these numbers WILL INITIATE AN ENTRY AND EXIT DELAY just like an entry door. This will give the customer who forgets to disarm his system before entering a protected interior area time to disarm the system before it goes into alarm.
70-72	4 - 7	POLICE	INTERIOR INTRUSION - INTERIOR DOORS. For interior doors, cabinets, wall safes, jewelry boxes and anything else that opens and closes. Disarmed during entry/exit time delay. Silent in Level 5, instant in Level 7.
73-74	4 - 5	POLICE	INTERIOR INTRUSION - INTERIOR DOORS. Same characteristics as 70-72, except disarmed in Levels 6 & 7. Typically used for doors & cabinets that are in the bedroom area that must be off at night.
75-76	4-5	POLICE	INTERIOR INTRUSION - INTERIOR DOORS. Same characteristics as 73-74, except that sensors programmed to these numbers WILL INITIATE AN ENTRY AND EXIT DELAY when tripped just like an entry door. This will give the customer who forgets to disarm his system before entering a protected interior area time to disarm the system before it goes into alarm.

*NOTE: These sensor numbers have not been investigated by U.L.

NOTES ABOUT SENSOR NUMBERS:

All sensor numbers are SUPERVISED, except for numbers 02, 03, 04, 05, 10 and 11 which are UNSUPERVISED. Unsupervised transmitters can be carried away from the home without supervisory reports being sent to the central station. The only transmitters that ITI makes that are unsupervised are the Portable Panic Button and the Wireless Touchpads.

Sensors 60-65 and 70-74 will be delayed only if a sensor which initiates the entry delay time (34-37, 66-67, 75-76) is activated first to start the delay. If an intruder entered an unprotected window and then tripped sensor 60-65 or 70-74, the alarm would sound instantly.

SIREN SOUNDS

POLICE SIREN - Loud intermittent tone siren sound.

FIRE SIREN - Loud steady tone siren sound.

AUXILIARY SOUND - On-off-on-off beeping. (NOTE: Not investigated by U.L.)

PRE-PROGRAMMED SENSOR NUMBERS

The following sensors are PRE-PROGRAMMED in the CPU's memory and do not need to be programmed at installation time. You can, however, delete a pre-programmed sensor if you or your customer doesn't want the feature to work.

SENSOR NUMBER	ACTIVE LEVELS	DESCRIPTION
01*	0 - 8	CPU TOO CLOSE - Used only during installation to determine whether there is another system, with the same Frequency & House Code, within range that might cause conflict.
77	0 - 8	LOW BATTERY IN A WIRELESS TOUCHPAD. The touchpad battery is tested each time the customer uses his touchpad. Which Wireless Touchpad is not indicated in systems with two or more Touchpads.
80	0 - 8	24 -HOUR FIRE CALL from a Wireless Touchpad. Audible.
81	0 - 8	24 -HOUR POLICE CALL from a Wireless Touchpad. Audible.
82*	0 - 8	24 -HOUR AUXILIARY CALL from a Wireless Touchpad. Audible.
83*	8	PHONE TEST initiated by customer. After a successful test, all sirens sound briefly at the customers home or the Central Station operator should call. In addition, the 83 will clear from the CPU display and the CPU will return to Level 0.
86*	0 - 9	DURESS CODE. A specially programmed access code that will send a 24 -hour POLICE EMERGENCY CALL silently to the Central Station. The Duress Code must be followed by any protection level number to activate. This sensor number will not display on the CPU, it will just report. Even though sensor number 86 is pre-programmed, it will not report unless the installer has programmed a duress code into the CPU memory.
91*	0 - 9	LOW BACKUP BATTERY in CPU. After this report is sent to the Central Station (typically 15-17 hours after AC failure) the CPU will shut down until the AC POWER is restored. This prevents deep battery discharge and loss of CPU memory. The memory will be OK for several days without AC. When the AC power is restored the CPU will re-arm itself to the same protection level that it was in when it powered down. The CPU will report 95 A/C POWER RESTORED when the power comes back on.
95*	0 - 8	AC POWER RESTORED. Occurs only after a previous 91 LOW BATTERY report or when the CPU power switch is turned OFF then back ON.
96*	0 - 8	FAIL TO COMMUNICATE. The CPU makes 8 attempts to contact the Central Station. If the CPU can't get through, a 96 will be displayed at the CPU and a pulsing tone will sound. The tone can be silenced by entering the ACCESS CODE + 0. If the customer has elected not to connect to the Central Station then 96 will not exist, as it is only added to the program by the Central Station operator when the hookup is first made.
97*	0 - 8	Dialer Checksum Error (local indication only). Indicates a loss of memory in the CPU.

*NOTE: These sensor numbers have not been investigated by U.L.

OPTIONAL SENSOR NUMBERS

The following are OPTIONAL SENSOR NUMBERS. These sensor numbers need to be programmed into the CPU memory if you want their respective features to work. These features are discussed in detail elsewhere in this manual under PROGRAMMING THE SX-IVB.

SENSOR NUMBER	ACTIVE LEVELS	DESCRIPTION
84*	0 - 8	OPENING REPORT. If 84 is initialized, the CPU will report "84 OPENING REPORT" when the CPU is disarmed.
85*	0 - 8	CLOSING REPORT. If 85 is initialized, the CPU will report "85 CLOSING REPORT" when the CPU is armed.
87*	0 - 8	FORCE ARMED. If 87 is initialized, the CPU will report "87 FORCE ARMED" whenever a sensor number is bypassed.
90*	0 - 8	A/C FAILURE. If 90 is initialized, the CPU will report "90 A/C FAILURE" when the AC power at the outlet that the CPU is plugged into has been off for 15 minutes.
93*	0 - 8	WEEKLY TEST. If 93 is initialized, the CPU will report "93 WEEKLY TEST" to the Central Station once every 7 days.

*NOTE: These sensor numbers have not been investigated by U.L.

OPTIONAL FEATURE NUMBERS

The following OPTIONAL FEATURES can also be programmed into the CPU memory. They cannot be added from the Central Station as the other sensors can. These features are discussed elsewhere in this manual under PROGRAMMING THE SX-IVB.

FEATURE	DESCRIPTION
A0	EXIT DELAY SOUNDS. Controls whether or not exit delay beeps will sound only once at the beginning of the exit delay, or continuously for the entire length of the delay.
A1	NOT USED. Must always be left off.
A2	NOT USED. Must always be left off.
A3*	DIGITAL COMMUNICATOR. Controls whether or not the system will report alarms to a central station or not.
A4*	LOW BATTERY REPORTS. Controls whether LOW BATTERIES are to report weekly or not at all.
A5*	SUPERVISORY REPORTS. Controls whether SUPERVISORIES are to report daily or weekly.
A6*	DIALER ABORT. Controls whether or not the dialer should abort calls that are cancelled by the customer within the first 15-20 seconds.
A7*	REMOTE DISPLAY. Controls whether or not a REMOTE DISPLAY AND SIREN or a regular HARDWIRE INTERIOR SIREN is going to be connected to the CPU.

*NOTE: These features have not been investigated by U.L.

WIRELESS TOUCHPAD (WALNUT HOUSING)

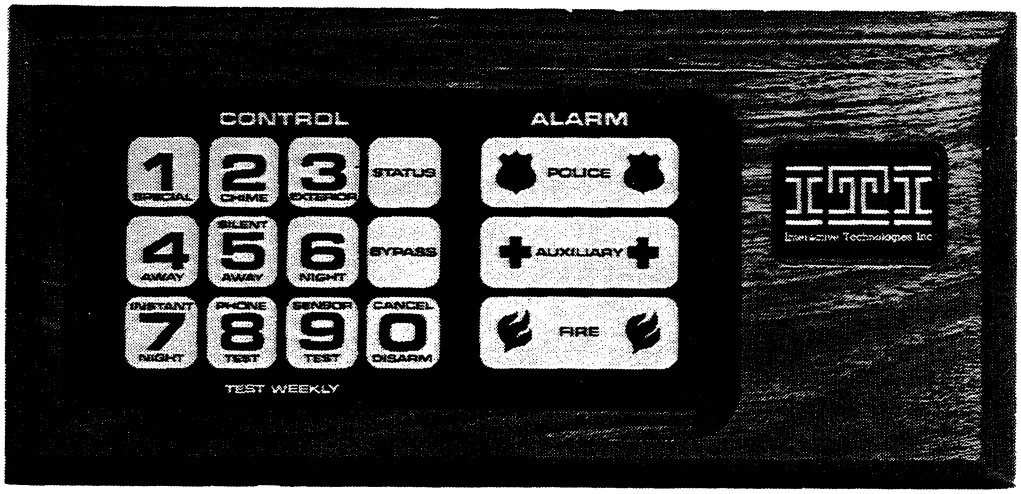
Model # 60-025. Underwriters Laboratories Listed Single Station Smoke Detector Accessory
Also Suitable For Use As A Household Burglary Warning System Control Unit.

OVERVIEW

The Wireless Touchpad (WT) is used by the homeowner to give commands to the CPU. All arming, disarming and other signaling is done via the WT.

When a switch in the CPU is changed to the "Program Mode" the WT becomes the installer's programming tool. (See section: PROGRAMMING THE SX-IVB.) Set up a WT now, before you begin installing the Central Processing Unit. You must have a WT set up so you can use it to "program" the Central Processing Unit.

The WT consists of two sections of touch sensitive pads, an ALARM section and a CONTROL section.



WIRELESS TOUCHPAD

ALARM SECTION

The ALARM section is used to manually trigger an alarm. The three alarms that can be triggered from the WT are POLICE, AUXILIARY (usually medical emergency), and FIRE. There are two touchpads for each alarm and BOTH must be pressed simultaneously and held for one second to set off the alarm. This guards against accidental triggering of the alarms and makes the system more "child proof". The table below illustrates the CPU response when the two alarm buttons are pressed.

CPU ALARM RESPONSE

TOUCHPADS PRESSED	SENSOR NUMBER LED DISPLAY	AUDIBLE RESPONSE
FIRE + FIRE	80	Steady tone siren
POLICE + POLICE	81	Modulated Siren
AUXILIARY + AUXILIARY	82 *	Low-level beeping tone

When a manual alarm is activated from the Wireless Touchpad, a signal is also sent to the Central Monitoring Station* where personnel notify the proper authorities.

* NOTE: Not investigated by U.L.

CONTROL SECTION

The CONTROL section is used to select the arming level. This section is made up of touchpads 0 through 9, STATUS and BYPASS. To properly use the CONTROL section, it is necessary to know the 4-digit Access Code (combination). The system powers up with an Access Code of 1-2-3-4.

The 4-digit Access Code must be entered before any change in arming level. For example: To arm the system to protection level 1, enter the 4 digit Access Code, then immediately press the digit 1. A single "beep" will be heard and a "1" will be displayed on the CPU's protection level display window.

STATUS

The STATUS touchpad serves two purposes during normal operations.

1. To request an audible indication of the systems current protection level.

2. To activate the ALARM MEMORY and give a visual indication of any sensors that were in alarm during the previous arming period.

The table that follows outlines the audible responses for each protection level when the STATUS touchpad is pressed.

AUDIBLE STATUS RESPONSES

	PROTECTION LEVEL	AUDIBLE RESPONSE
	0 - DISARM/CANCEL	One long beep
	1 - SPECIAL Intrusion	One short beep
	2 - CHIME & Special Intrusion	Two short beeps
	3 - EXTERIOR & Special Intrusion	Three short beeps
	4 - AWAY - Interior, Exterior & Special	Four short beeps
*	5 - SILENT/AWAY - Same as 4 but silent	Five short beeps
	6 - NIGHT - Exterior & Partial Interior	One long and one short beep
	7 - INSTANT NIGHT - Same as 6 but instant	One long and two short beeps
*	8 - PHONE TEST	One long and three short beeps
	9 - SENSOR TEST	One long and four short beeps

* NOTE: Protection levels 5 and 8 have not been investigated by Underwriters Laboratories.

ALARM MEMORY

The ALARM MEMORY is displayed at the CPU when the STATUS touchpad is pressed. If an alarm occurred during the previous arming period the CPU will light the alarm LED and the number of any and all sensors that had been in alarm. ***The alarm memory is available for review for <u>six hours</u> after the system is disarmed and then it automatically clears.*** Selecting Level 9 will also clear the alarm memory. There is no audible indication that an alarm had occurred during the previous arming period.

BYPASS

The SX-IVB will not allow you to select a new protection level unless all sensors active in that new level are closed or restored. Instead of arming to the new level, the system will continuously generate two tone "protest" beeps. The display will show which sensor(s) are in the non-restore condition. You can "force arm" the system by using the BYPASS touchpad.

INDIRECT BYPASSING

On a nice spring evening a customer could protect the house by arming to Level 6, and also leave his master bedroom window (sensor 42) open. The BYPASS button is used to accomplish this. First, all doors and windows must be shut except the bedroom window, which is left open. Next, arm the system to Level 6. When you hear the protest beeps immediately press the BYPASS button. This will cause the system to arm to Level 6 while bypassing the bedroom window, number 42.

Although not recommended, this bypass procedure can be used to bypass more than one sensor at a time.

DIRECT BYPASSING

The second way to BYPASS is called DIRECT BYPASSING. To use direct bypassing, you select a particular sensor number that you want bypassed. You then enter your 4 digit access code + BYPASS + the sensor number.

To bypass the same bedroom window (42) from the example above, you would arm the system to Level 6 (Access Code + 6). Next, enter your access code + BYPASS + 42. If properly bypassed, 42 will show in the sensor number window and the Bypass LED will be on. You must use the primary access code when direct bypassing. The secondary code will not work with this feature. This will leave the CPU in protection Level 6 but bypass sensor number 42. All other sensors active in Level 6 will still be armed.

If you are leaving the home after arming the system and wish to direct bypass a sensor, you must do so before the exit delay time is over, saving yourself enough time to leave through the exit door. If you are staying on the premises you can bypass even after the system has armed.

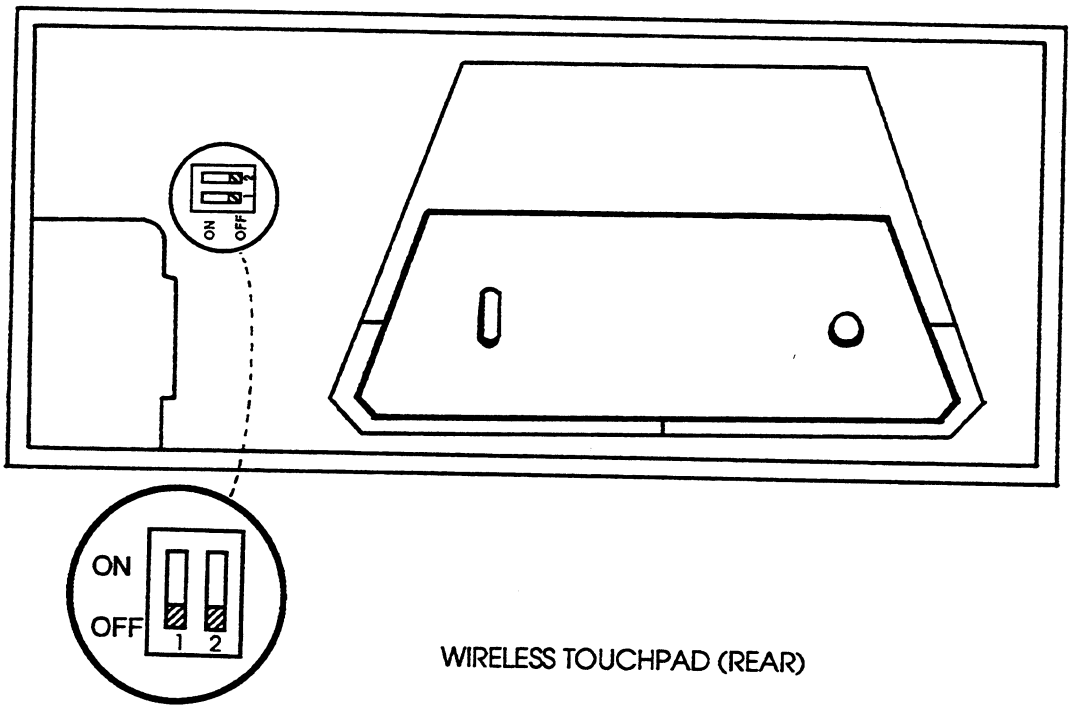
Using direct bypassing, you can bypass any sensor number. Multiple sensors must be bypassed one at a time.

With either method of sensor bypass, keep in mind that changing the protection level clears the bypass. Thus, you must repeat the bypass steps if you change protection levels and still want bypassed sensors. Below is a summary of the differences between direct & indirect bypassing.

INDIRECT BYPASSING	DIRECT BYPASSING
Primary <u>or</u> secondary access codes can be used to bypass sensors.	Only the primary access code can be used to direct bypass sensors.
Sensors to be bypassed <u>must</u> be open or activated.	Sensors to be bypassed can be either open or closed.
Can only bypass those sensors which can be left open (doors and windows).	<u>Any</u> sensor number can be passed.
Can bypass as many sensors as are open, all at once.	Can only bypass one sensor number at a time.

PROGRAMMING THE WIRELESS TOUCHPAD'S HOUSE CODE

You must program the WT to the correct House Code for the installation.



WIRELESS TOUCHPAD (REAR)

Select the correct House Code using the following table:

House Code	Switch 1	Switch 2
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

INSTALLING THE WIRELESS TOUCHPAD (WALNUT HOUSING)

1. Typical locations are near entry/exit doors & in or near the master bedroom.
2. Secure the mounting bracket to the wall, narrow part at the top and hollow side towards you. NOTE: The mounting bracket is not centered on the back of the WT, it is off to one side. This must be taken into account when the WT is to be centered between two objects.
3. The best height for the Wireless Touchpad is about 5 feet from the floor.
4. MOUNT SECURELY using Molly bolts or plastic anchors.
5. Hang the WT on the mounting bracket & be sure it is level.

Now that you have one Wireless Touchpad installed and programmed to the correct House Code, you should proceed with the installation of the Central Processing Unit (CPU). Install any remaining Wireless Touchpads after the CPU is installed.

HAND HELD WIRELESS TOUCHPAD
(Plastic Housing - Model # 60-048)

The Handheld Wireless Touchpad has not been investigated by Underwriters Laboratories.

The small hand held wireless touchpad is housed in a pocket size plastic case. Otherwise, it is almost exactly the same as the original model housed in the walnut case. The CPU can be armed to the same protection levels no matter which touchpad is used.

ALARM SECTION

The ALARM section is used to manually trigger an alarm. The three alarms that can be triggered from the WT are POLICE, AUXILIARY (usually medical emergency), and FIRE. There are two touchpads for each alarm and BOTH must be pressed simultaneously and held for one second to set off the alarm. This guards against accidental triggering of the alarms and makes the system more "child proof".

PROGRAMMING THE HOUSE CODE

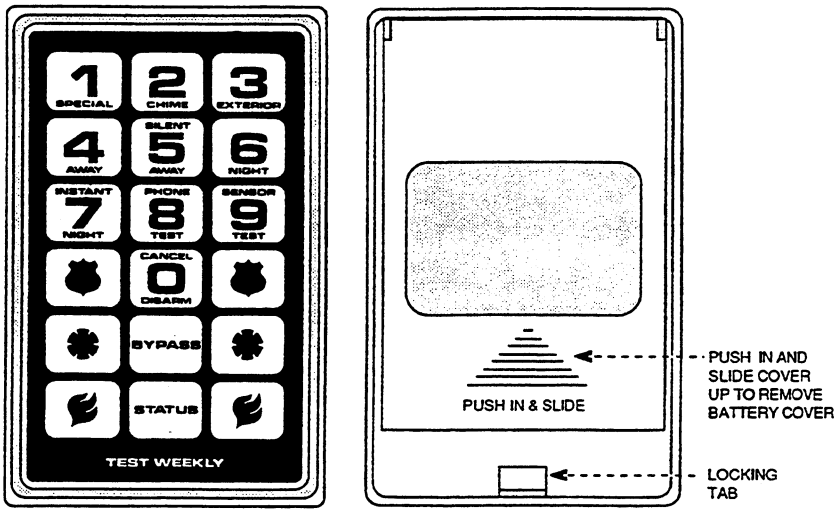
The house code is programmed the same as with the other touchpad. See the proceeding page. The toggle switches are located under the rear battery cover.

INSTALLING THE PLASTIC WIRELESS TOUCHPAD

Most of the time this touchpad will be carried about by the homeowner and thus will not need any permanent installation. For semi-permanent installation you can use Velcro hook and loop tape.

For permanent mounting (ideal for commercial installations):

(1) Remove the battery cover by pushing in and sliding the cover up & off.
(2) Screw the cover to the wall. Two indentations are provided in the battery cover as screw guides.
(3) Slide the touchpad back onto the battery cover.
(4) To remove the touchpad from the wall a small screwdriver must be used to release the locking tab located on the bottom edge of the touchpad. Insert the screwdriver between the locking tab and the wall, then slide the touchpad up and away from the battery cover.



FRONT VIEW REAR VIEW

SX-IVB CENTRAL PROCESSING UNIT (CPU)

Model # 60-029. Underwriters Laboratories Listed Single Station Smoke Detector Accessory
Also Suitable For Use As A Household Burglary Warning System Control Unit.

OVERVIEW

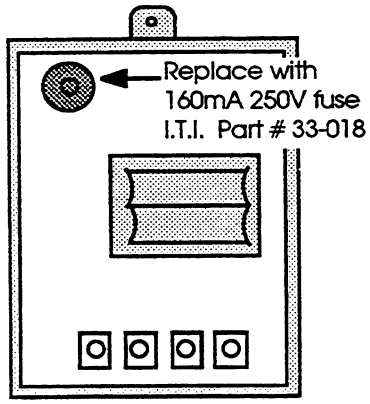
The Central Processing Unit (CPU) is the "brain" of the SX-IVB security system, containing all its "intelligence". The CPU consists of the following elements:

- Main circuit board with micro-processors to coordinate all system functions.
- Spatial Diversity Receiver with dual antennas for communication from each of the system's sensors and the Wireless Touchpad.
- LED displays indicating system status.
- Line carrier power transformer.
- Rechargeable stand-by battery.

LINE CARRIER POWER TRANSFORMER

Model # 60-033. Underwriters Laboratories Listed Single Station Smoke Detector Accessory. Also Suitable For Use As A Household Burglary Warning System Control Unit.

The power transformer supplies a DC voltage of approx. 13.8 volts DC (unloaded) to the CPU through terminals 1 & 2. Additionally, it contains the line carrier circuitry for the wireless status annunciators through terminal 3. The AC Power Indicator LED on the CPU is powered through terminal 4.



TRANSFORMER
WITH CASE OPEN

The transformer is fused with a non owner servicable 160 Ma fuse on the primary side of the transformer. This fuse can be replaced by you, however. Access to the transformer can only be achieved using a special tamper resistant driver (I.T.I. Part # 47-005). Replace only with a 160 mA 250V Time Lag Fuse (I.T.I.Part # 33-018).

AC/DC POWER INDICATOR

The red Power Indicator LED indicates the following:

STEADY GLOW - AC Power is ON

FLASHING ON AND OFF - The AC Power has been OFF for less than 10 minutes and the backup battery is supplying power. NOTE: When on standby battery power the CPU will shut down all visual status indications after about 10 minutes to conserve power.

INDICATOR NOT LIT - (1) CPU Battery fuse has blown, (2) the backup battery has failed, or (3) a power failure has lasted over 10 minutes.

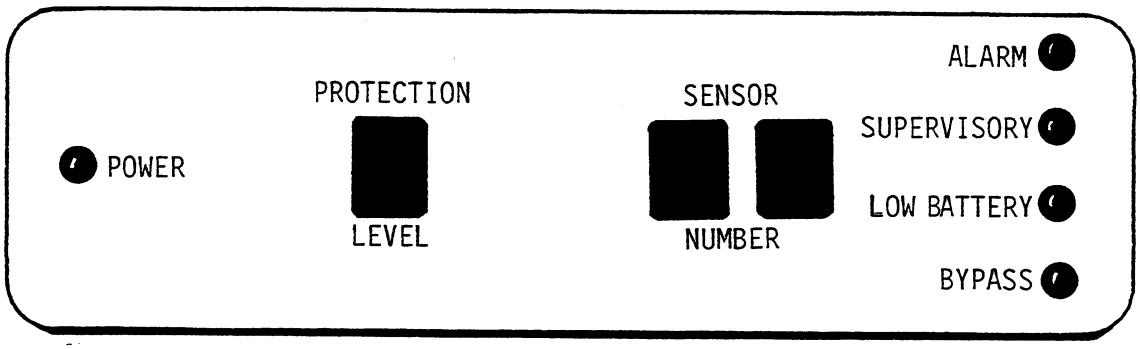
PROTECTION LEVEL DISPLAY

The Protection Level Display window will show which protection level the system is armed to, from 0 to 9. The window will also show "P" any time the CPU is in the Program Mode. It will be in the Program mode when you turn the Program Mode Switch "ON". When the customer is setting a Secondary Access Code or when you direct bypass sensor numbers the CPU will automatically switch to program mode for a few seconds and then revert back to the protection level it was in after the change takes place.

SENSOR NUMBER DISPLAY

The Sensor Number display will tell you what sensors are (1) in ALARM, (2) have a SUPERVISORY condition, (3) have a LOW BATTERY or (4) are in the BYPASS mode. If a sensor has a low battery; is bypassed; is in alarm or has a supervisory condition, the sensor number will appear on the display and the appropriate condition LED will light.

The sensor number display can also indicate any sensors which are not restored when the customer attempts to arm the system. For example: If a customer attempts to arm his system to Level 3 (exterior) with a door #34 and a window #40 open, the interior sirens would make repeated protest beeps and the numbers 34 and 40 would flash in the sensor number window along with all four LED's. Upon seeing which sensors are open the customer can then go to door number 34 and window 40 and close them. This will cause the numbers to clear from the display and the beeping to stop. The customer can now attempt to re-arm the system.

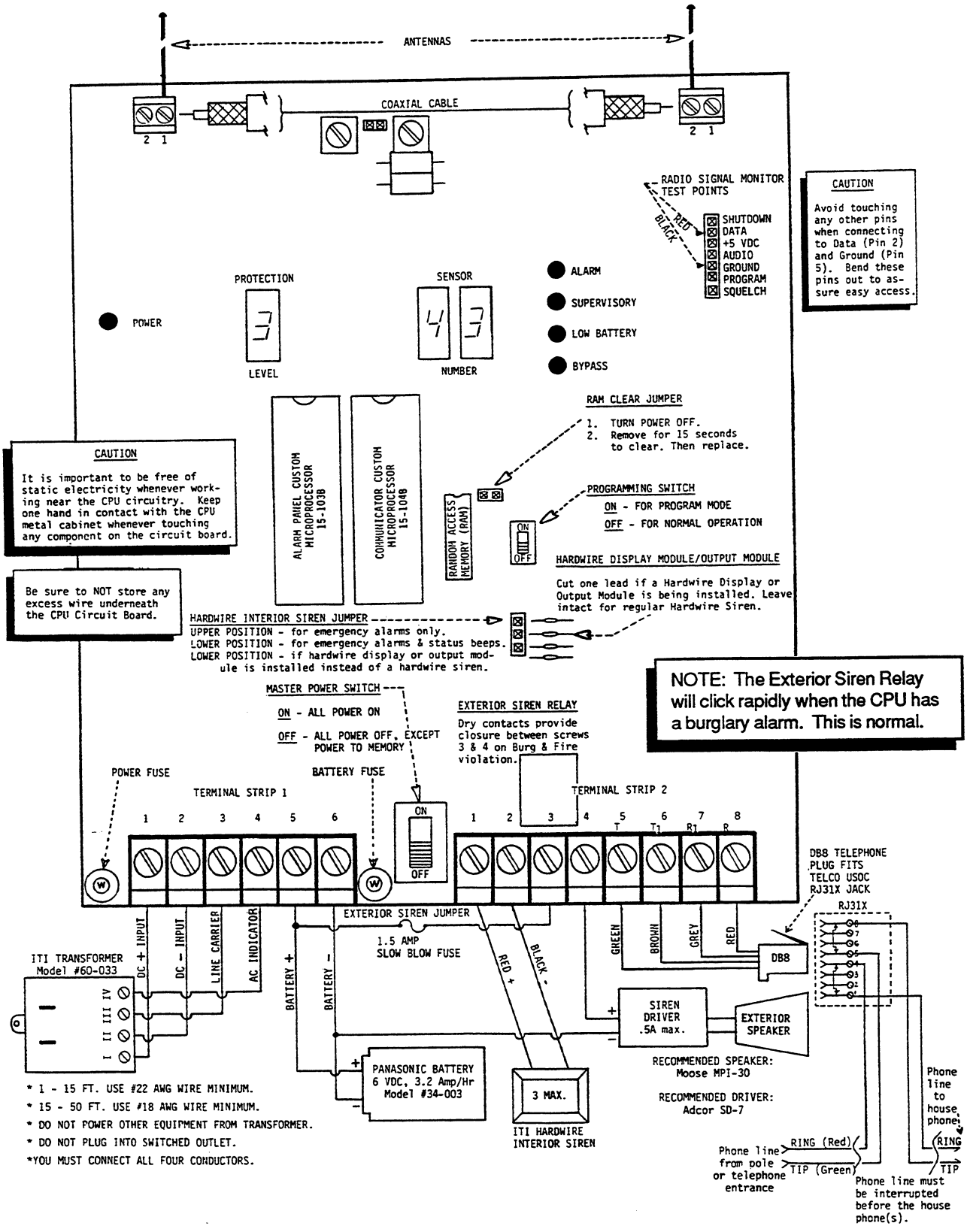


CPU DISPLAY WINDOWS

ALARM MEMORY

The sensor number display is also viewed to determine if there are any alarms in memory. If you bring a Wireless Touchpad to where you can see the CPU display and then press STATUS, the system will give an audible indication of its current protection level and the displays will light the sensor number of any sensors which were in alarm during the previous arming period. Sensors which were in alarm are retained in the alarm memory for six hours after the system is disarmed. The alarm memory can be cleared earlier than 6 hours by arming to Level 9.

SX-IVB CPU WIRING DIAGRAM



UL NOTE: The I.T.I. Hardwire Interior Siren and the SX-IVB Digital Communicator have not been investigated by Underwriters Laboratories.

CPU INSTALLATION

1. Determine a location which is as central as possible with respect to all transmitters. Although ITI transmitters often have a open air unobstructed range of about 500 feet, all transmitters should be installed within a 75' radius of the CPU location if possible. The location for the CPU should be secure yet easily accessible to the customer. Locate the CPU in a heated area of the building (32°F-95°F).

   SYSTEM CONFLICT TEST - (This feature has not been investigated by U.L.)

   At this point you may want to perform a SYSTEM CONFLICT TEST to make sure that the intended FREQUENCY and HOUSE CODE of this installation does not conflict with other ITI systems in the immediate area.

   This is accomplished by setting a sensor of the same Frequency and the same House Code to SENSOR NUMBER "01". Then, walk around the OUTSIDE of the customer's house activating this "01" transmitter over and over again. This will activate Sensor "01" on any system within range that has a similar Frequency and House Code.

   If any systems are in range they will silently report their "01" alarm to the Central Station unknown to the owner of the system. You then call the Central Station and find out if any "01" reports were received. If one did report then change to a different HOUSE CODE and repeat the test.

2. Verify the availability of a 110V NON-SWITCHED AC outlet for the transformer. Plan your wire run from the outlet to the CPU location.

3. The RJ-31X jack should be installed within 5 feet of the CPU. (Not investigated by U.L.)

   F.C.C. REGISTRATION NUMBER: B4Z8NW-11892-AL-R
   RINGER EQUIVALENCE NUMBER: 0.0B

4. Open any knockouts you will be using to feed wire through.

5. Mark the four keyhole mounting slots and any knockout holes on the wall where the CPU is to be mounted.

6. Level and mount the CPU.

   a. The CPU can be mounted on a shelf, but wall mounting is best.
   b. Good locations include coat closets and behind the master bedroom door.
   c. Mount the CPU near eye level so the displays can be easily viewed. Be sure to leave enough room for the antennas.
   d. Choose a location away from metal, pipes & electrical wiring.
   e. MOUNT THE CPU SECURELY, either directly to a stud with 1-1/2" screws, or with toggle bolts. If you choose to use plastic anchors (not recommended) use # 10-12 anchors with 1-1/2" #10 sheet metal screws.

7. **CAUTION!!!** It is important to be free of static electricity whenever working near the CPU circuitry. Be sure to discharge any static by touching the CPU cabinet. Keep in contact with the cabinet with one hand whenever touching any component on the board.

8. Insert the two antennas through the holes provided in the top of the CPU and tighten the set screws. The antennas should be vertical and clear of electrical wiring, metal coat hangers, steel pipes, tin duct work, etc.

9. Be sure the Master Power Switch & Programming Switch both are OFF (down).

10. With the transformer unplugged, connect ALL 4 WIRES to the CPU as follows:

Transformer Terminal 1	to	CPU Terminal Strip 1, Screw 1 (DC + INPUT)
Transformer Terminal 2	to	CPU Terminal Strip 1, Screw 2 (DC - INPUT)
Transformer Terminal 3	to	CPU Terminal Strip 1, Screw 3 (LINE CARRIER)
Transformer Terminal 4	to	CPU Terminal Strip 1, Screw 4 (AC INDICATOR)

- **DO NOT STORE ANY EXCESS WIRE BEHIND THE CIRCUIT BOARD.**
- 1'-15' use minimum 22 gauge wire, 16'-50' use minimum 18 gauge wire
- Do not power other equipment from the CPU's transformer

11. Connect standby battery to leads to the CPU. POLARITY MUST BE OBSERVED. **THE BATTERY MUST BE CHARGED TO 6.4 VDC OR ABOVE FOR THE CPU TO POWER UP.**

Battery + lead (red)	to	CPU Terminal Strip 1, Screw 5
Battery - lead (black)	to	CPU Terminal Strip 1, Screw 6

12. Plug the transformer into a 110 volt NON-SWITCHED AC outlet. Secure the transformer to the outlet with the outlet's face plate screw.

13. Clear the CPU RAM (WITH POWER SWITCH OFF) by removing the RAM Clear Jumper for a full ten seconds. Be sure to replace the jumper.

14. Turn ON the CPU by sliding the MASTER POWER SWITCH up. The CPU will respond as follows:

    - Audible Checksum beeping will sound if annunciators are attached.
    - CPU Sensor Number display window will show "CS" (Checksum).
    - Protection level display window will show "O".

15. Slide the CPU's PROGRAM SWITCH to "ON" (up) to select Program Mode.

    - Protection level display will show "P".
    - Pre-programmed numbers 01,77,80,81,82,83,86,91,95 & 97 will display.
    - Checksum beeping will cease if annunciators are attached.

    If the CPU does not power up then it may mean the backup battery is not charged to at least 6.4 volts.

    To "fool" the CPU into thinking the battery is good:

    (1) Repeat step 13.
    (2) Connect a jumper on Terminal Strip 1 from Screw 1 to Screw 5.
    (3) Repeat step 14.
    (4) Remove jumper after power up.
    (5) Repeat step 15.

    NOTE: If you have to "fool" the CPU to get it to power up, be sure the battery is charged to 6.4 volts before activating any exterior sirens or going into Level 9 (sensor test).

    The CPU completely tests the RAM each time it is powered up. If there is any problem with the RAM the LED's will lock into a neurotic light flashing mode. This indicates a defective RAM chip that must be replaced.

16. Get the Wireless Touchpad (WT) that is set to the the correct House Code.

17. Using the WT, program into the CPU memory one sensor number which will be used at the installation site. Sensor Number 34 is a good one to use since every installation will have a delayed entry door.

    Press the "STATUS" key and then immediately press "3" then "4".

    By doing this step you not only programmed sensor number 34 into the CPU's memory, but you also set the House Code of the CPU to the same House Code that the Wireless Touchpad was set to. THE FIRST USE OF A WIRELESS TOUCHPAD AFTER THE RAM IS CLEARED SETS THE HOUSE CODE OF THE CPU.

20. Watch the sensor numbers which cycle through the display window. Sensor 34 should appear along with the pre-programmed sensor numbers. If sensor number 34 does not appear repeat the above step.

21. Slide the Program Switch OFF (down) to select the Normal Operation Mode.

22. Now you must check to be sure every sensor you are about to install is going to be within range of the CPU receiver. To do this, arm the CPU to protection Level 9, Sensor Test. Take a known good transmitter, of the type you plan on installing at each location, set to the proper House Code and also set to Sensor Number "34". Test for reception FROM THE EXACT LOCATION you are going to mount the sensor. For a valid range test hold a Door/Window Sensor sensor from the battery end & be sure your body is not between the sensor and the CPU.

    In SENSOR TEST the CPU is powered from battery power only. So if the CPU goes dead when you enter the SENSOR TEST mode, then the battery is probably not connected, or, the battery fuse is blown. If this happens, connect the battery and go back to step 13.

23. Leave the CPU "ON" in protection Level 0 for the rest of the installation.

24. Don't finish programming the CPU now, wait until after you have installed all the sensors and then refer to the programming section of this manual.

WARNING - Do not store ANY excess wires behind the CPU Circuit Board as this will adversely affect the proper operation of the radio receiver.

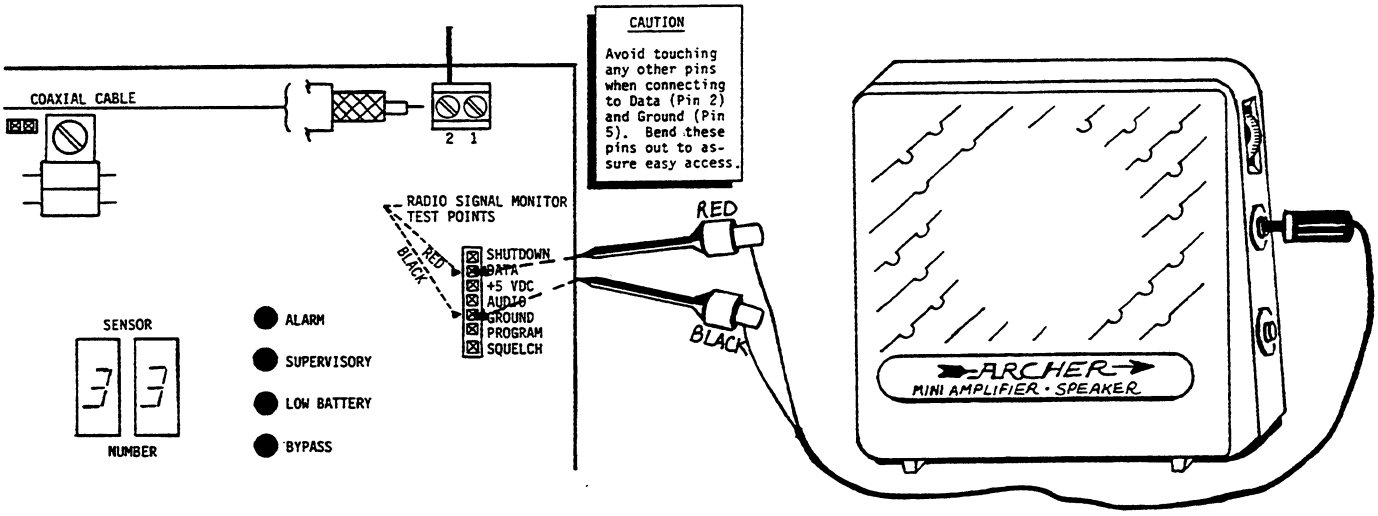
RADIO SIGNAL MONITOR

The radio signal monitor has not been
investigated by Underwriters Laboratories.

After you have completed the installation steps, you should connect your RADIO SIGNAL MONITOR to the CPU. If you don't have one, you should purchase one for every one of your installers. Purchase a Radio Shack Mini Amplifier #277-1008 (about $12.00). We will supply you with the proper leads to use to connect it to our CPU for about $7.50.

Consider purchasing a pair of walkie- talkies. Leave one in the transmit mode near the CPU, take the other with you during the entire installation. A pair of walkie- talkies from Radio Shack costs under $20.00.

Connect the Red and Black leads from your Radio Signal Monitor to your CPU as shown below. Turn on the unit and adjust the volume.



RADIO SIGNAL MONITOR CONNECTION DIAGRAM

NORMAL RESPONSES FROM THE RADIO SIGNAL MONITOR:

(1) You hear a small amount of static "crackle", which is fairly constant, when the monitor is turned on. This is normal background noise.

(2) Tripping a sensor (both opening & closing) causes a crisp, clear signal to be transmitted to the CPU. This is the normal response from a transmitter sending a violation (open door) and restore (close door) signal. Keep in mind that you ONLY know that the CPU is hearing a transmitter. You DO NOT know if the transmitter is sending the correct house code or sensor number.

(3) System in Level 9 (SENSOR TEST). Tripping a PIR (Passive Infrared Motion Sensor) or opening a door or window causes the same clear, crisp signal to be heard. In addition, you should hear a loud beep from the Interior Sirens as each sensor tests. This is the correct response.

(4) A "hum" sounds when test leads hang near the CPU circuit board. This is normal and can be minimized by keeping the test leads away from the board.

(5) When you move in front of a PIR you hear a signal, a pause, then another signal. This is the normal VIOLATION SIGNAL - PAUSE - RESTORE SIGNAL.

PROBLEM RESPONSES FROM THE RADIO SIGNAL MONITOR:

(1) A constant signal, as if a sensor were being opened & closed rapidly, is heard when the monitor is turned on. This indicates you may have a runaway transmitter that is transmitting constantly. Remove & replace sensor batteries one at a time until the signal stops to identify the runaway transmitter. Runaways are usually caused because you failed to discharge static before touching the transmitter board or because you plugged in the programming comb with the battery in place. Sometimes replacing the battery will correct the problem, other times the sensor must be replaced.

(2) No signal is heard when a sensor is activated regardless of how close the sensor is to the CPU. Check to see if a good battery is in place. If so, then either the device connected to the transmitter is not tripping it as it should, or you have a defective transmitter which should be replaced.

(3) System is in Level 9 (SENSOR TEST). You open and close door 34 and a clear, crisp signal is heard from the monitor. You check the Sensor Number Display Window to be sure number 34 has cleared as it is supposed to and you find that it is still displayed. This indicates you have cut the programming comb wrong and it is transmitting either a incorrect House Code or a incorrect Sensor Number. In Level 9 the sensor number being activated will show in the display and the 4 LED's will cycle on and off to identify which sensor is transmitting.

(4) A garbled signal, which breaks up, is weak or is incomplete, is heard when you trip a transmitter. This indicates one of many problems. Something may be obstructing the signal such as radiant heated ceilings, metal lath plaster, foil wallpaper, very large mirrors or other metal obstructions. If so, you may have to move either the transmitter or remote one of the CPU antennas to a better location. Also, try replacing the sensors programming comb. If the sensor has toggle switches, one may be making poor contact, so move each switch on & off several times & then reprogram and try again. Also verify that the transmitter is on the same frequency as the CPU.

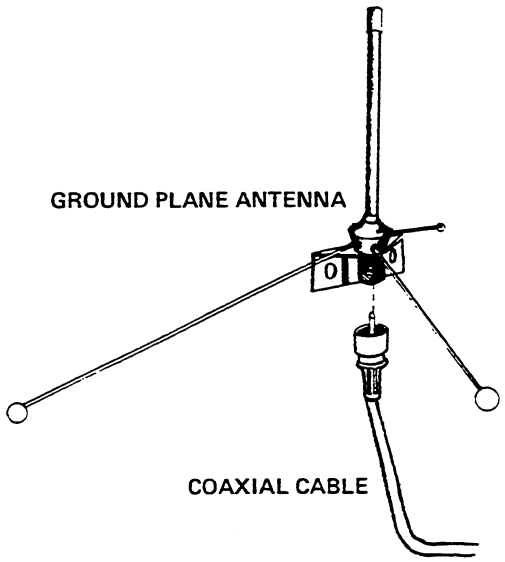
(5) When listening to the monitor, without any sensors transmitting, you hear loud interference or even voices from the monitor. This indicates a strong RF carrier is on the same frequency as your CPU. You should change to a CPU with a different frequency if this interference continues.

REMOTE ANTENNA(S) FOR THE SX-IVB SYSTEM

The Remote Antenna has not been
investigated by Underwriters Laboratories.

OVERVIEW

The SX-IVB security system offers exceptional transmitter/receiver range in its standard configuration. However, some special applications could require additional range. One example might be in a very large home or business installation. Another example would be an installation with a protected out-building at one edge of the property away from the home where the CPU is located. Some environments can have an adverse effect on transmission range. The installer should look for and avoid things such as: foil wallpaper, metal doors, large mirrors, foil faced insulation, metal duct work, pipes, wire mesh in walls, etc. To achieve the best results in some of these difficult situations, it may require that one or both of the CPU's antennas be remotely located.



DESCRIPTION

The remote antenna can be purchased from Radio Shack. Purchase part #20-176 VHF-Hi, UHF Hi/Lo Ground Plane. The antenna should be connected to the CPU using RG59U coaxial cable.

GENERAL INFORMATION

The SX-IVB is engineered to best receive RF signals with the antennas provided. A remote antenna should only be used in extreme circumstances.

A maximum of 2 antennas can be connected to the SX-IVB CPU.

Coax cable runs must be carefully planned so they are kept as short as possible. The longer the run, the shorter the reception range of the antenna. Coax runs should not exceed 50' unless absolutely necessary, and under no circumstances should exceed 100'.

LOCATING THE ANTENNA

The antenna should be mounted so that it is centrally located with respect to all transmitters it is to receive. Best reception occurs with the antenna mounted as high as possible (i.e. in an attic as opposed to in a basement). Other good locations would be above a suspended ceiling or on a chimney. You may have to experiment with the location and orientation of the antenna to achieve maximum range.

The vertical radial of the antenna must be kept a minimum of 24" from any metallic surface, unless the metal is below the ground plane. The antenna may be mounted on a pipe using clamps as long as the antenna's main radial is above the pipe.

Cable should be routed to avoid AC wiring or other sources of electromagnetic interference (such as motors or generators). If you must cross AC wiring, cross at a 90 degree angle. DO NOT RUN PARALLEL.

The antenna should be mounted so the center Radial is vertical.

CABLE/ANTENNA INTERFACE

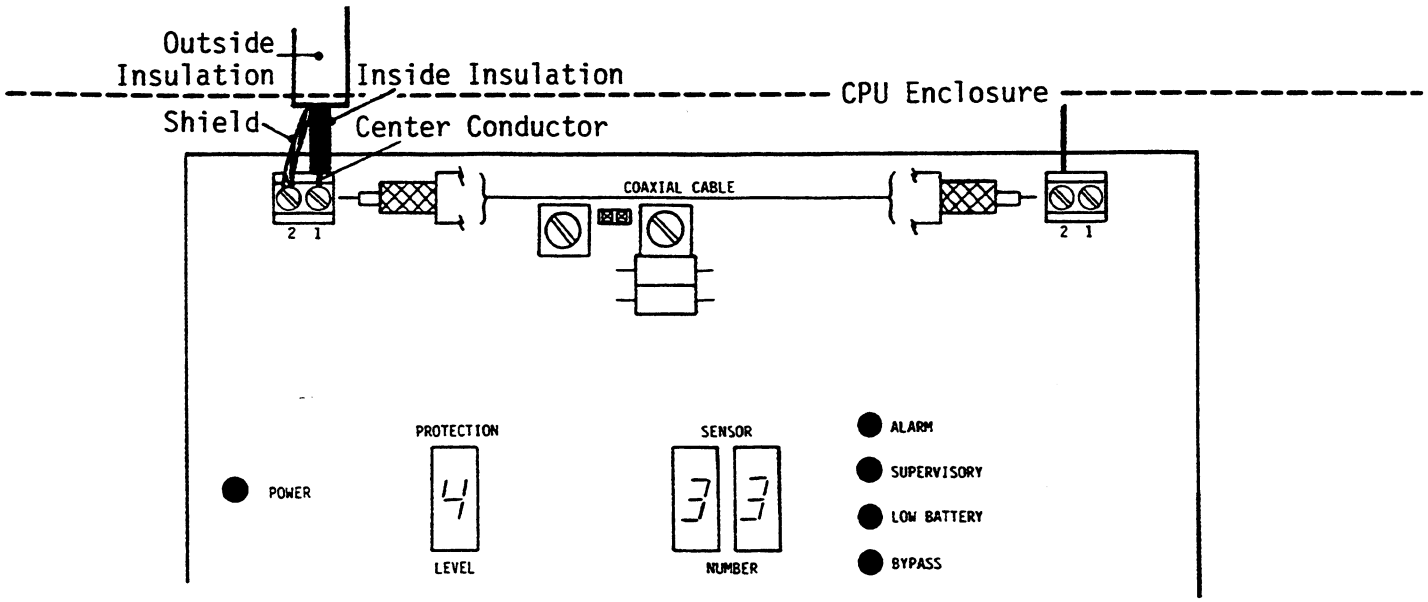
1. Cut all 4 antenna radials exactly 8" in length, replace plastic end caps.
2. Screw the coax connector onto the antenna base.
3. Mount the antenna by clamping onto any suitable structure.
4. Run the cable back to the CPU.

CABLE/CPU INTERFACE

Connect the cable to the CPU as shown in the drawing below. All connections should be made with the power OFF.

You may need to enlarge the existing antenna hole in the CPU chassis to 1/4" diameter. Remove the CPU circuit board when drilling. (Current CPU cabinets have a 1/4" knockout and won't require drilling.)

1. Unbraid the shield and twist it into a tight wire which will fit into the terminal on the CPU board.
2. Tin the shield for best results.
3. The center conductor MUST remain insulated except where attached to the CPU.
4. Snug set screws securely.
5. The center conductor goes into the terminal that the antenna is normally in.
6. There should be no loose coax left inside the CPU.



TROUBLESHOOTING

The main problem that will arise will be a shorted coaxial cable. After attaching the cable to the antenna jack, use an Ohmmeter to verify that there is no short between terminals 1 and 2. If you have continuity between terminals 1 and 2, carefully examine your coax to see that it is not damaged in any way, (i.e. staple through coax, cut or crushed). If the cable is apparently good, remove the connector from the antenna, put your meter across terminals 1 and 2 and have someone intermittently short the RF connector center conductor to the outer case. You should see continuity in an ON OFF fashion on your meter. If not, either your RF connector or coaxial cable is defective.

ITI OUTPUT MODULE
MODEL # 60-062

The Output Module has not been
investigated by Underwriters Laboratories.

The ITI Output Module is designed to make the SX-IVB a more versatile and universally compatible system. The Output Module is an optional circuit board which, when interfaced to the SX-IVB CPU, provides up to 15 output lines (2 power and 13 data) to power and trigger any external device which uses +5 VDC logic levels. This includes most digital dialers, long range RF radio transmitters, etc. The unit will fit easily in the ITI's Accessory Cabinet with plenty of room left over for other devices.

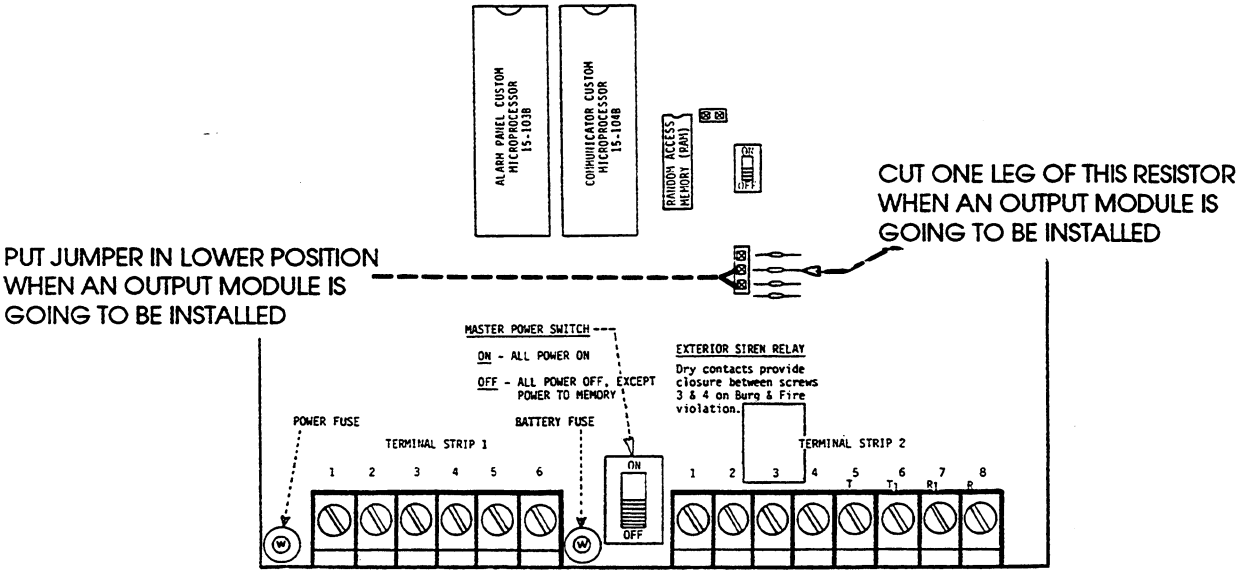
PRELIMINARY CONSIDERATIONS

1. The CPU will not operate a Hardwire Interior Siren if the Output Module is used.
2. You can use both a Hardwire Touchpad & Display and an Output Module on the same CPU. Power the Output Module directly from the CPU. Provide an auxiliary power supply for the Hardwire Touchpad & Display as shown in Figure 2.
3. The CPU must be an SX-IVB, not an older SX-IV or SX-III.
4. These functions will ***not*** trip the Output Module:

01 -	CPU TOO CLOSE	84 -	OPENING REPORT
95 -	AC POWER RESTORED	85 -	CLOSING REPORT
96 -	FAIL TO COMMUNICATE	87 -	FORCE ARMED REPORT

CPU PREPARATION

1. Optional Feature A7 must be programmed into the CPU memory.
2. The Hardwire Interior Siren Jumper must be in the bottom position.
3. The resistor indicated below must be cut.

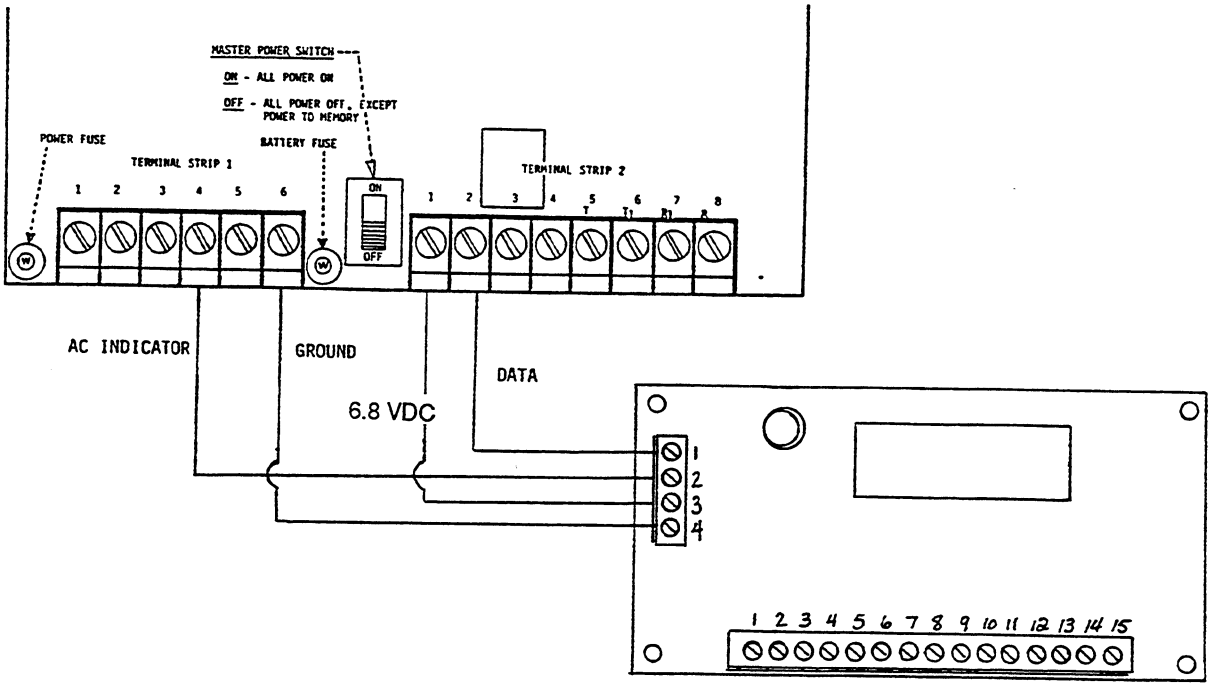


INPUTS TO MODULE FROM THE CPU

The Output Module requires four 22 gauge wire inputs from the CPU as described below:

OUTPUT MODULE 4 POSITION TERMINAL STRIP	CPU TERMINAL STRIP # AND SCREW #
Screw 1	T.S. # 2 Screw # 2
Screw 2	T.S. # 1 Screw # 4
Screw 3	T.S. # 2 Screw # 1
Screw 4	T.S. # 1 Screw # 6

Refer to the drawing below for connections.



OUTPUTS FROM MODULE TO EXTERNAL DEVICE

The Output Module provides 15 output lines for an external device. Line 1 and 2 supply ground and unregulated +6.8 VDC respectively to power the external device. Lines 3 - 15 are data lines which transmit status information from the CPU to the Output Module. Each data line is capable of pulling up a 1K ohm load to +5 VDC.

If the device being connected to the Output Module has less than 13 input lines, any number of Output Module lines can be wired together to form one input line to the device. For example, if you want all requests for the police to trip the same channel of a Long Range RF transmitter, you could group output lines 8 - 12 together. If you wanted all trouble signals to trip the same channel, you would group output lines 4, 5, 6, 7, and 15 together.

OUTPUT MODULE LINES 1 - 15 HAVE THE FOLLOWING FUNCTIONS:

OUTPUT LINE (TERMINAL)	FUNCTION	VIOLATION NO's (See Note 7)
1	Ground	- - -
2 (Note 1)	+ 6.8 Volts DC Supply - 30 ma continuous idle	- - -
3	Phone Test and Weekly Test	83, 93
4	Low Battery on sensor or wireless touchpad	all low batteries
5	Supervisory on a sensor	all supervisories
6 (Note 2)	Communication failure between Output Module & CPU	- - -
7 (Note 3)	Low CPU Backup Battery	91
8	Alarm: Special Intrusion	30 - 33
9	Alarm: Interior Intrusion	60 - 76
10	Alarm: Exterior Intrusion	34 - 57
11 (Note 4)	Alarm: Silent Panic and Duress	04, 05, 07, 86
12	Alarm: Audible Panic	02, 03, 06, 81
13	Alarm: Fire	20 - 27, 80
14 (Note 5)	Alarm: Medical and Environmental	10 - 17, 82
15 (Note 6)	AC Power Failure	90

OPERATIONAL DESCRIPTION

When the CPU has anything to report, the module will detect the condition(s) and pull high (+5 VDC) the appropriate output module line. The line will stay high until the CPU protection level is changed. When the CPU protection level is changed, all lines which were high will go low with the exception of Line 11 (see Note 3). If the CPU loses AC power, the Output Module will continue to operate until the system shuts itself down due to low battery. The output module will remove power from Line 2 (6.8 VDC) during system shutdown to conserve power.

NOTE 1 - If the 6.8 VDC output from the MODULE (terminal 2 of the 15 position Terminal Strip) is to be used as the power source for an external device (digital dialer, long range transmitter, etc.) the external device must not draw more than **30 ma** of continuous current in its standby (non-active) mode. If stand by current requirements are greater than 30 ma continuous, a separate power supply of the proper voltage and current capabilities must be used. **Be sure to connect ground on the Output Module (terminal 1 of the 15 position terminal strip) to ground on the external device if using a separate power supply.**

NOTE 2 - If data received by the output module from the CPU is sent incorrectly, the module will detect a communication failure and pull Line 6 high.

NOTE 3- If the CPU has a low backup battery, the output of Line 7 will be pulled high. Sensor #91 (low CPU backup battery) must be initialized in the CPU to enable this output line.

NOTE 4 - If a Duress Code (#86 Violation) or a silent panic button is activated, Line 11 will be pulled high. Line 11 will remain high for 30 seconds (it cannot be cancelled) and then go low. **Output line 11 will not work again *(and thus Duress and Silent Panic will not work again)* until an automatic Weekly Test (Violation #93) or a Phone Test (Level 8, Violation #83) has been completed.** The decoding method used by the Output Module software requires special provisions so that the Duress condition can be detected. These special provisions require the additional step of activating an 83 Phone Test or 93 Weekly Test in order to have the duress feature become operational again.

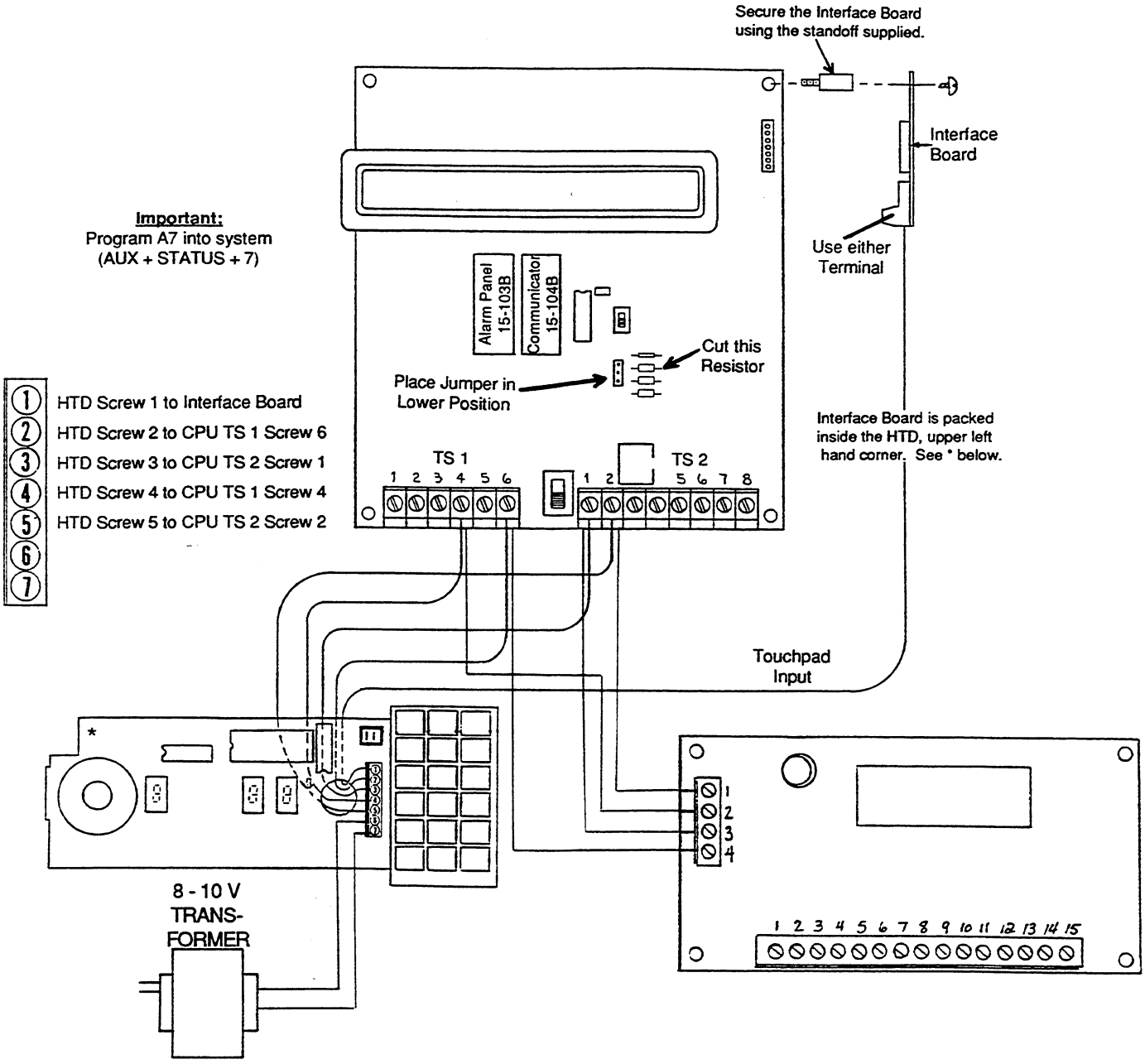
WARNING: BE SURE TO ISSUE A SERVICE TICKET TO RUN, OR HAVE THE SUBSCRIBER RUN AN 83 PHONE TEST AFTER RECEIPT OF ANY DURESS OR SILENT PANIC SIGNALS. FAILURE TO DO SO WILL LEAVE YOUR SUBSCRIBER WITHOUT DURESS CODE AND SILENT PANIC PROTECTION.

NOTE 5 - There is no way to get separate outputs for Medical (Sensors 10 and 11) and Auxiliary (Sensors 12 - 17).

NOTE 6 - If AC power to the CPU fails, Line 15 will be pulled high after the power has been out for 15 minutes. AC power failure (#90) must be initialized in the CPU to enable this output line.

NOTE 7 - You can use the Central Station GROUP COMMAND and add additional sensors to each category. For example, if you want more than four sensors to be SPECIAL INTRUSION (30 - 33) these additional sensors would also cause Output Module Line 8 to trip after you use the GROUP COMMAND to make them part of the same group as 30 - 33. The CPU must be interactive with an ITI Central Station to make these changes.

THE ILLUSTRATION BELOW SHOWS HOW TO CONNECT BOTH AN OUTPUT MODULE AND A HARDWIRE TOUCHPAD AND DISPLAY TO A SX-IVB CPU:



HARDWIRE INPUT MODULE (HIM)
Model 60-121

The Hardwire Input Module has not been investigated by Underwriters Laboratories.

Hardwire Input Modules added to an SX-IVB CPU gives you the ability to incorporate groups of 8 normally open or normally closed hardwire zones into the system. You may use as many modules as you wish, up to the 61 maximum zones of the SX-IVB. The hardwire zones will work exactly the same as the wireless zones.

PRELIMINARY CONSIDERATIONS

1. **SX-IVB ONLY** - The "HIM" will work only with an SX-IVB CPU, not an SX-IV.

2. **POWER LIMITATIONS** - Up to 8 modules (61 hardwire zones total) can be attached to an SX-IVB when used in conjunction with **one** Hardwire Touchpad and Display (HTD). Only one can be attached if **two** HTDs are used.

3. **WIRELESS/HARDWIRE LIMITATIONS** -

   All Hardwire - If all zones are going to be hardwire any number of HIMs can be used, up to a total of 61 hardwire zones.
   All Hardwire with Wireless Panics - Any number of HIMs can be used when combined with any number of ITIs wireless Handheld Panic Buttons.
   Combination Hardwire and Wireless - If some zones are going to be wireless (other than hand held panics) then only **one** HIM should be used.

4. **HARDWIRE SIREN LIMITATION** - The ITI Hardwire Interior Siren cannot be used if the "HIM" is added to a system. Interior status sounds will sound from Hardwire Touchpad and Displays or Wireless Sirens. Full volume alarm sounds will sound from the Hardwire Touchpad and Displays, Wireless Sirens and from any sirens connected to the Exterior Siren Relay, whether mounted inside or out.

5. This module requires a 4 conductor wire cable back to the CPU. For runs of 1 to 50 feet you can use 22 gauge wire. For runs greater than 50 feet, use 20 gauge or greater stranded jacketed cable. In some instances you may have to use shielded cable with long runs.

6. The HIM sends supervisory signals to the CPU just like any RF sensor. The CPU looks at these signals the same as if they were wireless zones.

7. All the group number and letter code assignments of the SX-IVB sensor numbers apply to the hardwire zones also. The interactive capabilities are the same.

SX-IVB INSTALLATION INSTRUCTIONS

SX-IVB INSTRUCTIONS:

1. Put the Hardwire Interior Siren jumper on the SX-IVB circuit board in the lower position.

2. Cut and lift one leg of the resistor as indicated.

3. Program optional feature "A-7" into the CPU memory. In program mode push: AUX+STATUS+7.

PROGRAMMING A HARDWIRE INPUT MODULE

1. **HOUSE CODE** – Set the House Code Switch to correspond to the housecode of the CPU:

HOUSE CODE	SWITCH 1	SWITCH 2
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

2. **CPU TYPE** - Set the CPU Type switch to the **lower position** for an SX-IVB CPU.

3. **SET ZONES TO NO or NC** – You program whether each group of four zones will be normally closed or normally open by setting **Dip Switch #1** on each of the two 8 position dip switches to on or off, where **ON = Normally Open** and **OFF = Normally Closed.**

4. Switch 2 of each set of 8 switches is not used.

5. **PROGRAMMING ZONE NUMBERS** – You can use any zone number (sensor number) 02 through 76. Pick your zone (sensor) numbers according to the function of the particular hardwire zone. Is is 24 hour? Instant exterior? Fire? (See the SX-IVB Installation Manual.)

   You need to program only the first zone (sensor) number of each group of four. The other 3 zones will automatically be programmed in ascending order following the first zone number. For example, program the first zone of Group One to #40, zones 2, 3 & 4 will be 41, 42 and 43 respectively.

   You can split groups. For example, if you program a group to be sensors 56, 57, 60, and 61 then 56 and 57 will be exterior instant intrusion zones and 60 and 61 will be interior intrusion zones.

6. **UNUSED ZONES** - If you use any zones in a group, all four are taken. For example, if you need only two normally closed hardwire zones you must install a jumper on the other two. In addition, you can not use any of the four zones selected for wireless sensors, even if you just jumpered out the hardwire zones and are not actually using them.

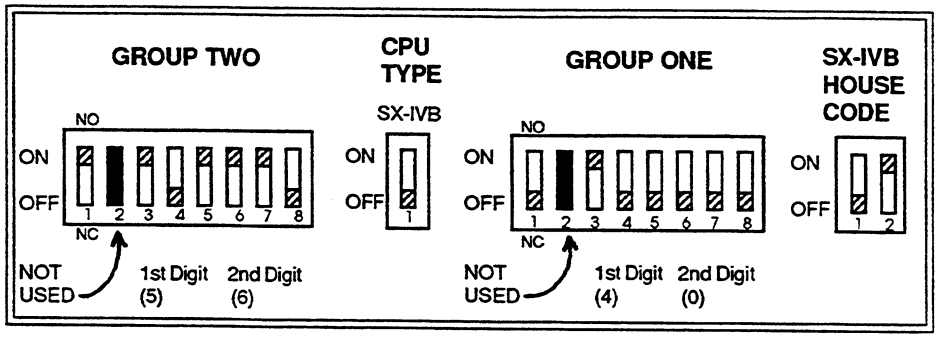
7. **UNUSED GROUPS** - Set all 8 switches of an unused group to OFF & the group will be ignored.

EXAMPLE SHOWS:

HOUSE CODE – 01
CPU TYPE – SX-IVB

GROUP 1 – Normally Closed
ZONE 1 – 40 ZONE 2 – 41
ZONE 3 – 42 ZONE 4 – 43

GROUP 2 – Normally Open
ZONE 1 – 56 ZONE 2 – 57
ZONE 3 – 60 ZONE 4 – 61



CONNECTING A HARDWIRE INPUT MODULE TO A SX-IVB CPU

1. Connect the HIMs to the SX-IVB as shown in the diagram on the following page.

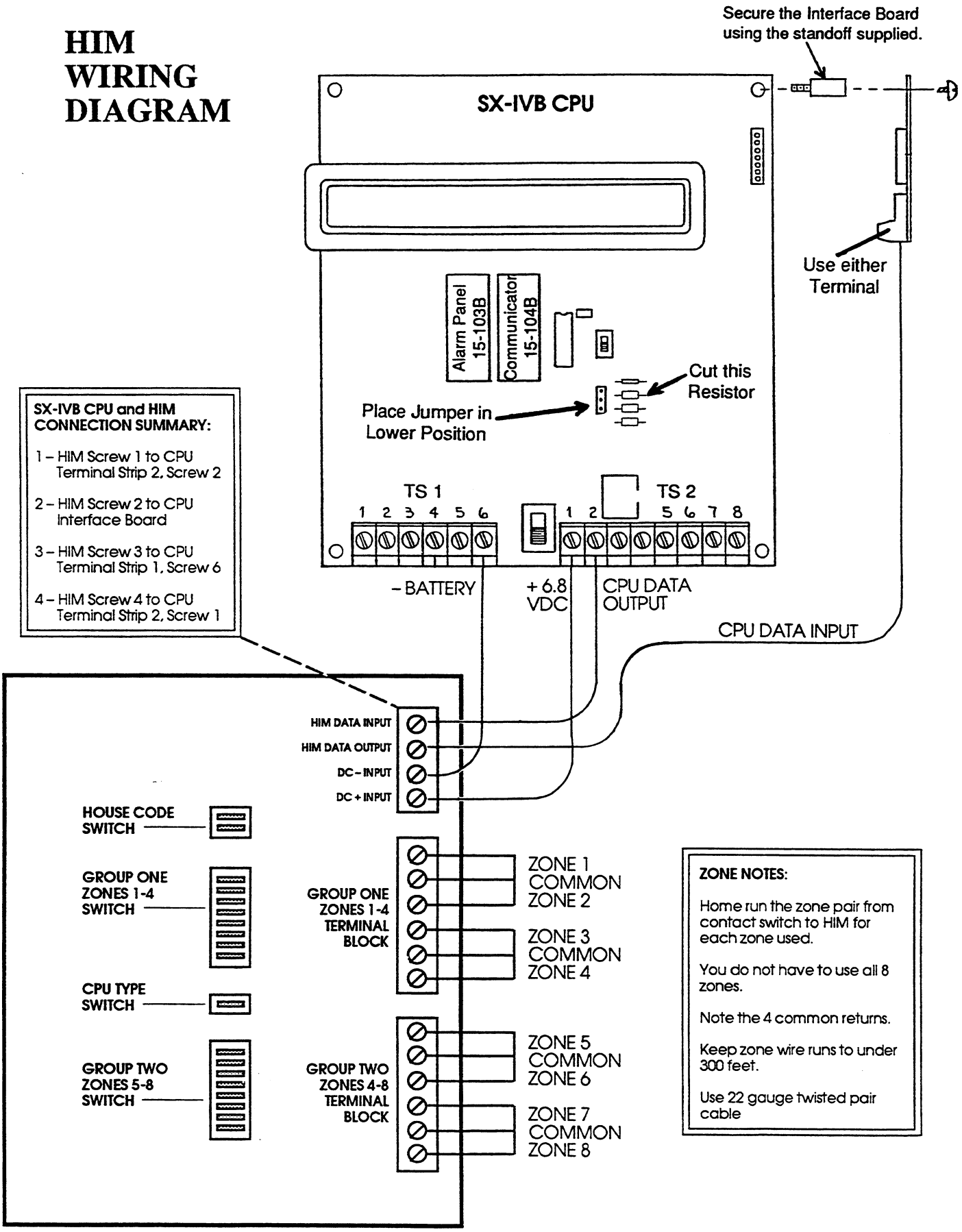
2. If you are using more than one HIM, wire them in parallel back to either the CPU or to another HIM.

3. ITI Output Modules and Hardwire Touchpad Displays also connect in parallel with the HIMs.

TESTING YOUR WORK

To test your work, use Level 9 Sensor Test as you would in checking your wireless zones.

HIM WIRING DIAGRAM



SPECIAL NOTES FOR FOREIGN INSTALLATIONS

In many foreign countries, the SX-IVB will be powered by ITIs 115V/230V Switchable Power Supply instead or our regular power transformer. If you are using this power supply then the following special considerations apply to your installation.

1. The 115V/230V Switchable Power Supply does not have ITI's line carrier ability built-in. Thus, our wireless line carrier sirens will not work with your installations.

2. Your power supply can support more equipment than our regular power transformer. Because of this you can install 8 HIMs along with **two** Hardwire Touchpad and Display units (and an Output Module for tripping long range wireless if needed).

SPECIAL NOTES FOR THE SX-V

NO MORE LIMITATIONS!

The Hardwire Input Modules will also work on an SX-V CPU when it is introduced. With an SX-V the capabilities of the Hardwire Input Module will expand even further.

1. **NO POWER LIMITATIONS** - You will not be limited to using only one HIM when wired in combination with more than one Hardwire Touchpad and Display unit on an SX-V. When the SX-V is introduced we will also be introducing a new Hardwire Touchpad & Display unit that consumes much less power. Also, you can install two backup batteries in an SX-V if you wish, for double backup power during power failures.

2. **NO WIRELESS/HARDWIRE LIMITATIONS** - With an SX-V you will have a total of 61 programmable zones as you do with the SX-IV. There will be no limitations on how many of these zones can be hardwire or wireless. Thus, you will be able to install any number of wireless sensors and any number of hardwire zones, as long as you don't exceed the limit of 61 in total.

3. **NO HARDWIRE SIREN LIMITATION** - You will be able to connect ITI's Hardwire Interior Sirens **and** our Hardwire Touchpad Display units **and** our Hardwire Input Modules to an SX-V.

HARDWIRE TOUCHPAD AND DISPLAY
Model # 60-090

The ITI Hardwire Touchpad, Display and Siren module has not been investigated by Underwriters Laboratories.

The Hardwire Touchpad and Display offers you three products in one unit. The **Display** duplicates the visual indications on the CPU; it also contains an **annunciator** capable of making both low volume status sounds and full volume alarm sounds. Finally, it allows you to arm and disarm the system via its built-in full featured **touchpad.**

PRELIMINARY CONSIDERATIONS

1. The HTD will only work with an SX-IVB. If you wish to wire a HTD to an SX-IV, then you must upgrade the SX-IV to an SX-IVB first. See Tech-Note 85-03.

2. Only one HTD can be powered directly by a CPU because of power consumption. For applications requiring more than one HTD, separate power supplies must be provided as shown in Figure 2.

3. The ITI Hardwire Interior Siren cannot be used if the HTD is used.

4. The unit requires a 5 conductor wire connection. For lengths from 1 foot to 15 feet, use 22 gauge; for lengths from 16 feet to 50 feet, use 20 gauge or greater stranded, twisted cable.

INSTALLATION INSTRUCTIONS

1. Put the Hardwire Interior Siren jumper on the CPU board in lower position.

2. Cut and lift one leg of the resistor as indicated.

3. Program optional feature "A-7" into the CPU memory (In Program Mode push: AUX+STATUS+7).

4. Connect the HTD as shown in Figure 1.

ANNUNCIATOR SOUND OPTIONS

The HTD has a jumper which selects the sounds that the unit makes.

Alarms and Status - Remove jumper for normal operation. The HTD will make all sounds.

Alarms Only - Leave jumper in place. No status beeps, doesn't wake children.

HOUSE CODE SWITCH

Set the switches to correspond to the house code of the CPU.

House Code	SW 1	SW 2
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

HARDWIRE TOUCHPAD AND DISPLAY WIRING DIAGRAM

FIGURE 1:

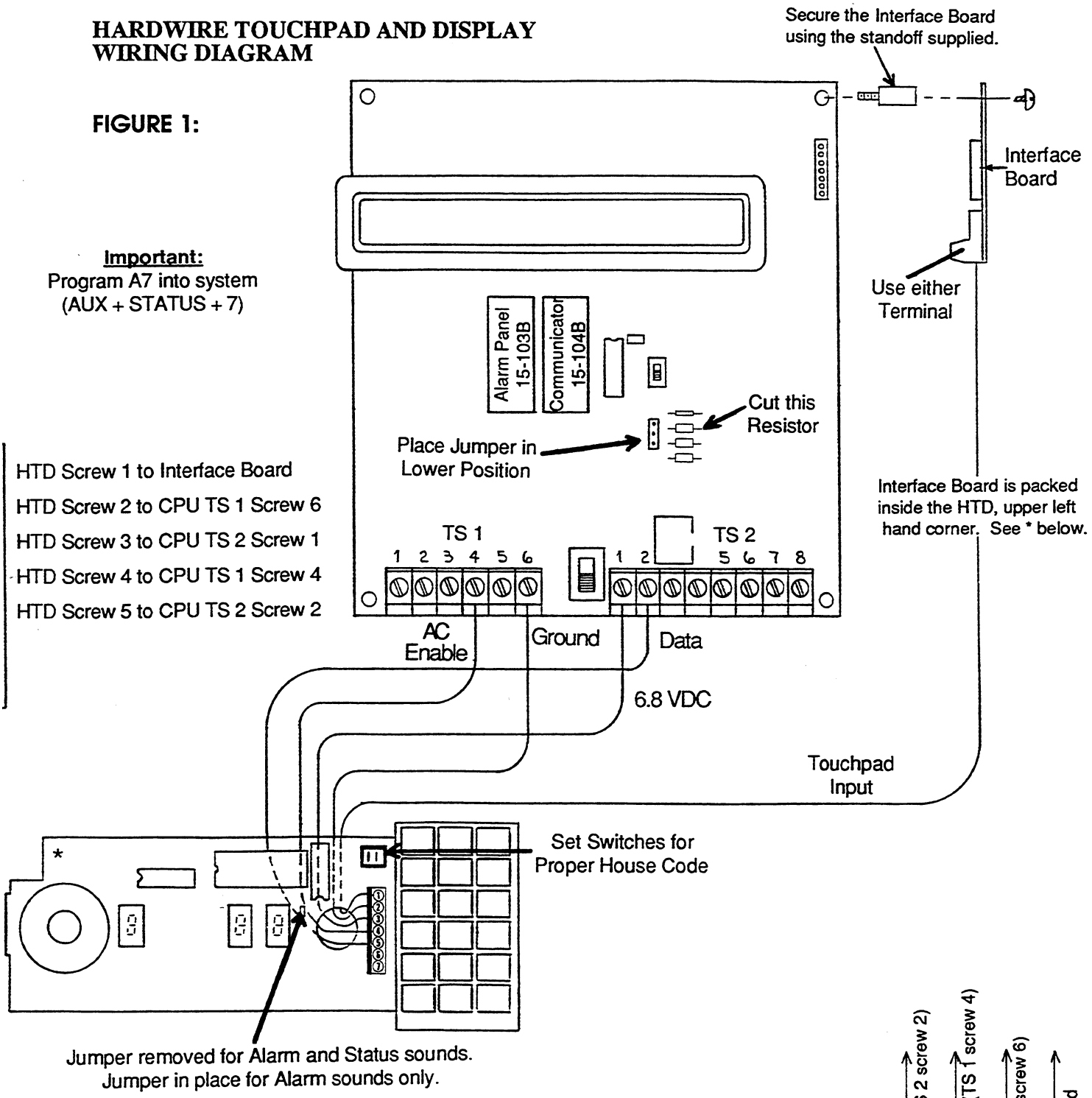
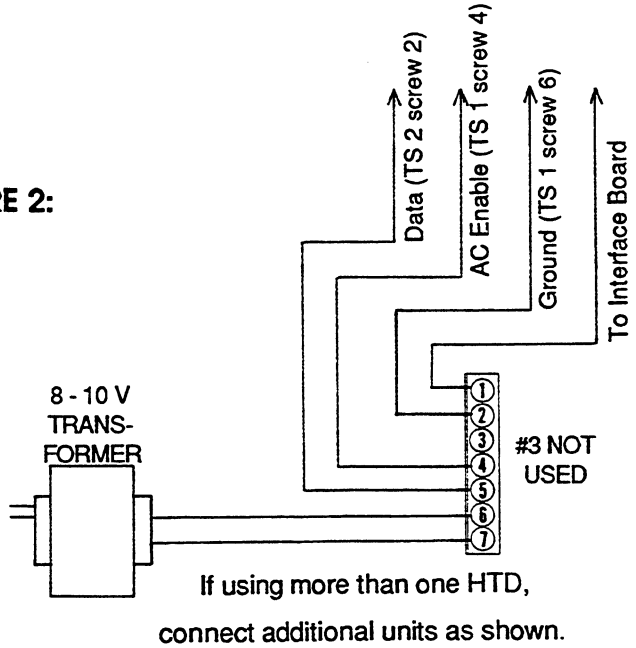


FIGURE 2:



SIRENS

Both alarm siren sounds and status "beeps" can be made to sound throughout the installation site by installing sirens and status annunciators. There are several types of sirens and annunciators available, all are discussed on the pages that follow.

HARDWIRE EXTERIOR SIREN

The Adcor Electronics Model SD-7 Siren Driver and
the Moose Products MPI-30 Speakers have been
investigated and approved by Underwriters Laboratories
for use with the SX-IVB Central Processing Unit.

A siren must be hardwired to the CPU. Only full volume sounds (police and fire emergency or Level 9 sensor beeps) will be heard from exterior sirens. The Current draw of the siren driver speaker combination must not exceed 500mA.

For U.L. installations use the Adcor Electronics Model SD-7 siren driver and the Moose MPI-30 speaker as the siren. Siren timeout is preset to 5 minutes and must be left there for UL systems.

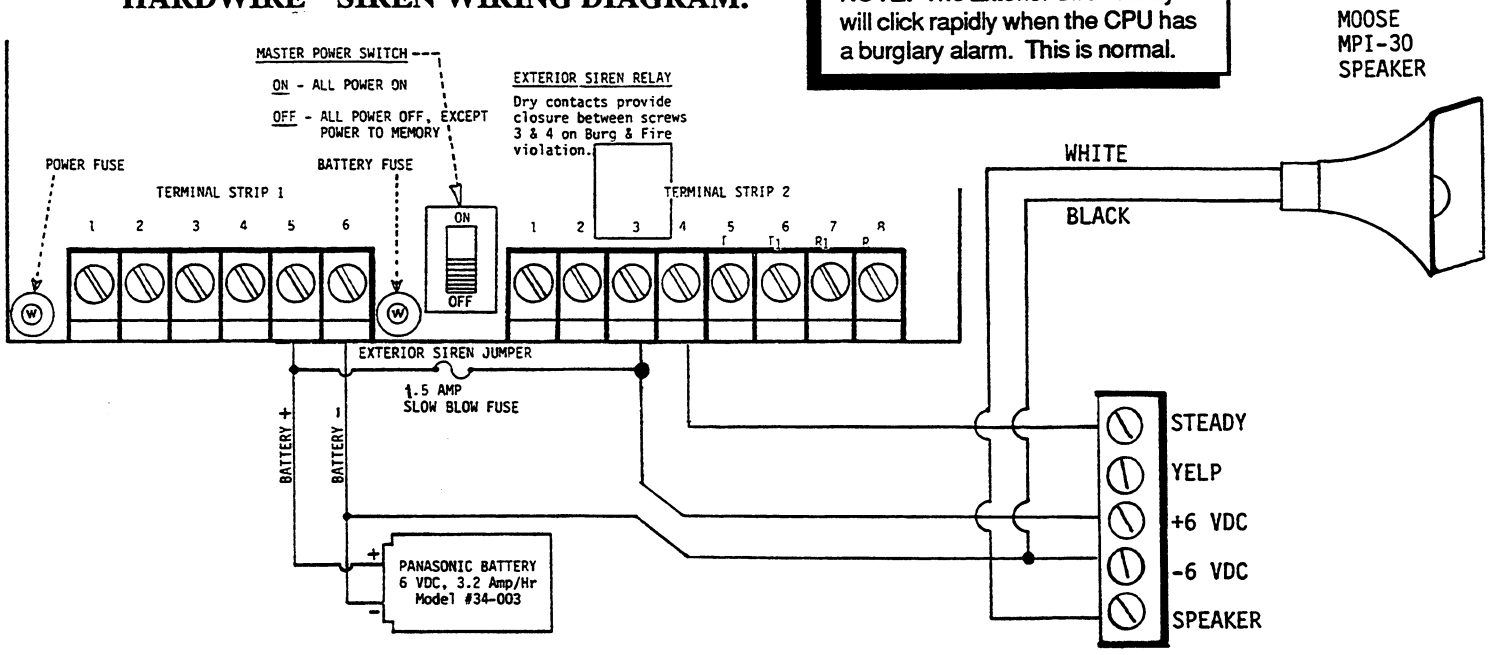
HARDWIRE EXTERIOR SIREN CONNECTIONS

WARNING: Be sure you fully understand the wiring connections below. If in doubt, call ITI customer service for assistance. Failure to follow instructions may result in blown fuses and/or may permanently damage the CPU circuit board or your siren.

1. To provide DC power to the exterior siren relay, connect a jumper from Terminal Strip 1, Screw 5 to Terminal Strip 2, Screw 3. This jumper must have a 1/2 amp slow blow fuse in series.
2. Connect Terminal Strip 2, Screw 4 to steady on the siren or driver.
3. Connect Terminal Strip 1, Screw 6 to -6 volts on your driver.
4. Connect Terminal Strip 2, Screw 3 to +6 volts on your driver.
5. *CAUTION:* Do <u>not</u> store any excess siren wires behind the CPU circuit board.

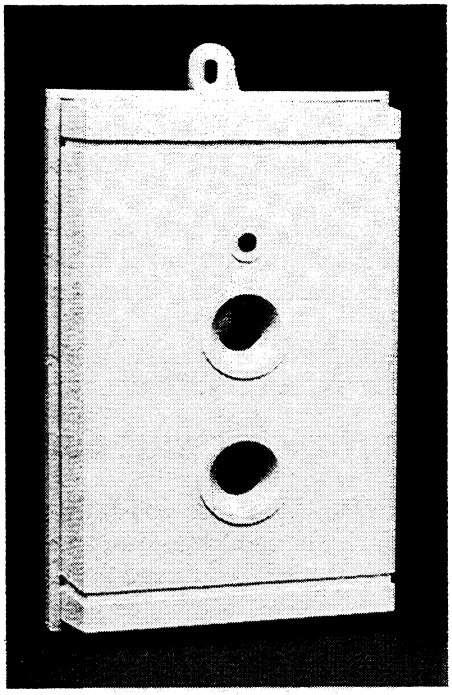
HARDWIRE SIREN WIRING DIAGRAM:

NOTE: The Exterior Siren Relay will click rapidly when the CPU has a burglary alarm. This is normal.



WIRELESS INTERIOR SIREN (WIS)
Plastic Enclosure - MODEL #60-091

The ITI Wireless Interior Siren has not been investigated by Underwriters Laboratories.



OVERVIEW

The Wireless Interior Siren (WIS) is used as a siren/annunciator in areas of the house where the CPU's siren and status sounds need to be heard. Any number can be installed and no wiring to the CPU is required. They are simply plugged into a live, NON-SWITCHED, 110V AC wall outlet. The WIS receives its signals from the CPU over the AC power line in the house. The WIS will not work during a power failure, however, any hardwired sirens will work.

PROGRAMMING THE WIS

Programming the WIS is similar to programming other devices except that there are more options to consider. WIS programming requirements are:

- Setting the proper CARRIER CURRENT CHANNEL
- Setting the proper HOUSE CODE

UNDERSTANDING HOUSE CODE AND CARRIER CURRENT CHANNEL

The HOUSE CODE (HC) applies to all equipment in the installation, including the CPU, transmitters and the Wireless Interior Sirens. The HOUSE CODE must be identical on all components in order to work properly. The CARRIER CURRENT CHANNEL (CCC) is used only by the CPU and the Wireless Interior Sirens. Both must be programmed with the same CARRIER CURRENT CHANNEL and the same HOUSE CODE.

The CPU powers up with a CARRIER CURRENT CHANNEL of "0". It can be changed to 1, 2 or 3. The HOUSE CODE can also be set to 0, 1, 2 or 3. Together that makes 16 combinations. Typically, with the CCC preset to "0" you will set your CCC and HC to 00, 01, 02 or 03, where the first digit is the CCC and the second digit is the HC.

If you install more than four systems in close proximity to each other, then it will be necessary to use a CCC other than "0".

SETTING THE CARRIER CURRENT CHANNEL & HOUSE CODE

To program the WIS, it is necessary to push down, then slide the cover open where indicated. This will expose the programming switch block.

Switches 1 and 2 are used to program the HOUSE CODE. Switches 3 and 4 are used to program the CARRIER CURRENT CHANNEL. Switches 5-8 are not used.

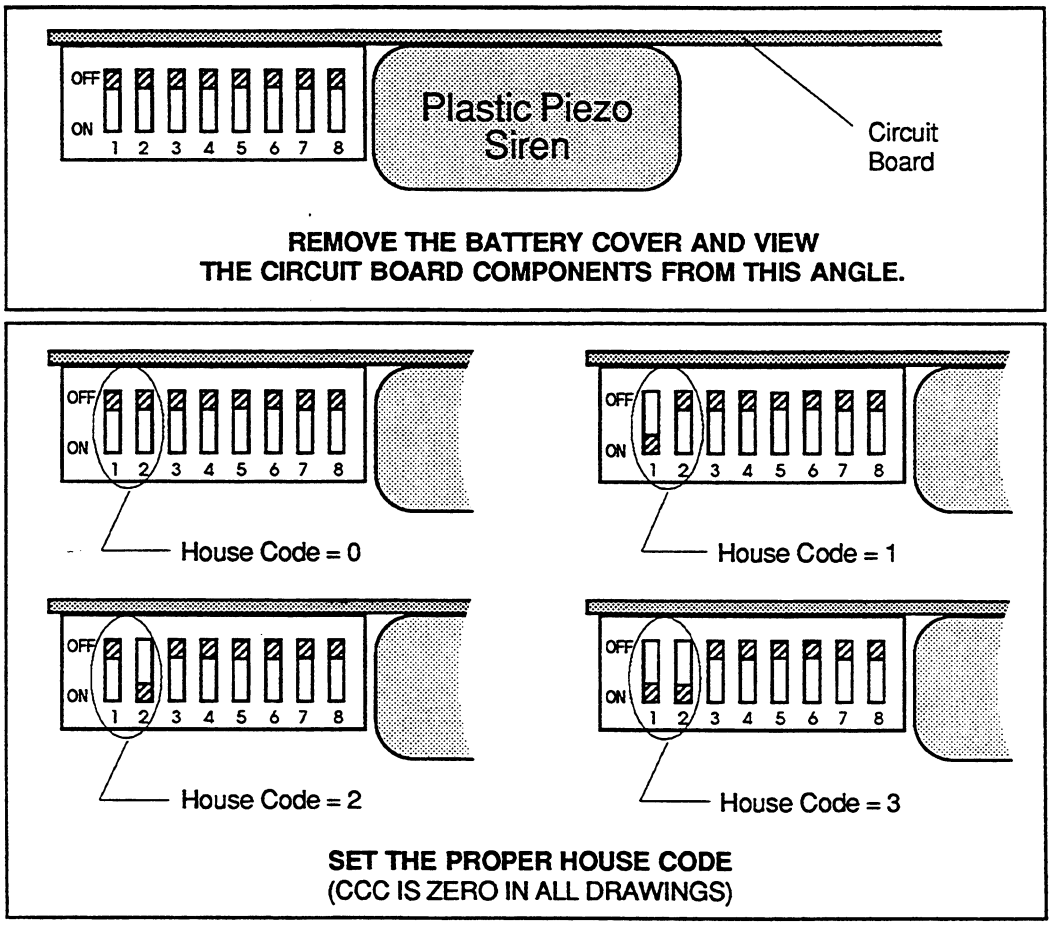
WARNING - NEVER OPEN THE "WIS" WHILE PLUGGED IN, A SERIOUS INJURY OR DEATH FROM ELECTRICAL SHOCK COULD RESULT.

You will be setting the HOUSE CODE - CARRIER CURRENT CHANNEL using switches 1 - 4. The switch number appears on the switch cover. The ON position for a switch is when it is positioned away from the circuit board. The OFF position is when it is positioned closest to the board.

To set the **HOUSE CODE** you must set switches 1 and 2 as follows:

HOUSE CODE	SWITCH 1	SWITCH 2
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

Refer to the drawings below when setting the House Code.



SELECTING THE CARRIER CURRENT CHANNEL.

The CCC is preset to "0" in all WIS's and in all CPU's. Unless you already have four systems in close proximity and thus you have already used all four House Codes there is no reason to change the CCC.

If you must change the CCC then set it as follows:

CCC	SWITCH 3	SWITCH 4
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

Unless you specified otherwise, the system you are installing will have a CCC of "0", so both switches would be set to OFF.

If you change the CCC to other than "0" in your WIS then you must also reprogram the Central Processing Unit to the same CCC. See PROGRAMMING THE SX-IVB.

INSTALLING A WIRELESS INTERIOR SIREN

Installation is very simple. Simply plug the WIS in to a non-switched electrical outlet.

Be sure to secure the WIS to the outlet with the center outlet screw so it can not be accidentally unplugged.

WIS INTERFERENCE & PHASING PROBLEMS

In a small percentage of the installations in which you attempt to install a Wireless Interior Siren you may experience problems.

Signal Blocking - Occasionally appliances (especially TVs) can act as a filter and will block signals being sent to a WIS. If you experience signal blocking, either use a different circuit than the TV or be sure the WIS is on the near side of the circuit in relation to the CPU and the TV is beyond the WIS.

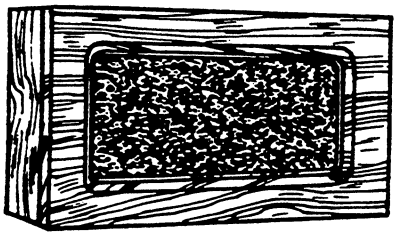
Phasing Problems - AC power coming into a house is usually broken into two different 110-volt lines, with each line serving different areas of the house. These different lines are referred to as different line phases. Sometimes, when a CPU is plugged into one phase and a WIS into another, signals will not get through properly.

To overcome a phasing problem, you can move the WIS to an outlet that is in phase with the CPU (or move the CPU to an outlet in phase with the WIS). If this is not possible, then switch to a Hardwire Interior Siren or a Phone Jack Siren.

Interference - Our WIS uses line carrier technology for signaling. Under severe circumstances, radio frequency interference, AC power spikes and other "noise" on an AC power line can cause any line carrier device to operate erratically or intermittently. If you experience problems try installing the WIS on a different electrical circuit. If that does not help install a Hardwire Interior Siren or Phone Jack Siren in place of the Wireless Interior Siren.

ITI HARDWIRE INTERIOR SIREN
Model # 60-045

The ITI Hardwire Interior Siren has not been investigated by Underwriters Laboratories.



A Hardwire Interior Siren (HIS) (Status Annunciator) is also available from ITI. This siren is connected to the CPU via 2 conductor wire. A maximum of three can be added. Standby power is provided by the CPU.

HARDWIRE INTERIOR SIREN

There is a jumper on the CPU board that determines which sounds the HIS will produce. With the jumper in the upper position (on the top two pins), the HIS will produce ONLY the emergency sounds. You would use the upper position if a HIS was, for example, placed in a child's bedroom where emergency sounds were wanted, but status sounds were not wanted. With the jumper in the lower position (on the bottom two pins), the HIS will produce emergency sounds and the various status beeps.

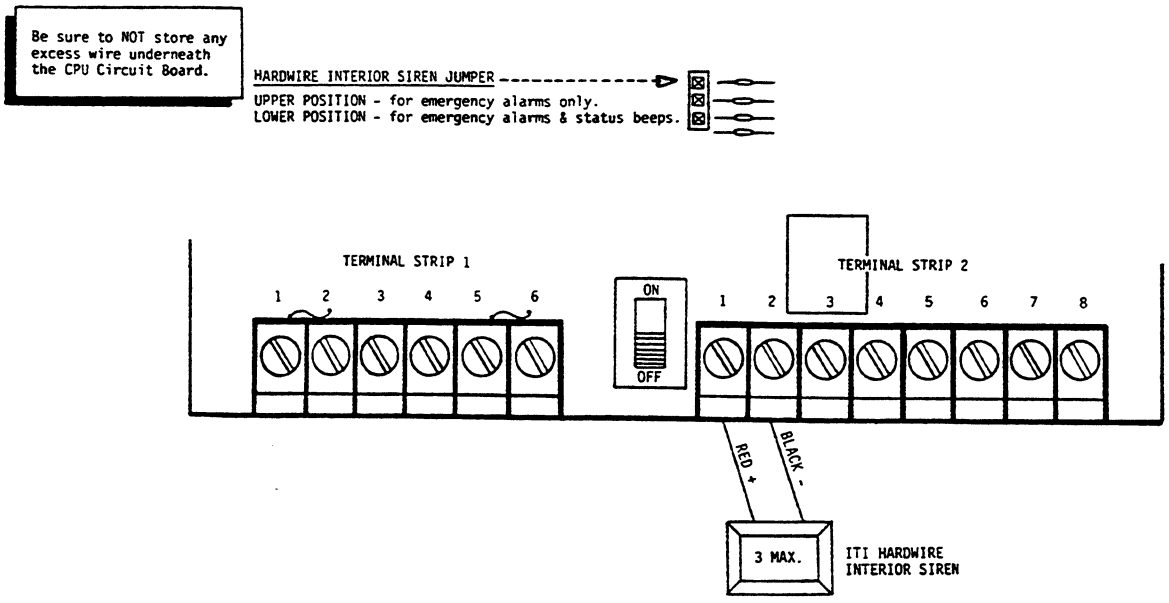
HARDWIRE INTERIOR SIREN CONNECTIONS

- Connect RED LEAD on the HIS to SCREW 1 on TERMINAL STRIP 2 of the CPU.
- Connect BLACK LEAD on the HIS to SCREW 2 on TERMINAL STRIP 2 of the CPU.
- **WARNING - Do not store any excess siren wires behind the circuit board.**

SPECIAL NOTE

In 1987 we will be introducing a new Wireless Siren that has its own backup battery so that it will work during power outages. Our current wireless sirens will not operate during a power failure. Thus, for the time being, the advantage of having at least one Hardwire Interior Siren is that these units will be powered by the CPUs backup battery during a power failure. At a minimum, in an area where power failures rarely occur, you should connect a sona-alert (piezo or buzzer) to the CPU so your customer will still have status and alarm sounds during a power failure. Any sona-alert that will work on 6V DC can be connected to the the Hardwire Interior Siren terminals.

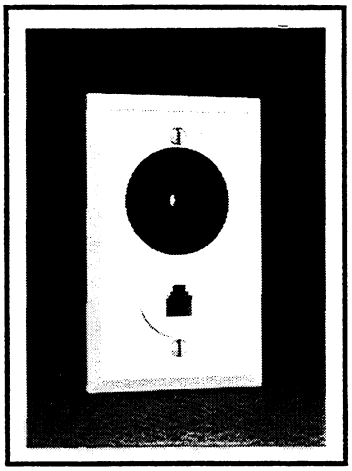
ITI HARDWIRE INTERIOR SIREN WIRING DIAGRAM:



PHONE JACK SIREN (PJS)
Model # 60-108

The Phone Jack Siren has <u>not</u> been
investigated by Underwriters Laboratories.

ITI's Phone Jack Siren can be used with any alarm system, either hardwired or wireless, that supplies either a 6 or 12 volt DC output during an alarm. Its concept is simple; you install the PJS in place of existing modular phone jacks located throughout a typical home. You then reconnect the phone wires to the phone jack built into the PJS and you connect an extra pair of unused phone wires to the siren terminals on the PJS and route them back to your control panel. The PJS can be recessed mounted if a box is already in place, or the back box which is sent with each unit can be used for surface mounting.



With ITI's Phone Jack Siren you have all the advantages of a hardwire siren, with very little labor, since you make use of wiring that is already in place. ***NOTE:*** *You can not connect a PJS to a SX-IVB control if an Output Module or a Hardwire Touchpad Display is being used.*

INSTALLATION INSTRUCTIONS

1. Remove an existing RJ11C telephone jack from the wall. Check to be sure there are extra wires run to this jack that are not used. Also note which two wires (typically red for Ring and green for Tip) are connected to the existing jack.

2. Disconnect Tip and Ring from the existing jack and connect them to the appropriate Tip and Ring screw terminals on the back of ITI's PJS. See Figure 1.

3. Connect the two formerly unused wires (typically black & yellow) to the PJS as noted in Figure 1. *You must observe polarity.*

   These two wires (black and yellow) should now run all the way back and end somewhere near the surge protector where the incoming phone lines enter the home from the telephone pole. Ultimately, they will be connected to the siren voltage output of the control panel.

HOW TO CONNECT THE PHONE JACK SIREN TO A CONTROL PANEL:

OPTION ONE:

One option is to connect the yellow and black wires from the PJS (that now terminate near the surge protector) to a two conductor wire that you run back to the control panel siren voltage outputs.

To connect a PJS to an ITI SX-IVB control:

(1) Connect the yellow wire (PJS +) to screw #1 on terminal strip #2 in the SX-IV (TS-2 #1).

(2) Connect the black wire (PJS -) to screw 2 on terminal strip #2 in the SX-IV (TS-2 #2).

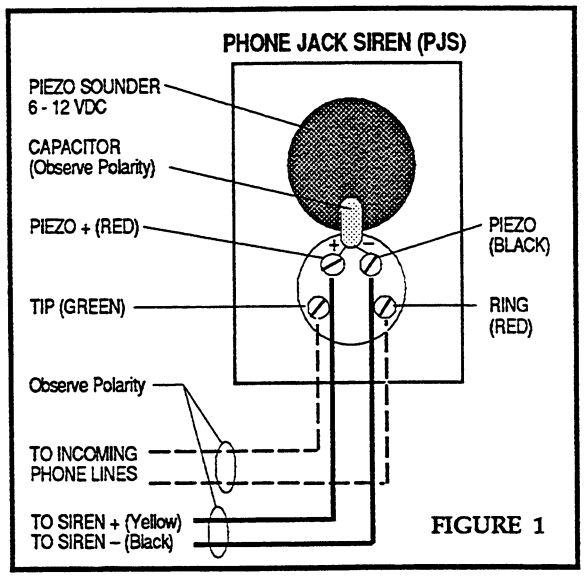


FIGURE 1

HOW TO CONNECT THE SIREN WIRES TO THE CONTROL PANEL:

OPTION TWO:

As an alternative to running a separate two conductor cable from the CPU to the wires coming from the PJS you can use the RJ31X cord. (1) Instead of running a four conductor RJ31X cord from the CPU to the RJ31X Jack, use a 6 or 8 conductor cord. Two extra conductors are used to bring siren power from the CPU to the RJ31X Jack. (2) Then, instead of wiring the RJ31X Jack to the incoming phone lines using a four conductor cable, use six conductor cable. (3) Connect the two extra wires to the wires that are coming from each of the PJS's that you have installed in the home or business.

If you choose this wiring method and you are using an ITI SX-IVB control panel, first review Figure 2, which shows the standard wiring of a RJ31X jack, and then Figure 3 which shows shows the standard wiring plus connections for the PJS.

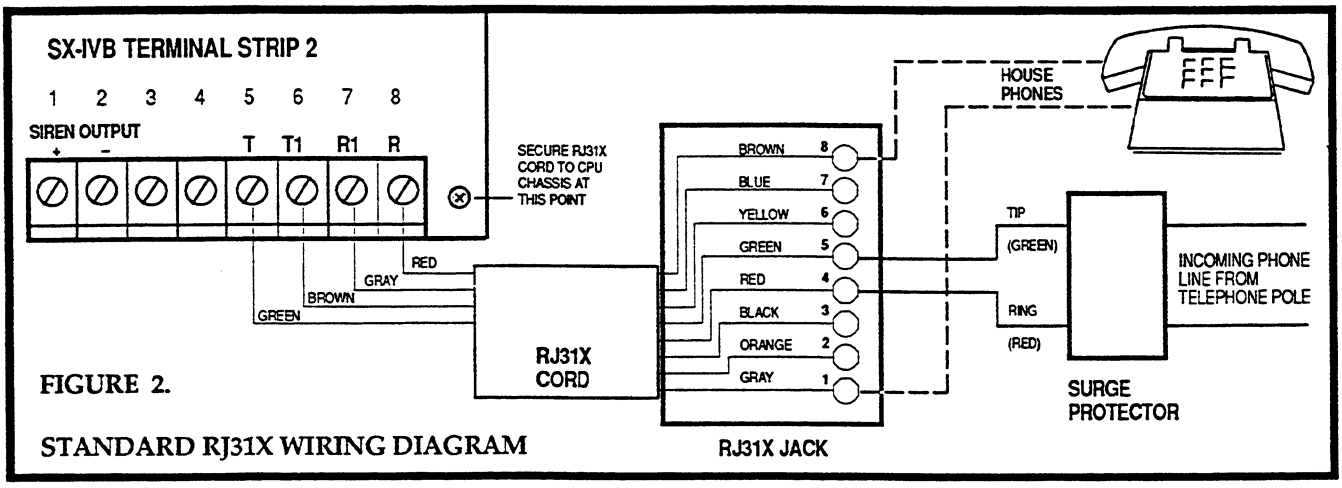


FIGURE 2.

STANDARD RJ31X WIRING DIAGRAM

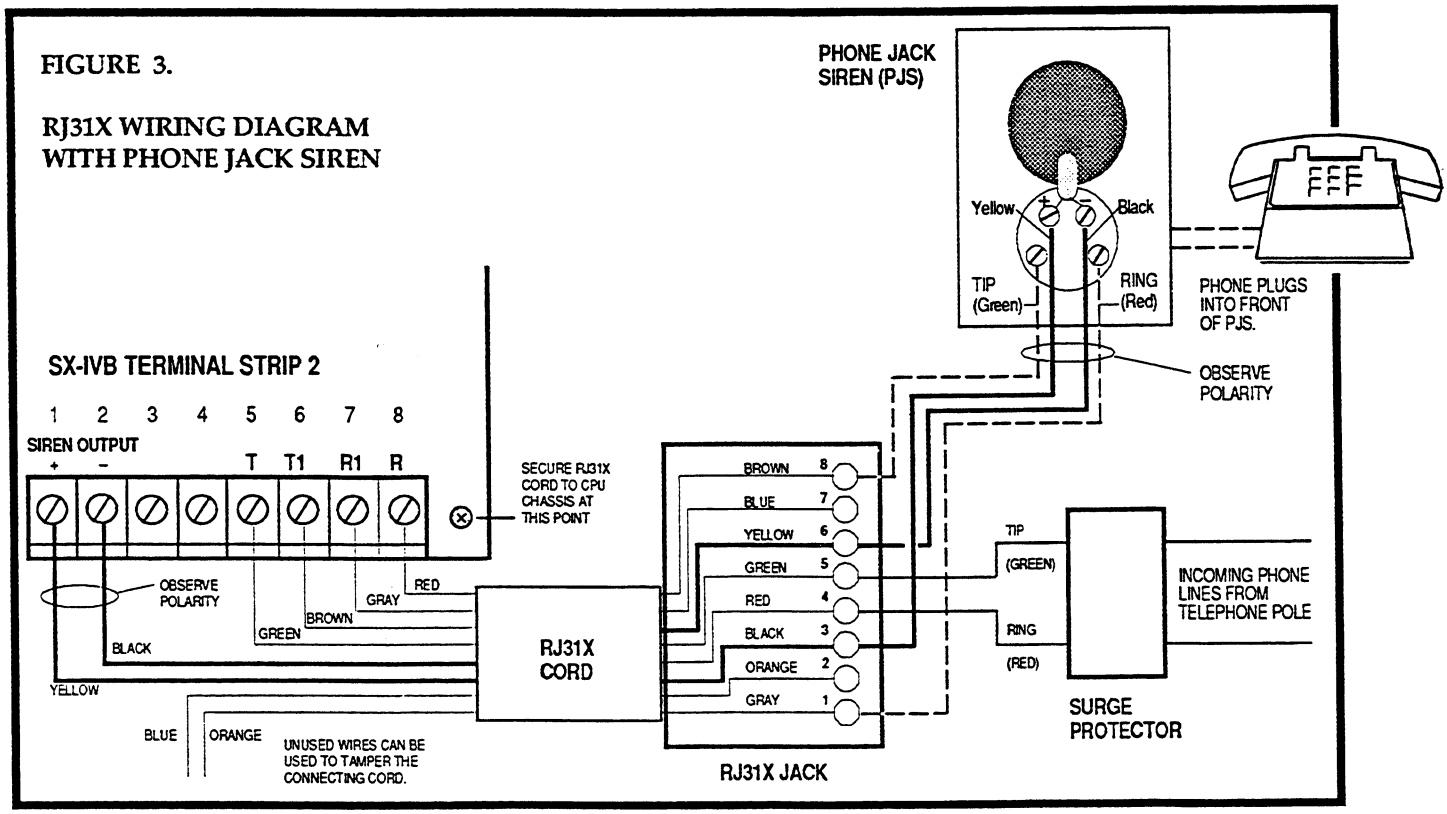


FIGURE 3.

RJ31X WIRING DIAGRAM
WITH PHONE JACK SIREN

Now do the following as shown in Figure 3.

1) Connect the four phone wires (Green, Brown Gray & Red) from your RJ31X Cord to the CPU as usual.

2) Connect the fifth wire (yellow) from the RJ31X cord to the first screw on terminal strip #2 (siren output +).

3) Connect the sixth wire (black) from the RJ31X cord to the second screw on terminal strip #2 (siren output –).

   Up to this point you have connected the siren output from the control panel to the RJ31X Jack. These two wires will terminate in the jack on screw terminals #3 (siren –) and #6 (siren +).

4) Now, instead of running a four conductor wire from the RJ31X Jack to the incoming phone lines, run a six conductor.

5) Connect the four telephone conductors as you normally would. ***See Figure 2.***

6) Connect the fifth conductor to the RJ31X Jack terminal #6 (siren +). Connect the other end of this wire to the yellow wire (PJS+) coming from each of your PJS's.

7) Connect the sixth conductor to the RJ31X Jack terminal #3 (siren –). Connect the other end of this wire to the black wire (PJS–) coming from each of your Phone Jack Sounders.

8) *REMEMBER: The phone cord must be plugged into the RJ31X jack for the PJS to work.*

SPECIAL NOTE: If you are connecting the PJS to an ITI SX-IVB control panel the Hardwire Interior Siren jumper can be used to select whether the PJS gives status *and* alarm sounds or alarm sounds *only*. Lower position = All sounds. Upper position = Alarm Sounds only.

TAMPERING THE RJ-31X JACK

By using an 8 conductor RJ-31X cord you can tamper the cord against removal. You simply need to connect the two unused wires (orange and blue) to a Door/Window Sensor and install a jumper in the RJ-31X jack to accomplish this.

(1) Connect the blue and orange wires to the NC screw terminals on the back of an ITI Door/Window Sensor. (If you are using a hardwire panel, connect them to a NC loop that is off when the system is disarmed.)

(2) Program the DWS as an Auxiliary Sensor, number 12-17. Program the CPU for this sensor too. NOTE: Auxiliary sensors are armed 24 hours a day, will report to the central station when in alarm but will only sound a low volume siren when activated.

(3) Install a jumper between screw 2 and screw 7 inside the RJ-31X jack and plug the RJ-31X cord back into the RJ-31X jack.

(4) To test the tamper circuit, put the CPU in Level 9 (SENSOR TEST), remove the cord. This will test the sensor.

(5) Remember: The phone cord must be plugged into the RJ31X jack for the PJS to work. In order to hear the low volume siren, in the event of cord removal, you must have a wireless interior siren or a piezo directly connected to the alarm panel.

   Of course you will always have visual indication at the ITI CPU if the phone cord is disconnected from the RJ31X jack.

CONCLUSION

With an SX-IVB you can have as many as three PJS's wired to your CPU.

You now are able to have hardwire sirens in any room of the house that has a phone jack. All you have to do is run a couple of extra conductors while running wire that you would be running anyway. The phone company has already done most of the work for you; all you have to do is make the proper connections.

PLEASE NOTE

This product has been designed to take advantage of existing extra telephone wiring where available.

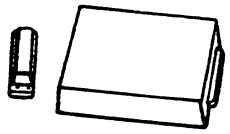
The utilization of this unused wiring is regulated on a state-by-state basis. We suggest that you check with the Public Utilities Commission in your state for an opinion before using this product.

DOOR/WINDOW SENSORS (DWS)

Model number 60-015. Underwriters Laboratories Listed
Household Burglary Warning System Control Unit Accessory.

OVERVIEW

These transmitters are designed to be used to protect doors, windows, cabinets, or anything that opens and closes. Each contains a magnetic reed switch and will to go into alarm by moving the supplied magnet away from the reed switch. The base of a Sensor contains screw terminals that will accept normally open or normally closed hardwire devices (switches, carpet mats, etc.).



CAUTION!! ANYTHING WIRED TO A DOOR/WINDOW SENSOR MUST GIVE A ONE SECOND MINIMUM ACTIVATION (OPEN OR CLOSURE) WHEN TRIPPED.

CAUTION!! USE NORMALLY CLOSED (OPEN ON ALARM) DEVICES WHENEVER POSSIBLE. IF YOU USE NORMALLY OPEN DEVICES THEN THEY MUST BE MOMENTARY (CLOSE ONLY FOR A FEW SECONDS UPON ALARM) OR BATTERY LIFE WILL BE SHORTENED DRAMATICALLY.

Each sensor or transmitter is programmed so it will transmit a specific number from 02-76. Each sensor number is also programmed into the CPU's microprocessor memory. Because of this, each sensor is able to identify itself to the CPU with its own unique number. The CPU communicates the exact sensor number which caused the alarm to the Interactive Central Station*. Central Station personnel in turn notify the proper authorities depending upon the sensor number reported.

A Door/Window Sensor will transmit two signals during normal operation. When a door is opened, a "VIOLATION" signal is sent to the CPU. When the door is closed a "RESTORE" signal is transmitted. <u>These signals are sent whether the system is armed or not.</u> If an attempt is made to arm the system when a sensor is in a violated state (door open, for example), the CPU will "protest" by emitting a series of continuous beeps and refuse to arm to the desired level. The number of the violated sensor will also be displayed on the CPU's LED display. The system can only be armed when all of the sensors used at a particular protection level are in the "RESTORE" condition, or, if the user deliberately "BYPASSES" one or more sensors.

LOW BATTERY INDICATIONS

In addition to VIOLATION and RESTORE, sensors will transmit a signal to the CPU if their 9-volt batteries deteriorate to a level of about 5.7 volts. Batteries can normally be expected to last about 12-18 months. If a low battery is reported after only a few months, then either the battery is defective or the sensor could be causing an excessive current drain.

A sensor's battery will usually power the sensor for a few weeks after reporting a low battery. If the battery is not changed, the sensor will eventually fail and a supervisory report will be sent to the central station*. When the battery is changed the low battery condition will be removed automatically.

The CPU will power up so that low battery conditions on any sensors are reported to the Central Station* on a weekly basis. Optionally, the CPU can be programmed so that sensor low battery conditions will never report to the Central Station*.

U.L. NOTE: The SX-IVB digital communicator and the ITI Central Station Receiver have <u>not</u> been investigated by Underwriters Laboratories.

SUPERVISORY INDICATIONS

Every 24 hours, each sensor sends 3 supervisory signals to the CPU. The CPU keeps track of these signals. If, after 24 hours, no signals have been received from a particular sensor, the number of the problem sensor is displayed on the Sensor Number window on the CPU and will be reported to the central station. (NOTE: U.L. has not investigated the communications ability of the SX-IVB.) The SUPERVISORY indication will be removed automatically when the CPU receives a transmission from the missing sensor or if you arm to protection Level 9.

PROGRAMMING DOOR/WINDOW SENSORS

Sensors are shipped on a certain frequency, usually 340 mHz. Since sensors will arrive already set to their frequency, you need only program their HOUSE CODE and their SENSOR NUMBER. The frequency cannot be changed in the field. Sensors are marked with a tiny sticker indicating their factory set frequency.

Sensors are set to their correct HOUSE CODE and SENSOR NUMBER by cutting or bending teeth on a small comb within each sensor. The eight inner teeth are used to determine the House Code and Sensor Number. The comb is snapped into the sensor base and its teeth extend into a 10 position socket on the transmitter circuit board.

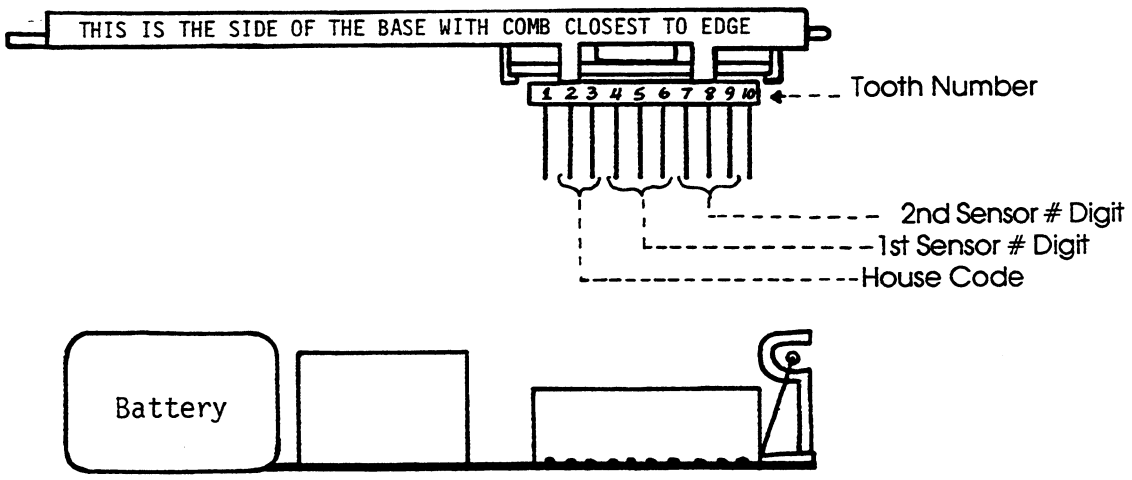
Ignoring the two outer teeth, how teeth 2 and 3 are cut determines the HOUSE CODE; teeth 4, 5, & 6 establish the first digit of the two digit SENSOR NUMBER; and teeth 7, 8 & 9 establish the second digit of the SENSOR NUMBER.

IMPORTANT:

(1) The battery MUST BE removed during comb insertion.

(2) You MUST BE free of static when handling the transmitter circuit board.

(3) Be careful not to bend the metal RF shield as this will have an adverse effect on transmitter range.



TRANSMITTER AND SENSOR BASE WITH PROGRAMMING COMB

PROGRAMMING THE HOUSE CODE

To program the HOUSE CODE for each sensor, you must cut or leave intact teeth 2 and 3 on the programming comb. All HOUSE CODES must be the same for the installation.

Select the HOUSE CODE by cutting the proper teeth as follows:

HOUSE CODE	SECOND TOOTH	THIRD TOOTH	REPRESENTATION (teeth 2+3 only)
0	CUT	CUT	- -
1	CUT	LEAVE	- |
2	LEAVE	CUT	| -
3	LEAVE	LEAVE	| |

PROGRAMMING THE SENSOR NUMBER

To program the two digit SENSOR NUMBER for each transmitter you must cut, or leave intact, teeth 4, 5, 6 and 7, 8, 9 on the programming comb. The SENSOR NUMBER will be DIFFERENT for each transmitter installed.

Select the SENSOR NUMBER digits by cutting the proper teeth for EACH DIGIT as follows:

DIGIT	TOOTH 4 or 7	TOOTH 5 or 8	TOOTH 6 or 9	REPRESENTATION (teeth group 4+5+6 or 7+8+9)
0	CUT	CUT	CUT	- - -
1	CUT	CUT	LEAVE	- - |
2	CUT	LEAVE	CUT	- | -
3	CUT	LEAVE	LEAVE	- | |
4	LEAVE	CUT	CUT	| - -
5	LEAVE	CUT	LEAVE	| - |
6	LEAVE	LEAVE	LEAVE	| | |

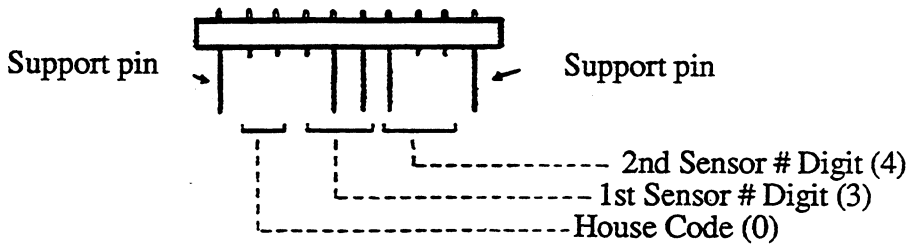
Cut teeth 4, 5 & 6 for the first digit and teeth 7, 8 & 9 for the second digit.

As an example, to program House Code "0" and SENSOR NUMBER "34" the comb would be cut as follows:

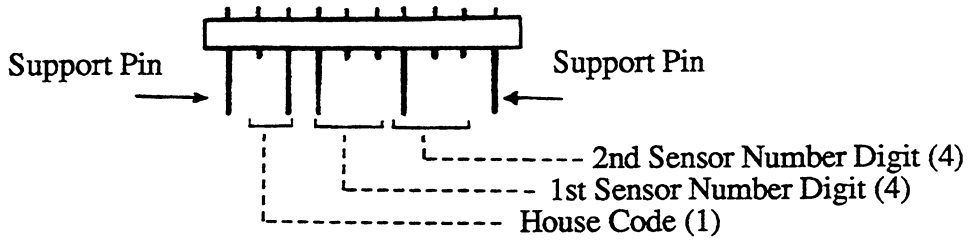
REPRESENTATION

- -	- | |	| - -
0	3	4

The Comb would look like this:



To program HOUSE CODE "1" and SENSOR NUMBER "44" the comb would be cut as follows:



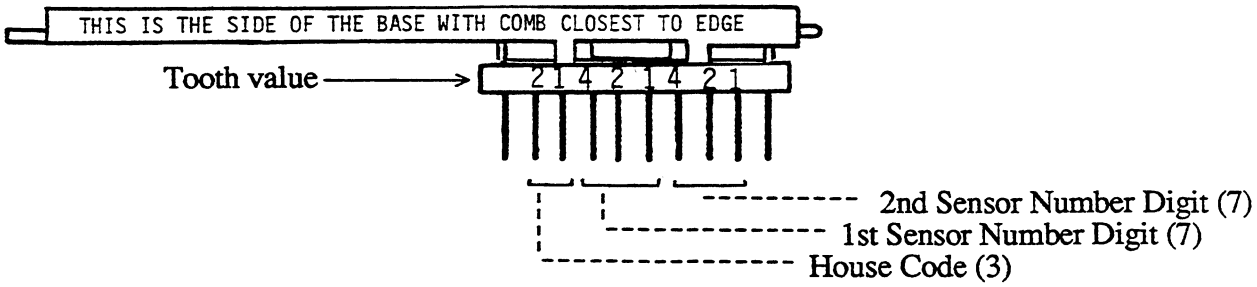
The chart on the next page illustrates how to cut (or bend) the combs for a sensor to program the various sensor numbers.

On the following four pages you will see how the combs would look after they are cut.

PROGRAMMING HINT

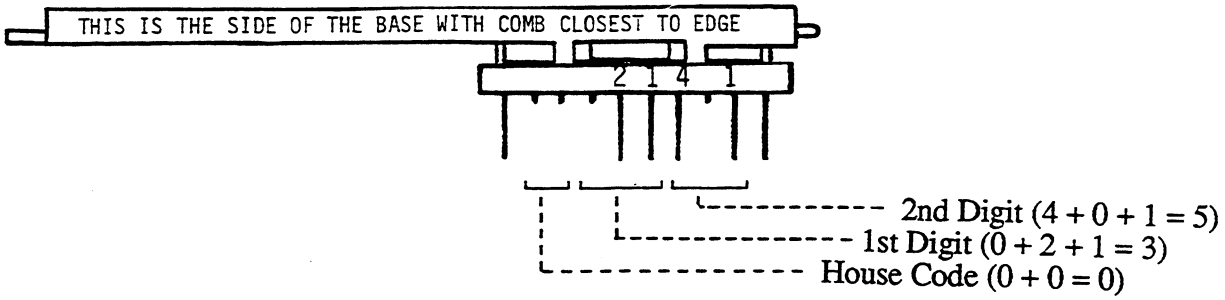
You don't need the comb charts to figure out how to cut the teeth on a comb. You can use the system shown below if you prefer.

The teeth have values assigned to each one as shown below:



You add the values together of the group of teeth to determine the digits value. For example with no teeth cut the House Code is 3 (2+1) and the first and second digits would both be 7 (4+2+1).

The following shows House Code 0, Sensor Number 35:



USE THIS CHART TO SELECT SENSOR NUMBERS

SENSOR NUMBER	SWITCH or COMB REPRESENTATION

SYSTEM CONFLICT
Active in 0-8, silent, unsupervised
Used to see if another CPU is within range.

01	--- --I

POLICE PANIC - AUDIBLE - UNSUPERVISED
Active in levels 0-8
loud intermittent police siren

02	--- -I-
03	--- -II

POLICE PANIC - SILENT - UNSUPERVISED
Active in levels 0-8

04	--- I--
05	--- I-I

POLICE PANIC - AUDIBLE - SUPERVISED
Active in levels 0-8
loud intermittent police siren

06	--- II-

POLICE PANIC - SILENT - SUPERVISED
Active in levels 0-8

07	--- III

MEDICAL PANIC - AUDIBLE - UNSUPERVISED
Active in levels 0-8
low level beeping sound

10	--I ---
11	--I --I

ENVIRONMENTAL - AUDIBLE - SUPERVISED (FLOOD, FREEZE, ETC)
Active in levels 0-8, supervised

12	--I -I-
13	--I -II
14	--I I--
15	--I I-I
16	--I II-
17	--I III

COLUMN ONE SENSORS (01 to 17)
HAVE NOT BEEN INVESTIGATED
BY U.L. COLUMN TWO SENSORS
(20 to 57) ARE U.L. SENSOR NUMBERS.

SENSOR NUMBER	SWITCH or COMB REPRESENTATION

FIRE EMERGENCY
Active in levels 0-8, supervised
loud steady tone siren.

20	-I- ---
21	-I- ---
23	-I- -II
24	-I- I--
25	-I- I-I
26	-I- II-
27	-I- III

SPECIAL INTRUSION SENSORS
For gun cabinets, wall safes, etc.
Active in levels 1-7, supervised
loud modulated siren.

30	-II ---
31	-II --I
32	-II -I-
33	-II -II

DELAYED ENTRANCE INTRUSION
For delayed entry/exit doors
Active in 3-7, Chime 2, Instant 7
loud modulated siren

34	-II I--
35	-II I-I
36	-II II-
37	-II III

INSTANT EXTERIOR INTRUSION
For instant doors and windows
Active in levels 3-7, chime level 2
loud modulated siren

40	I-- ---
41	I-- --I
42	I-- -I-
43	I-- -II
44	I-- I--
45	I-- I-I
46	I-- II-
47	I-- III
50	I-I ---
51	I-I --I
52	I-I -I-
53	I-I -II
54	I-I I--
55	I-I I-I
56	I-I II-
57	I-I III

USE THIS CHART TO SELECT SENSOR NUMBERS

SENSOR NUMBER	SWITCH or COMB REPRESENTATION
INTERIOR INTRUSION - MOMENTARY	
For Motions, Mats, Sound Sensors	
Active in levels 4-7, instant in 7	
loud modulated siren	
60	II- ---
61	II- --I
62	II- -I-
63	II- -II
INTERIOR INTRUSION - MOMENTARY	
For Motions, Mats, Sound Sensors	
Active in levels 4-5	
loud modulated siren	
64	II- I--
65	II- I-I
DELAYED INTERIOR INTRUSION - MOMENTARY	
For Motions, Mats, Sound Sensors	
Active in levels 4-5	
loud modulated siren	
66	II- II-
67	II- III

SENSOR NUMBER	SWITCH or COMB REPRESENTATION
INTERIOR INTRUSION - DOORS	
Active in levels 4-7	
loud modulated siren	
70	III ---
71	III --I
72	III -I-
INTERIOR INTRUSION - DOORS	
Acitve in levels 4-5	
loud intermittent police siren	
73	III -II
74	III I--
DELAYED INTERIOR INTRUSION	
Active levels 4- 5	
loud modulated siren	
75	III I-I
76	III II-

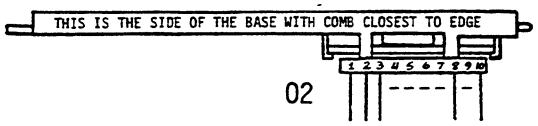
NOTE 1 - COLUMN ONE SENSORS (60 to 67) HAVE NOT BEEN INVESTEGATED BY U.L. COLUMN TWO SENSORS (70 to 76) ARE U.L. APPROVED SENSOR NUMBERS.

NOTE 2 - Sensors 66-67 and 75-76 initiate a delay just like an entrance door. Thus, if a customer gets up in the morning and trips one of these sensors, the delay tone will sound to let him know that he should disarm the system before it goes into alarm.

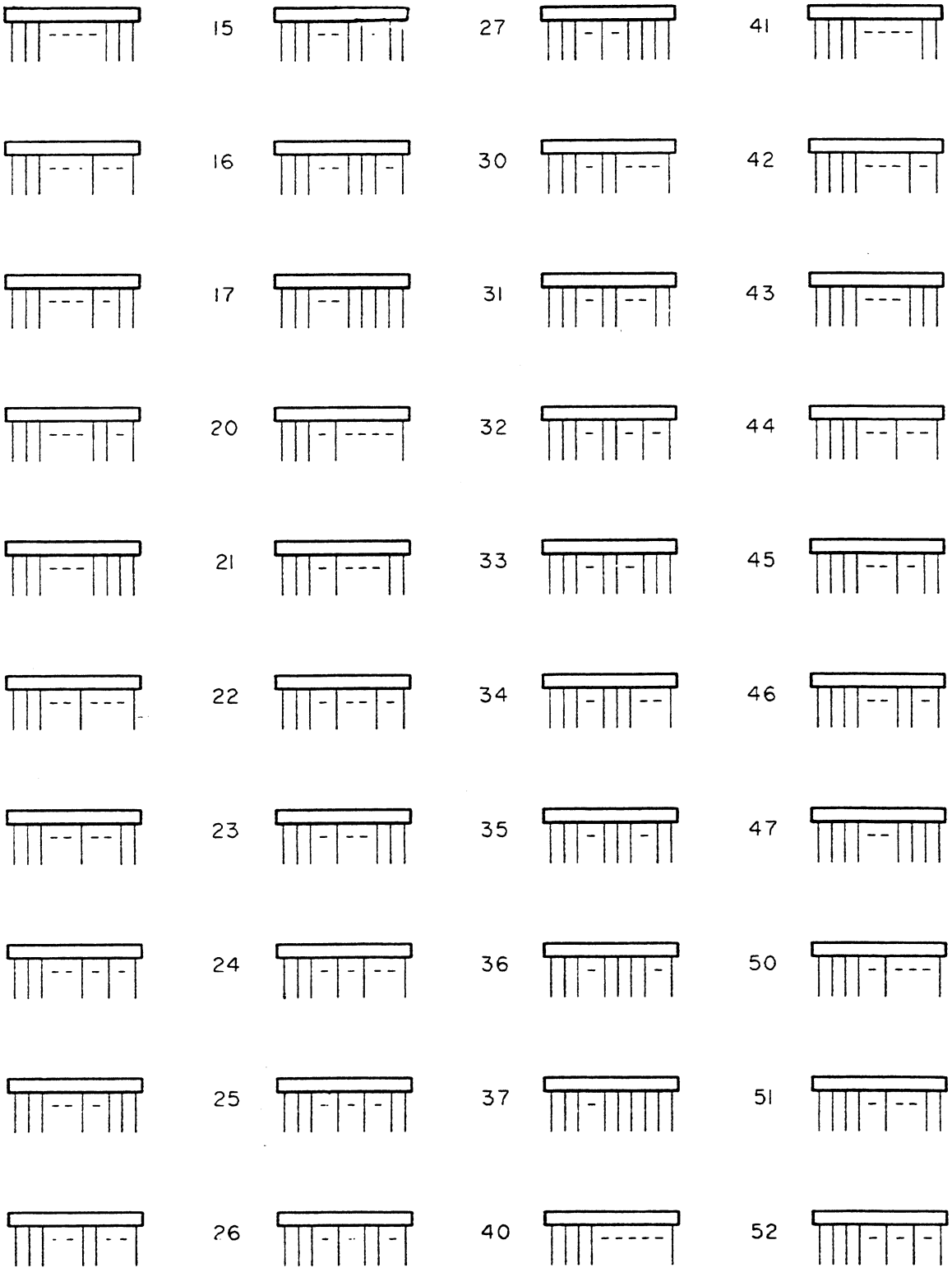
NOTE 3 - Sensors 60-65 and 70-74 will be deactivated during a delay initiated by an entry door (34-37) or initiated by the delayed interior sensors (66-67 and 75-76). Otherwise they will activate instantly.

DRAWINGS OF COMB CUTS

NOTE: The HOUSE CODE in each example below is "3", so teeth 2 and 3 are both left uncut.
Only sensor numbers 30 - 57 and 70 - 76 are acceptable for use with U.L. systems.

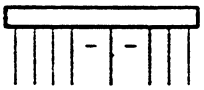


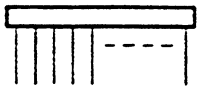
02

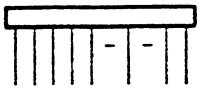


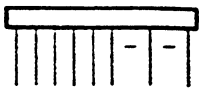
DRAWINGS OF COMB CUTS

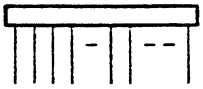
NOTE: The HOUSE CODE in each example below is "3", so teeth 2 and 3 are both left uncut.
Only sensor numbers 30 - 57 and 70 - 76 are acceptable for use with U.L. systems.

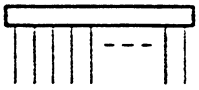
53 

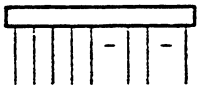
60 

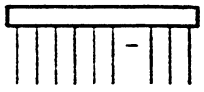
65 

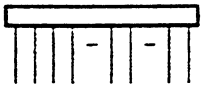
72 

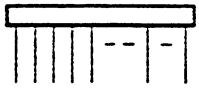
54 

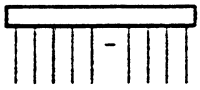
61 

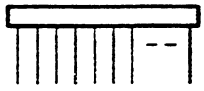
66 

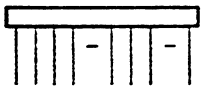
73 

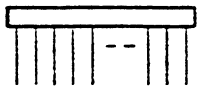
55 

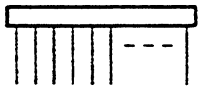
62 

67 

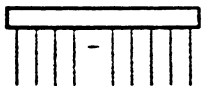
74 

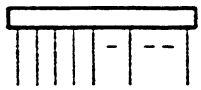
56 

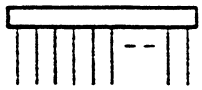
63 

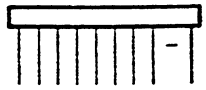
70 

75 

57 

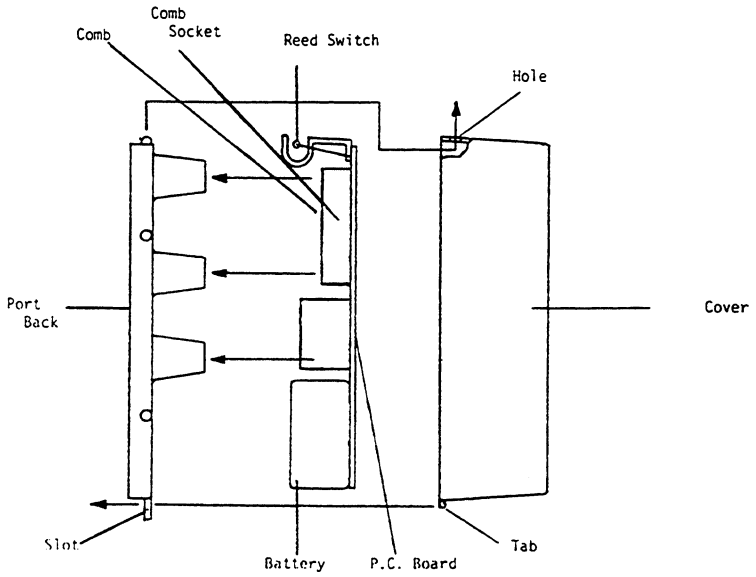
64 

71 

76 

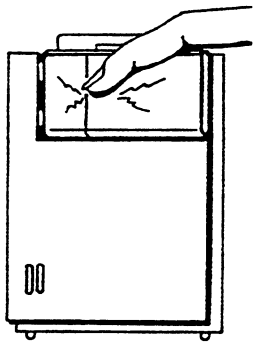
INSTALLING DOOR/WINDOW SENSORS

1. Remove the sensor cover by pressing on the cover end to disengage the tab on the cover from the slot in the sensor back.



SENSOR COMPONENTS

2. **CAUTION!!! It is important for you to be free of all static electricity when handling transmitters. Touch something metal, or touch the sensor battery, before touching the transmitter circuitry.**



3. **DISCONNECT THE BATTERY FROM THE TRANSMITTER. THIS IS IMPORTANT!**

4. Separate the PC board from the sensor back by pulling the two apart.

5. Program the sensor by cutting the proper teeth on the programming comb to create the desired HOUSE CODE and 2-digit SENSOR NUMBER. Use a VERY SMALL pair of wire clippers to cut and remove the teeth. It is important to clip the teeth as close as possible to the circuit board which holds the teeth. The sensor numbers should be the ones you have selected and indicated on the CENTRAL STATION DATA CARD for this installation. See Appendix B.

6. Do not reinsert the PC board into the sensor back at this time, but it may be helpful to pencil the sensor number on the sensor back to keep track of the sensors.

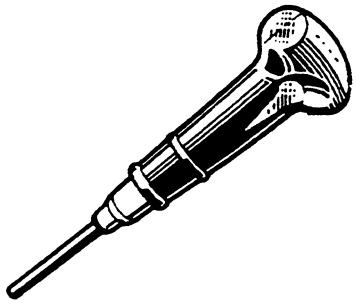
REPEAT STEPS 1 THROUGH 6 UNTIL ALL THE SENSORS ARE PROGRAMMED.

7. Mount sensors at their respective openings using # 6 x 1/2" screws if mounting on wood and #8-10 plastic anchors with #6 x 3/4" screws if mounting into dry wall or plaster.

   a. To avoid damage, do not mount within 5 inches of the floor on doors.
   b. Generally mount sensor on door, magnet on frame.
   c. Avoid mounting sensors or magnets on any metallic surfaces such as metal doors or foil wallpaper. If you must, then use spacers to keep sensor and magnet away from the metal.
   d. For double doors mount magnet on one door, sensor on the other.
   e. Sensors may be mounted vertically or horizontally, however, vertical mounting might give you a slightly better range.
   f. Mount sensors with screws, NOT TWO-SIDED TAPE.
   g. Try to keep all transmitters within 75 feet of the CPU.

8. Mount magnet using two #18 x 1/2" wire nails. A Brad Driver works well for this. Notches are provided if you prefer to use screws.

   a. Be sure magnet doesn't interfere with door or window opening.
   b. Mount within 3/8" of sensors reed switch, centered on end of the sensor. DON'T EXCEED 3/8".
   c. Do not use two sided tape.



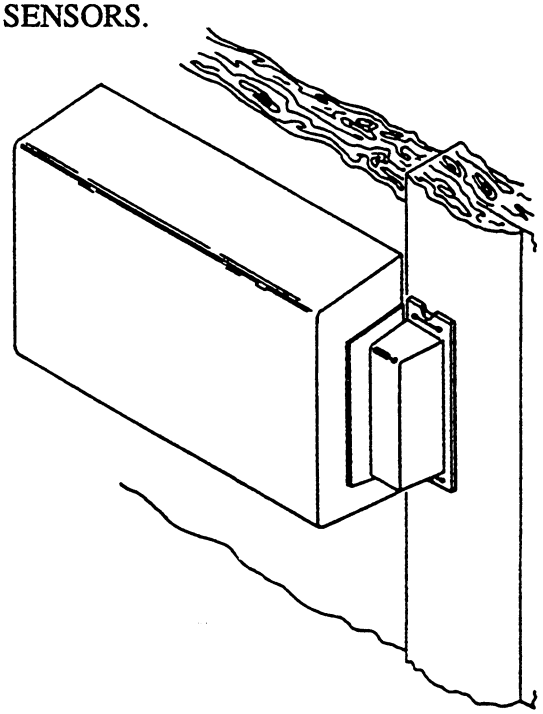
BRAD DRIVER

9. Replace PC board into sensor base, make sure the comb is properly set into the transmitter board. Also, make sure magnet and reed switch are properly aligned & within 3/8".

10. Discharge any static and replace sensor battery.

11. Replace Sensor Cover.

REPEAT STEPS 7-11 FOR ALL SENSORS.



DOOR/WINDOW SENSOR AND MAGNET CORRECTLY INSTALLED

INTERFACING REMOTE DEVICES TO A DOOR/WINDOW SENSOR

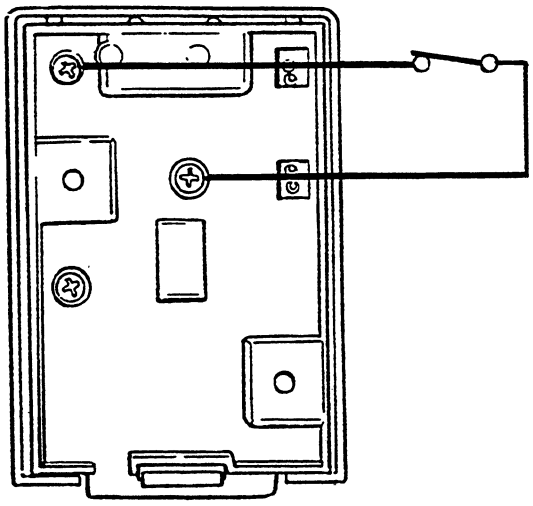
U.L. NOTE: For a U.L. installation connect only U.L. listed devices to an ITI Door/Window Sensor.

The diagrams below illustrate how to wire a NORMALLY CLOSED (opens on alarm) device and a NORMALLY OPEN (closes on alarm) device to a transmitter. The built-in reed switch in the Door/Window Sensor becomes inoperative whenever anything is wired into the sensor's normally closed hardwire terminals.

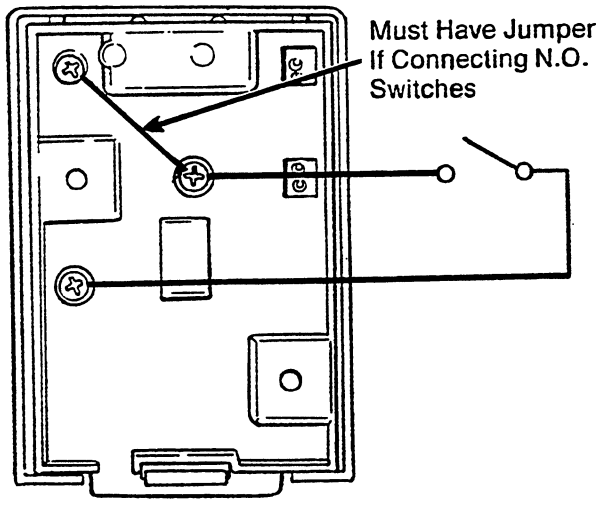
Multiple normally CLOSED devices would be wired in SERIES all in the same line. Multiple normally OPEN devices would be wired in PARALLEL all to the same two screw terminals.

You can connect any normally closed or normally open magnetic switch, motion detector, alarm screen or under carpet pad to a sensor as long as you follow these guidelines:

(1) **The device must supply a minimum 1 FULL SECOND open or closure on alarm.** *THIS IS IMPORTANT! Don't attempt to connect fast pulse devices such as Window Bugs to a Sensor.*
(2) **Use normally closed devices whenever possible.** If you use normally open devices do not use them for any application where the device could be left in an alarm condition for an extended period of time. For example, do not use normally open switches on doors or windows that may be left open. *Extended closures on the normally open loop will cause severe battery drain.*
(3) If you are using untwisted wire don't exceed 6 feet of wire in any wire run.
(4) If you are using twisted wire then don't exceed 25 feet of wire in any wire run.
(5) Always use stranded wire, never solid core wire.
(6) Don't run wires within 18" of electrical wiring. Never run parallel to electrical wires, cross them at a 90 degree angle.
(7) Only one alarm screen can be wired to a DWS.
(8) Use only reed switches, do not use mechanical switches.
(9) A maximum of five switches can be wired to a DWS. Fewer than five is preferable so you can zone out as much of the system as possible.
(10) Mounting a sensor on a metalic surface is *never* recommended. If you must, then put a spacer under the sensor that is at least 1/4" thick.

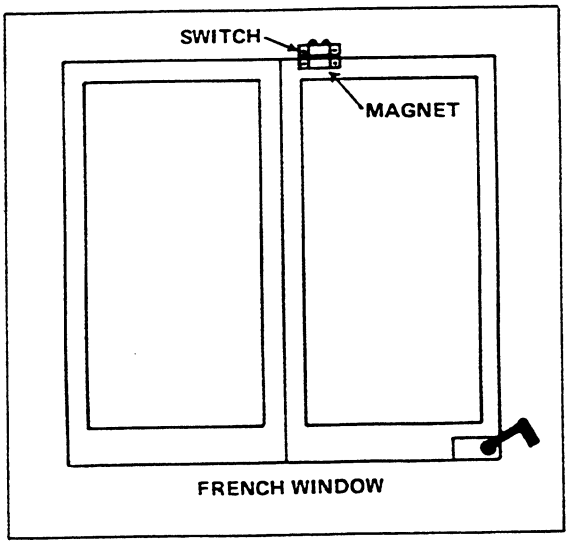


NORMALLY CLOSED WIRING DIAGRAM
(open on alarm)



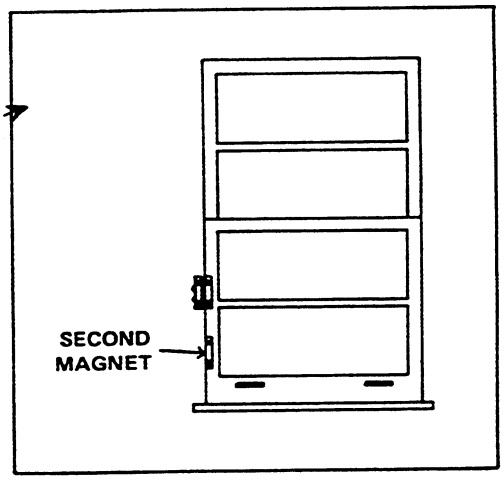
NORMALLY OPEN WIRING DIAGRAM
(close on alarm)
See Note #2 above.

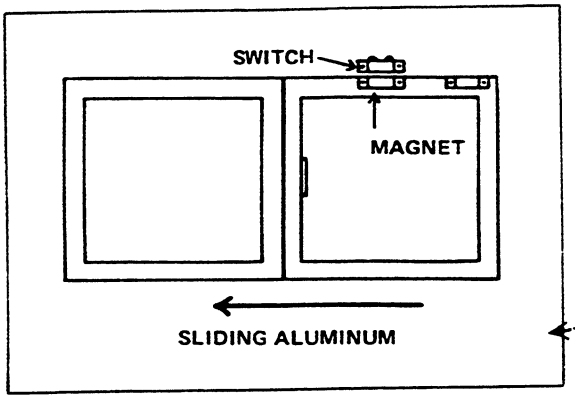
The following diagrams show how to connect a Door/Window Sensor to both surface mount external magnetic contacts and recessed magnetic contacts.

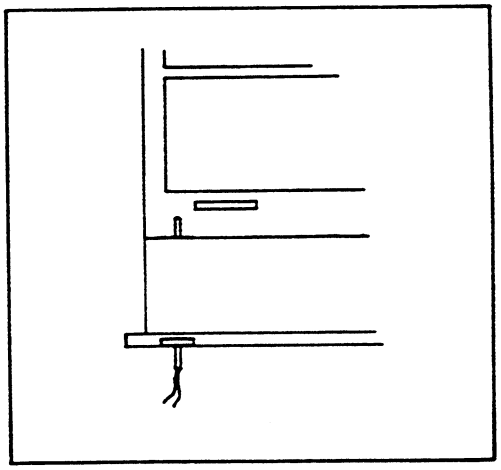


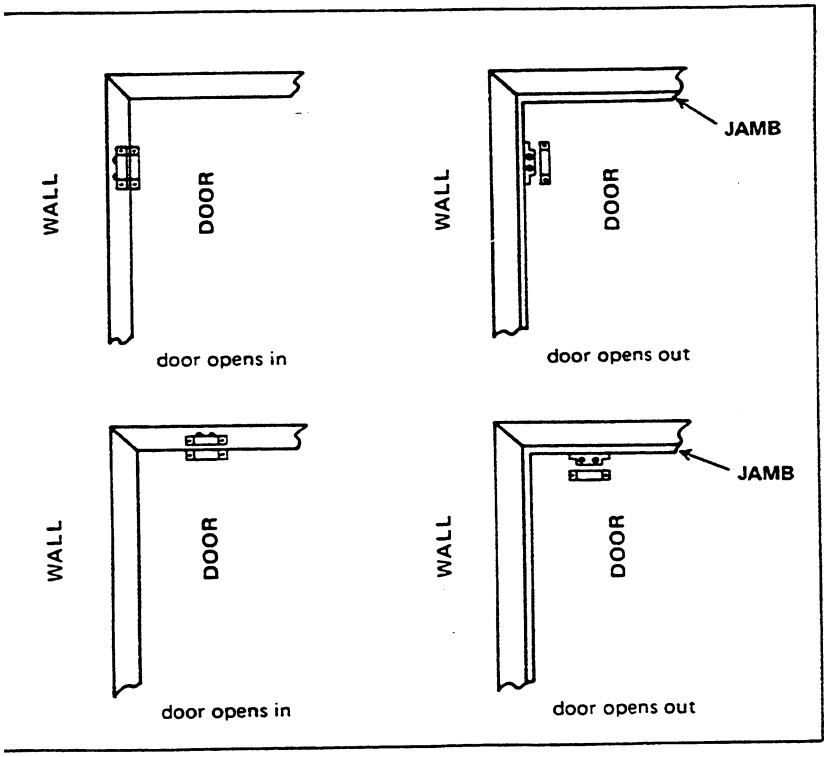
NOTE:

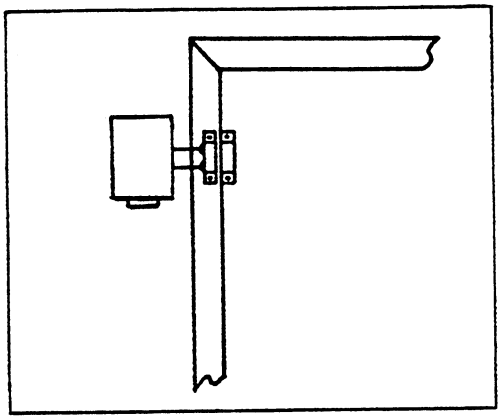
If using two magnets they must be far enough apart to operate the reed switch one at a time. Also you must move slowly from one to the other to allow the D/WS to transmit its full data stream for each condition.(i.e. open or closed)

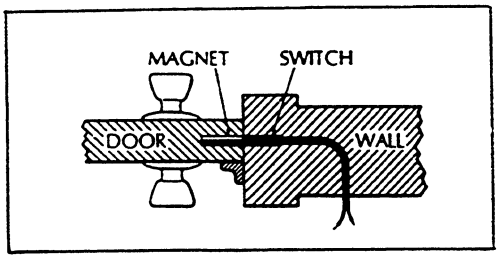












TAMPER SWITCH

Door/Window sensors can be fitted with a tamper switch for high security applications. The tamper switch is DISABLED when the sensor is shipped. A jumper wire on the sensor circuit board must be cut and a conductive tamper dot must be installed in the sensors cover to ENABLE the tamper feature.

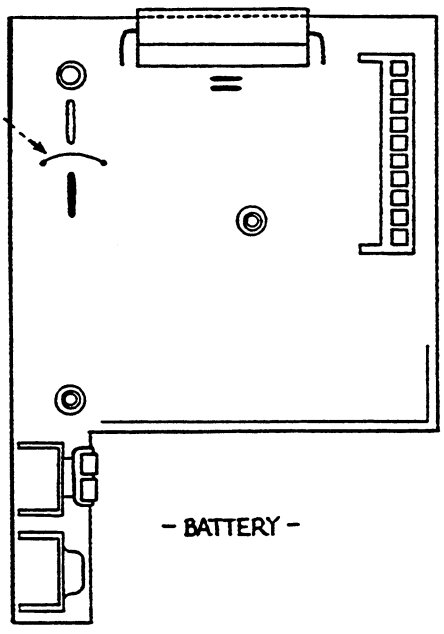
With the tamper switch ENABLED, removing a sensor cover (to deliberately remove the battery, for example) causes the sensor to transmit a violation signal to the CPU. If that sensor is presently active or "armed" the CPU will go into alarm. If the sensor is not armed it will still send a violation signal to the CPU, but the CPU will not go into immediate alarm. Instead, the CPU will remember the signal and "protest" (as if the sensor had been left open) when the customer attempts to arm the system. The protest sound will alert the customer that the sensor has been tampered with (ie: the battery taken out) or that the sensor is not properly closed.

WE RECOMMEND THE TAMPER FEATURE BE LEFT DISABLED IN RESIDENTIAL INSTALLATIONS AND ONLY ENABLED IN COMMERCIAL APPLICATIONS WHERE YOU FEEL THERE IS A LIKELIHOOD THAT TAMPERING MAY TAKE PLACE.

NEVER TAMPER ANY TRANSMITTERS EXCEPT THOSE USED TO PROTECT DOORS OR WINDOWS. IF YOU WERE TO ENABLE THE TAMPER FEATURE ON A 24 HOUR TRANSMITTER SUCH AS A SMOKE SENSOR, HEAT SENSOR, PANIC BUTTON, OR FREEZE DETECTOR THEN THE SYSTEM WILL GO INTO ALARM IF YOU REMOVE THE COVER TO CHANGE THE BATTERY.

TO ENABLE TAMPER FEATURE:

1. Cut the circuit board jumper to ____ **ENABLE** the tamper feature.
2. Install the self-adhesive "tamper dot" in the recessed hole in the sensor cover. When handling the tamper dot please try to keep your finger oils off the surface that touches the transmitter. Tamper dots are free upon request.
3. Use a clean pencil eraser or alcohol to clean the two solder surfaces on the back side of the circuit board that the tamper dot will come in contact with. You are doing this to remove any solder flux that may be left over from manufacturing.
4. If using the tamper feature be advised that annual cleaning of the contact pads will be necessary to assure reliable operation.



GLAS-TRAK™ GLASS BREAK DETECTOR
Model # 13-021

The Glas-Trak™ Glass Break Detector has not
been investigated by Underwriters Laboratories.

OVERVIEW

The GlasTrak™ Model GSU-2000 Glass Break detector is a solid state piezoelectric glass break detector made by Alfasystems GmbH in Germany. It contains discriminating circuits that detect only the specific mechanical ultrasonic frequencies generated by breaking glass. Because the GlasTrak™ detects only these specific frequencies, it will not false alarm due to shock, vibration, temperature changes, or bending. It is designed to withstand static charges of 12K volts and an induced voltage of 1500 volts at 500 mz. The GlasTrak™ sensitivity level insures that the detector would still cause an alarm even if the window bonding materials, such as putty, were glazed over the detector area to cause a damping effect on the glass.

The GlasTrak™ GSU-2000 protects a large 10 foot radius from its detector. It works on all glass - floating, wired or tempered. It gives half coverage on laminated glass.

The GlasTrak™ works well with ITI Door/Window Sensors because it provides typically a 1 1/2 second opening before it resets. If you select another brand, be sure that it provides a trip of at least 1 full second.

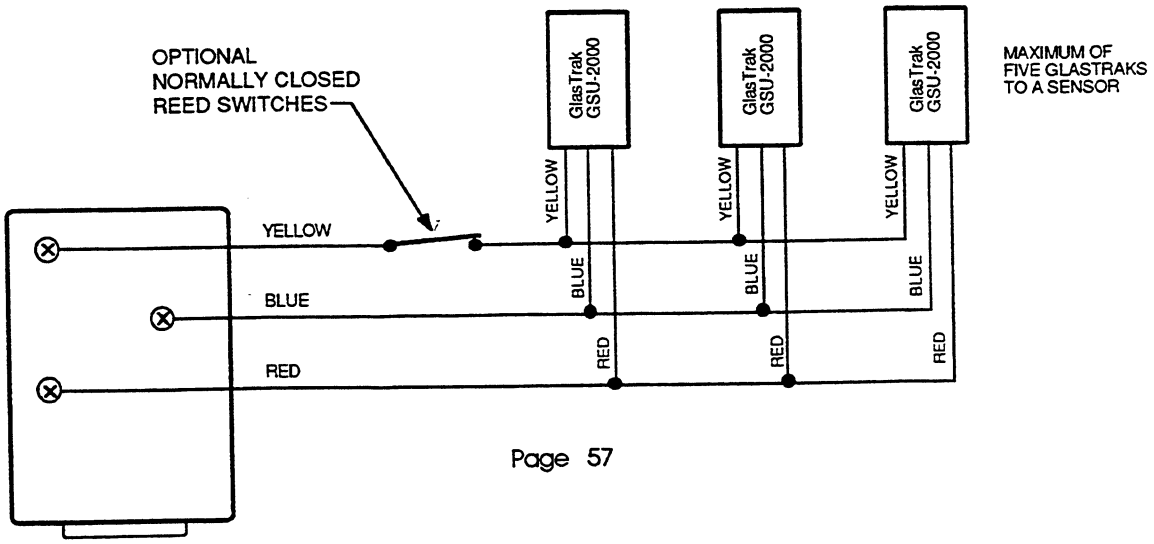
NOTE: The part number for the Adhesive and Activator solution is 13-023. The part number for the SPZ-1 tester is 13-022.

MOUNTING INSTRUCTIONS

(1) Thoroughly clean glass with alcohol. *Don't skip this step.*
(2) Apply Activator to glass. Hold can 1 - 2 inches from glass and spray on the Activator.
(3) Mount detector edges 3/4" - 2" from the vertical and horizontal window frames, for coverage of 6.5 - 10 feet respectively.
(4) Apply one drop of Adhesive to detector base. Immediately position detector on glass, press lightly until adhesive squeezes out from ALL sides. *100% adhesive coverage is required.*
(5) Hold steady and press firmly for 60 seconds. The hardening process takes several hours, but handling of the cable can be undertaken immediately.

WIRING INSTRUCTIONS

(1) The Yellow and Blue wires from the GlasTrak™ provide an open on alarm which trips the Normally Closed transmitter inputs. The red wire provides power.
(2) Normally closed magnetic reed switches can be added to the sensor as shown below.
(3) Up to five GlasTraks can be connected to a single Door/Window Sensor, wired in parallel, as shown:



SPZ-1 TEST METER

The test meter is used to test the glass break sensors by producing the identical frequencies as produced when glass is broken. ***It is important to always use Mallory DURACELL batteries.*** Since their internal resistance is much lower than normal alkaline batteries it makes it possible to obtain higher surge currents as required for correct operation of the test meter. To open the test meter case twist a screwdriver blade in the lower slot of the case.

TESTING OF NON-INSTALLED GLASS BREAK SENSORS

It is possible to test the detectors by simply applying the test meters transducer to the face of a Glass Break detector previously moistened with alcohol. Press button "1" and make sure the impulse generated by the test meter has triggered the detector into alarm. It is also possible to press both the glass break detector and the transducer against a glass surface moistened with alcohol.

TESTING OF INSTALLED GLASS BREAK SENSORS

You must use the SPZ-1 GlasTrak™ Tester (or the IEI-712 Glass-Guard tester) to test the GlasTrak™ sensors since their exceptionally high filtering makes it almost impossible to test their operation by hitting metallic items onto the glass.

(1) Check that the tester batteries are good. Replace if doubtful.
(2) Be sure the transducer surface is clean.
(3) Clean the glass next to the GlasTrak™ detector.
(4) Wet the glass with water , alcohol, or with ultrasonic couplant to couple the maximum signal into the glass.
(5) Hold the transducer on the glass a few inches away from the GlasTrak™ detector.
(6) Push test button [1] in for at least 1 second to activate the tester. A red LED will light on the test meter to show that the meter is working. Press button [2], which gives a greater pulse, against glasses thicker than 6mm or against glass surfaces smaller than 12" x 16".
(7) If the GlasTrak™ does not trigger, re-check all units and try again. Try holding the tester flush to the glass and steady. Be sure to pause between tests for about 10 seconds.

REMOVAL

Should you ever need to remove a GlasTrak™ detector, the only way to do it is to heat the glass from the outside with a hair dryer set at its hottest setting.

SHOCK SENSOR
Model # 60-019

The Shock Sensor has not been
investigated by Underwriters Laboratories.

OVERVIEW

The ITI Shock Sensor incorporates both an ITI transmitter and special shock detection interface circuitry to which you can connect a LITTON Terminus® Shock Detector **SP3237.**

Because the ITI processor was designed to detect the shock of breaking glass only, DO NOT USE FOR ANY APPLICATION EXCEPT GLASS BREAK.

CHOOSING THE CORRECT APPLICATION FOR THE SHOCK SENSOR

If you are protecting multi-pane windows then the ITI SHOCK SENSOR is your best choice.

If you are protecting a large single pane of glass then you should not use the SHOCK SENSOR, you should choose the Glas-Trak™ GSU-2000 Glass Break Detector.

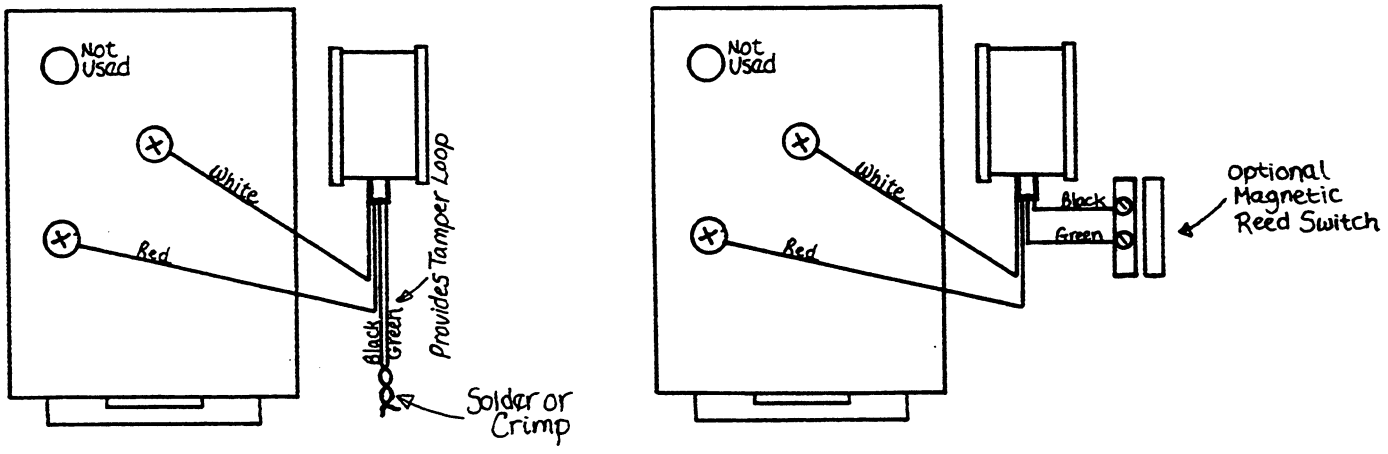
If you are protecting a solid, non-glass surface such as a wood door, wall or ceiling then do not use an ITI SHOCK SENSOR, instead, a good choice would be a Sentrol Shock Detector (Model No. 5401 or 5405) available directly from Sentrol Inc.

CONNECTING THE TERMINUS SP3237 DETECTOR TO THE ITI SENSOR

(1) You must connect the Terminus Detector only to ITI's special SHOCK/SENSOR transmitter. It will not work with regular ITI Door/Window Transmitters.

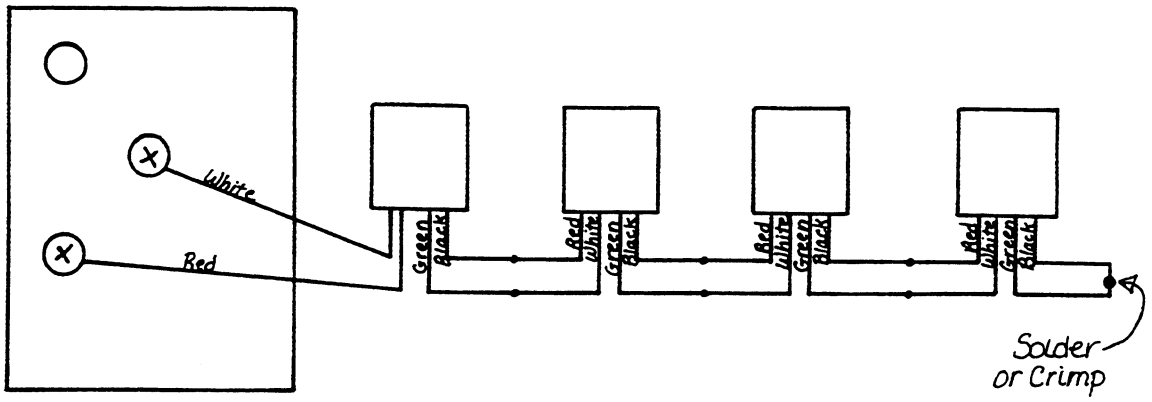
(2) ITI's Shock Sensor works only with the standard Litton Shock Detector Model SP3237. It will not operate with Litton's dampened sensors.

(3) Connect a single Terminus SP3237 to the ITI Shock Sensor transmitter as follows. Be sure to crimp or solder the black and green leads together if you aren't adding any reed switches. They act as a tamper loop.



(4) You can connect a maximum of five detectors to one SHOCK SENSOR. If you use multiple detectors they must all be mounted exactly the same way on a similar surface protecting similar glass areas. This is because the individual detector sensitivity is not adjustable, the only adjustment is on the SHOCK SENSOR itself and thus it will be set the same for all detectors.

Connect multiple sensors as shown below:



INSTALLATION OF LITTON SP3237 SHOCK DETECTORS

(1) USE THE ITI SHOCK SENSOR TO DETECT THE SHOCK OF BREAKING GLASS ONLY. THE ITI PROCESSOR WILL NOT DETECT ANY OTHER SHOCK EXCEPT GLASS BREAK. THUS, DO NOT USE TO PROTECT WALLS, CEILINGS, ETC.

(2) Window rattles must be eliminated before installing Terminus detectors.

(3) Terminus detectors must be mounted with the leads straight up or straight down.

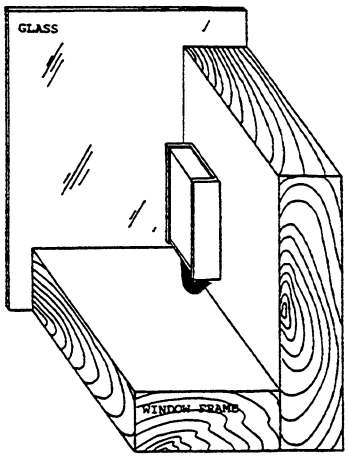
(4) Coverage guidelines: 5' radius for plate glass, 3' radius for multi-pane windows.

(5) When glass mounted it is desirable to have the detector 2" away from the frame.

(6) When frame mounted, it is desirable to have the detectors AS CLOSE AS POSSIBLE to the glass it is protecting, but NEVER MORE THAN TWO INCHES AWAY FROM THE GLASS.

(7) It is best to have the sensors perpendicular to the glass it is protecting. When mounted perpendicular to the glass the "flat-pac" is less sensitive to low frequency shock waves (normal background shocks) and will still provide excellent protection.

The best location for a detector is on the frame at right angles to the glass being protected, as close to the glass as possible.



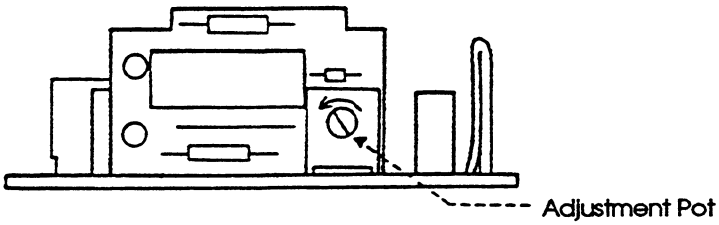
(8) The Terminus "flat-pac" shock detectors can be conveniently mounted by either using a screw or a very thin layer of RTV adhesive.

ADJUSTMENTS AND CHECK OUT

(1) Arm the SX-IVB to Level 9 - SENSOR TEST.

(2) Sensitivity - The sensitivity pot in the ITI Shock Sensor is used to select the proper shock detection level for the initial high energy, high frequency shock (the sensitivity to the "follow-up" low energy shock is preset during the manufacturing process).

TURN THE ADJUSTMENT POT COUNTER CLOCKWISE TO INCREASE SENSITIVITY, CLOCKWISE TO DECREASE SENSITIVITY.



END VIEW OF SHOCK SENSOR CIRCUITRY

(3) Level 9 Test Beep - When armed in Level 9, the SX-IVB will sound a loud beep when a "flat-pac" receives a high energy shock and the "follow-up" shock.

(4) Check Out - The sensitivity of the ITI Shock Sensor should be set to a level approaching the breaking point of the glass. Check the "flat-pac" for proper placement and coverage by hitting the window at the farthest point from the sensor on the glass. Use a solid object such as the plastic handle on a screwdriver.

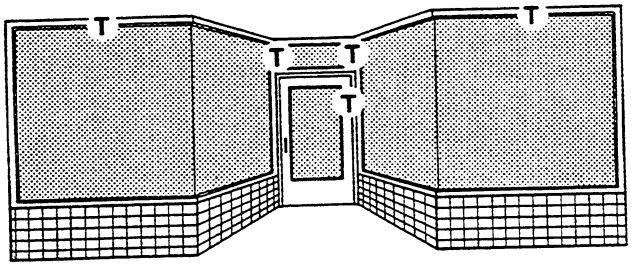
The glass-break function takes advantage of the fact that an initial high energy shock is followed by a low energy shatter when glass is broken. Thus, to test you must provide both an initial hard shock and a second follow-up shock. SO, BE SURE TO HIT THE GLASS TWICE WHEN TESTING. Adjust the sensitivity to a point where only a firm tap will be detected.

CLOSED CIRCUIT MAGNETIC REED SWITCHES

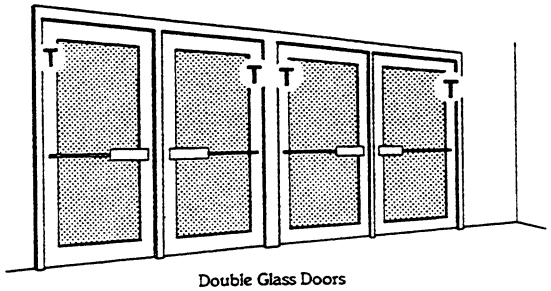
You can add up to five normally closed magnetic reed switches which open on alarm to a SHOCK SENSOR. Simply connect them in series with the Litton detectors. Be sure to use reed switches, not mechanical switches.

A Litton detector is not designed detect a window when it is opened, only when it is broken out.

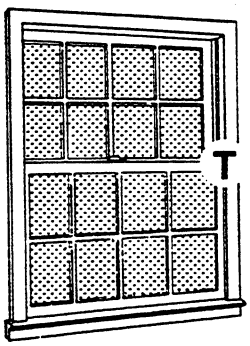
SUGGESTED INSTALLATION LOCATIONS:



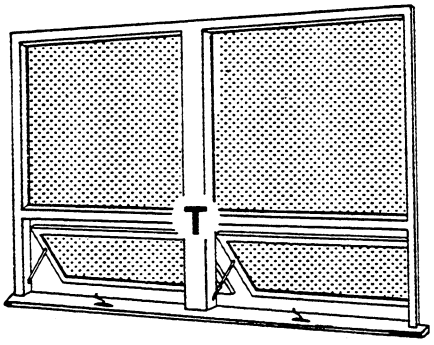
Store Front



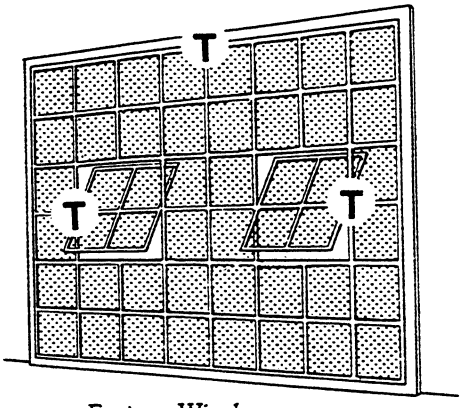
Double Glass Doors



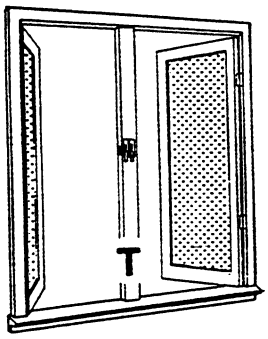
Double Hung



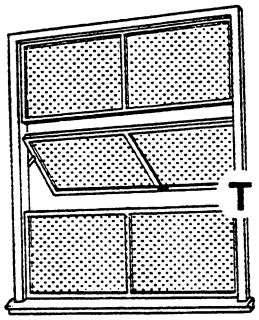
Wood Awning



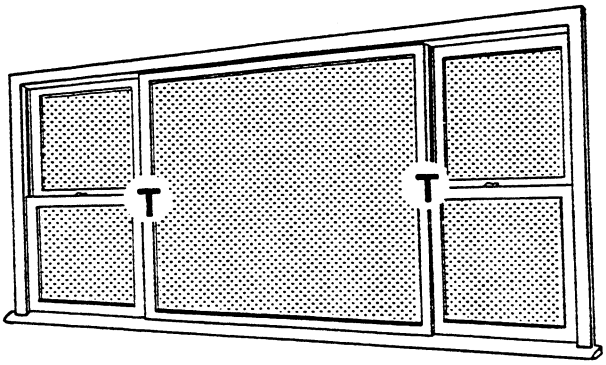
Factory Window



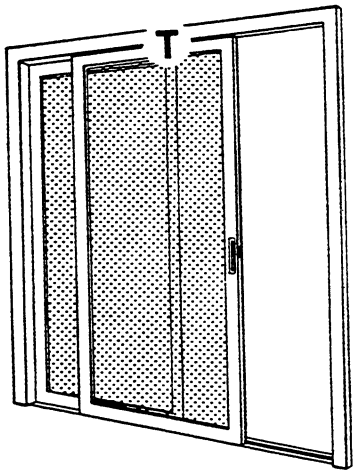
Casement



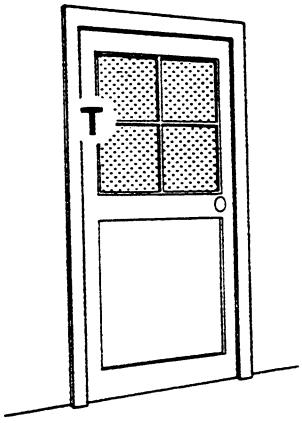
Metal Awning



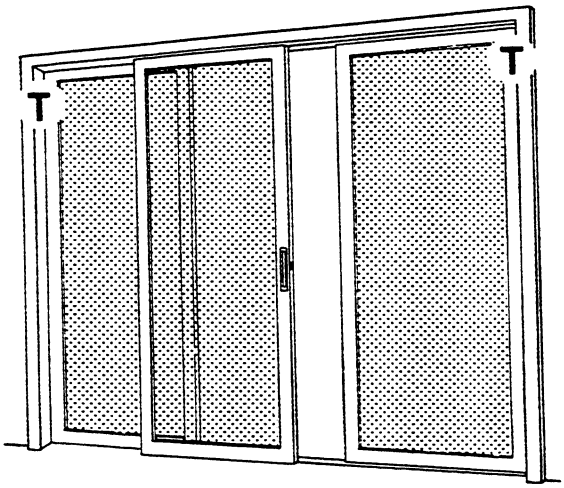
Residential Picture



Double Sliding Glass Doors



4-Lite Residential Door

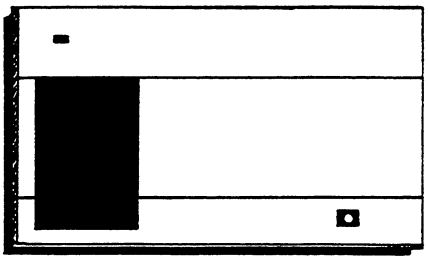


Triple Sliding Glass Doors

PASSIVE INFRARED MOTION SENSOR
Model # 60-047

The Passive Infrared Modion Sensor has not
been investigated by Underwriters Laboratories.

OVERVIEW



A Passive Infrared (PIR) Sensor adapts to the environment in which it is placed and continually gathers information about that area. Any change in this stable environment caused by an object which which emits a different degree of Infrared heat energy is sensed and an alarm is generated.

MOUNTING CONSIDERATIONS

(1) If possible, mount the passive so there is a reference point (wall) at the end of its pattern.

(2) Mount these sensors so an intruder will most likely walk ACROSS the beams.

(3) Permanently mount the PIR. Do not simply set it on a shelf without screwing it down because the customer might move it and change its field of view.

(4) Mount at between 3 and 6 feet high for best detection.

(5) **PETS.** Notice when you study the patterns of the DS984 sensor that some of its detection patterns include "down fingers" or sabotage zones so that an intruder cannot sneak under the field of view. For installations having pets to contend with these must be taken into consideration. *Be sure to use the special lens pattern that does not have down fingers if pets will be on premise when the system is armed.*

(6) DO NOT ATTEMPT TO MASK OFF ZONES. Masking down looking zones should be avoided as ghost images will be present and will likely detect pets walking close to the detector.

(7) Even though these Passives are highly immune to false alarms you should follow these standard Passive Infrared locating guidelines:

* Don't locate in direct sunlight.
* Don't aim at air conditioners, heat vents, wood stoves, fireplaces, etc.
* Don't aim at moving objects (curtains, hanging displays, etc).
* Attempt to mount on an outside wall facing in.
* Do not aim at solar heated walls or uninsulated metal walls.

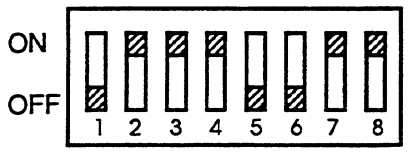
(8) NEVER AIM A PIR AT A WIRELESS TOUCHPAD or at ANY PROTECTED DOOR. If your PIR were to transmit at the EXACT same moment as a Wireless Touchpad or a entry door transmitter a transmission could be missed.

(9) As with any radio transmitter, avoid mounting on or near large metal objects such as a heat duct or foil wallpaper.

PROGRAMMING THE DS-984 PASSIVE INFRARED SENSORS

1. Remove the PIR front cover. This will expose both the detector and the transmitter.
2. Program each PIR's House Code and Sensor Number by properly setting the switches of the eight position dip switch or programming comb.

   This eight position dip switch serves the same purpose as the 8 inner teeth of the Door/Window Sensor programming comb. Switches 1 & 2 set the House Code; 3-5 set the first digit of the Sensor Number; and, 6-8 set the second digit value of the Sensor Number.



PROGRAMMING SWITCHES
Example: House Code = 01, Sensor Number = 63

SELECTING THE "HOUSE CODE"

To select the correct HOUSE CODE you must correctly set switch 1 and switch 2 of the 8 position switch block as follows:

HOUSE CODE	SWITCH # -1-	-2-
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

SELECTING THE 2 DIGIT SENSOR NUMBER

To select the correct 2 digit SENSOR NUMBER you must correctly set switches 3-5 for the first digit and 6-8 for the second digit.

SENSOR NUMBER	ARMED IN THESE LEVELS	1st DIGIT SWITCHES 3	4	5	2nd DIGIT SWITCHES 6	7	8
60	4,5,6,7	ON	ON	OFF	OFF	OFF	OFF
61	4,5,6,7	ON	ON	OFF	OFF	OFF	ON
62	4,5,6,7	ON	ON	OFF	OFF	ON	OFF
63	4,5,6,7	ON	ON	OFF	OFF	ON	ON
64	4,5	ON	ON	OFF	ON	OFF	OFF
65	4,5	ON	ON	OFF	ON	OFF	ON

The sensors below INITIATE an entry delay. The sensors above will honor a delay initiated by an entry door or sensor below, otherwise they will be instant.

66	4,5	ON	ON	OFF	ON	ON	OFF
67	4,5	ON	ON	OFF	ON	ON	ON

NOTE 1: The CPU does NOT require a "restore" signal from the above numbers. Thus they are not capable of preventing system arming.
NOTE 2: See page 47 for a Programming Hint.

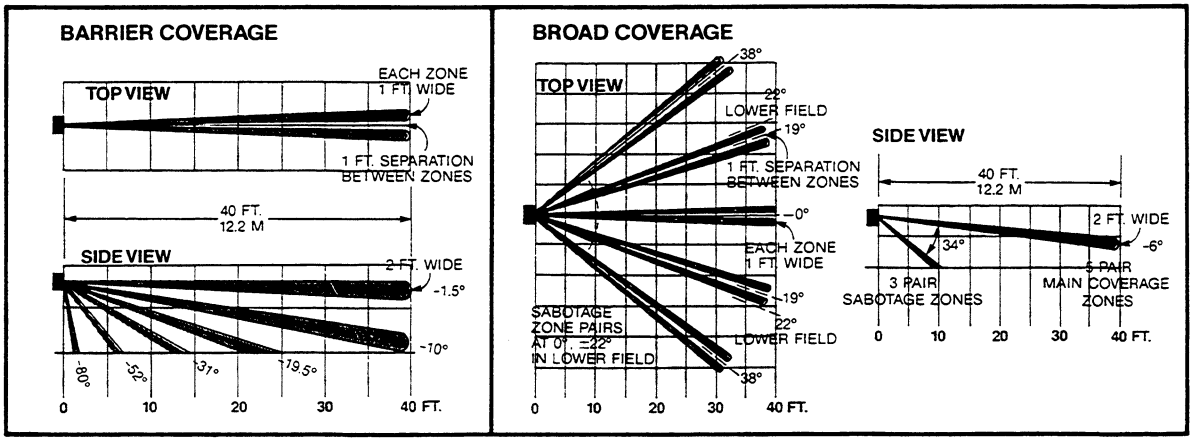
COVERAGE PATTERNS AVAILABLE

STANDARD PATTERNS: Determine the appropriate coverage pattern for the application, either barrier coverage or broad coverage. The standard lens can be "flipped" to select either barrier or wide angle coverage. These patterns are shipped with every PIR.

STANDARD BARRIER COVERAGE - 6 pairs of zones oriented one above the other at varying degrees create a "curtain" of coverage extending out 40' feet.

STANDARD WIDE ANGLE COVERAGE - 5 pair of zones 40' feet wide at widest point and 40' feet out at center. 3 pair sabotage zones in lower field.

STANDARD

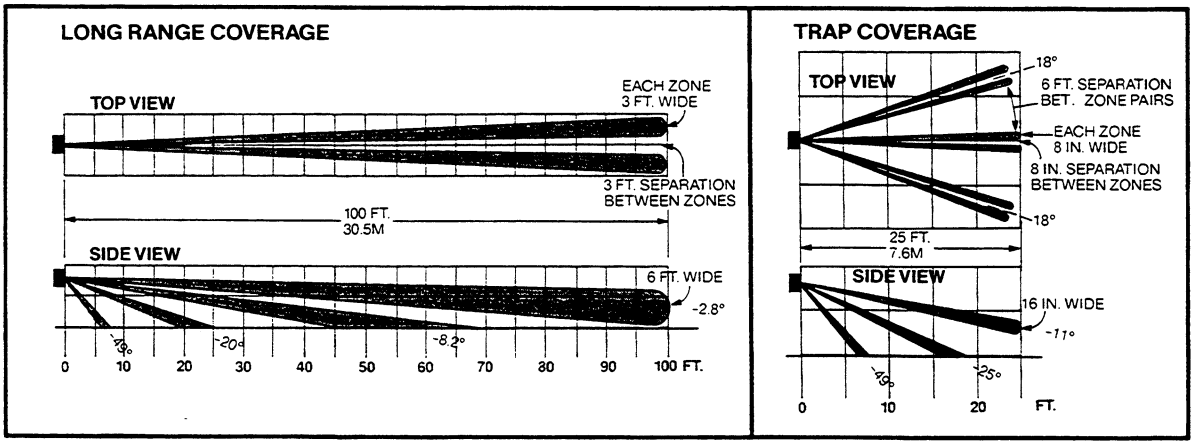


OPTIONAL PATTERNS: PART #13-009. The following two optional patterns are available by purchasing an additional lens which contains both optional patterns. The optional lens can be "flipped" to select either barrier or wide angle coverage.

OPTIONAL BARRIER COVERAGE - 4 pairs of zones oriented one above the other at varying degrees create a "curtain" of coverage extending out 100' feet.

OPTIONAL WIDE ANGLE COVERAGE - 3 pair of zones 20 feet wide at widest point and 25 feet out at center. 2 layers of sabotage zones in lower field.

OPTIONAL

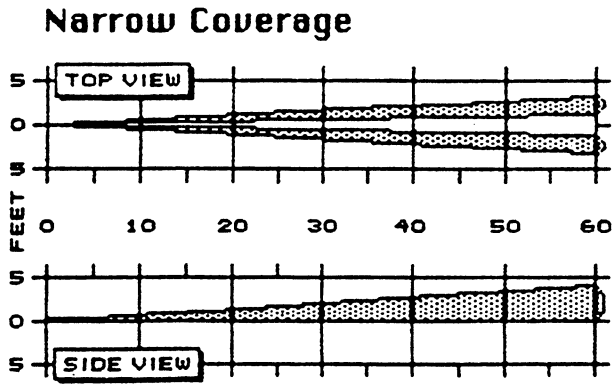


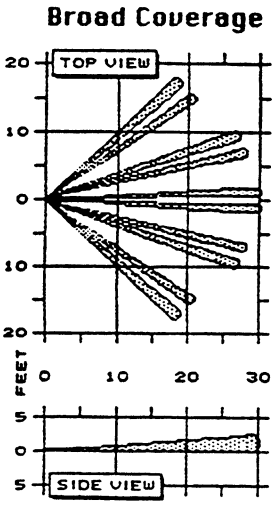
PET ALLEY PATTERNS: PART # 13-020. The following two optional patterns are available by purchasing an additional lens which contains both optional patterns. The optional lens can be "flipped" to select either barrier or wide angle coverage.

PET ALLEY BARRIER COVERAGE - One pair of zones approximately 10' wide at the widest point (60 feet). No sabotage zones.

PET ALLEY WIDE ANGLE COVERAGE - 5 pairs of zones approximately 40 feet wide at widest point (30 feet). No sabotage zones.

INSTALLATION CONSIDERATIONS - Install unit no lower than twice the height of the pet, maximum height 5 feet. Make sure the field of view is clear of all furniture or other object upon which the pet could climb *or jump* resulting in an unwanted alarm.

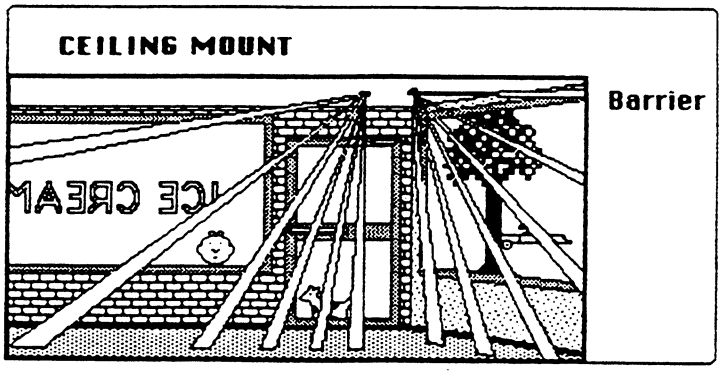


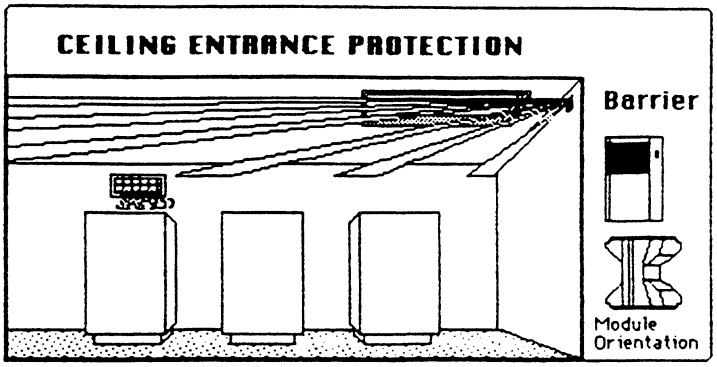


SPECIAL MOUNTING LOCATIONS:

The unit can be used to horizontally protect potential ceiling entrances, such as skylights, by rotating the unit one quarter-turn from normal. Mount the unit on the side wall close to the opening. Avoid positioning in direct or reflected sunlight.

When wall mounting is difficult, you can mount the unit on the ceiling if the ceiling is very rigid and free from vibration. More than one unit can be located in the same general area without any worry about interference.





MOUNTING THE DS-984 PASSIVE INFRARED SENSOR

1. Select a mounting height (between 3 and 6 feet) and location which avoids common sources of false alarms, yet maximizes detection potential.

   AVOID: (1) Direct exposure to hot or cold drafts
   (2) Direct exposure to sunlight
   (3) Do not aim at windows or uninsulated walls
   (4) Do not aim at air conditioning outlets, heat vents, radiators
   (5) Avoid small animals

2. Remove the PIR cover by squeezing the top and bottom of the enclosure until the retaining tabs release.

3. Remove the detector circuit board assembly from the chassis by pulling back the retainer tab. One mounting hole is located under the board.

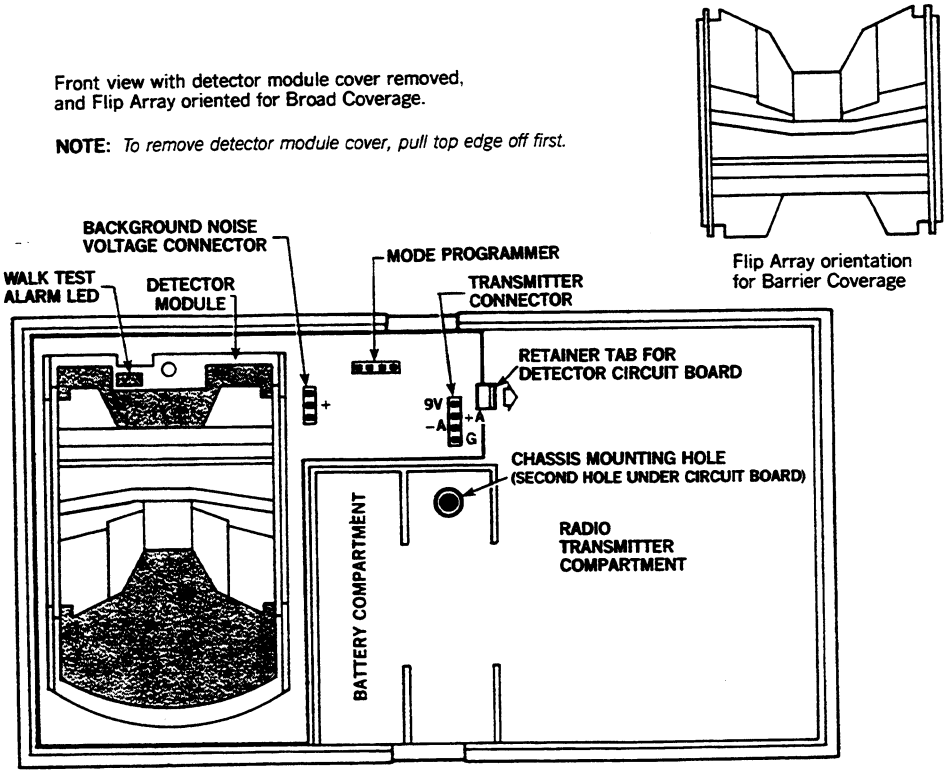
4. Remove the two batteries. The second mounting hole is under the right battery.

5. Use the the chassis as a template and mark the location of the mounting holes.

6. Level and mount the chassis using the screws and plastic anchors provided.

7. AIMABILITY - Achieved by "shimming" the detector housing if required.

8. Replace the batteries and detector circuit board in the chassis. Place the detectors left edge in first, then snap into place.



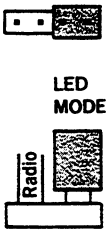
INSIDE THE DS-984 PASSIVE

INITIAL SETUP

- Connect a fresh 9V Alkaline battery to the detector mating connector, and insert into the battery compartment.

- Set Mode Programmer plug for LED operation.

  NOTE: *Use LED Mode during unit test, only. Repeated or prolonged usage of the detector in the LED Mode will reduce expected battery life.*

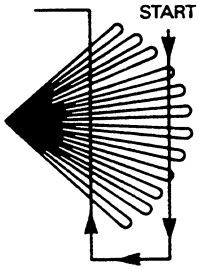


- Remove detector module cover (pull top edge first), and position Flip Array for broad or barrier coverage.

- Reattach detector module cover.

WALK TESTING

NOTE: *Walk testing should be done across the field of view.*



- Wait at least **two minutes** after applying power to start walk tests.

- The edge of the pattern is determined by the first flash of the Walk Test/Alarm LED.

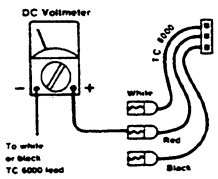
- Walk test the unit from the opposite direction to determine both boundaries.

  HINT: Any standard 20,000 ohms/volt DC VOM connected to the Background Noise Voltage Connector can aid in alignment. Set for 3 VDC full scale.

- *If rated range can not be achieved,* try shimming the back of the unit up or down to assure the pattern is not aimed too low or too high due to an uneven mounting surface.

FINAL TESTS

NOTE: *Meter readings are very important in determining background disturbance levels and catch margin sensitivity.*



- Connect a 20,000 ohm/volt (or greater) DC VOM to the Background Noise Voltage pins as shown. Set meter scale for about 3 VDC.

- The base reference level for reading background noise or target voltages is approximately 1.5 VDC. Installations in quiet environments, therefore, will result in a steady meter reading between 1.4 VDC and 1.6 VDC.

- Again, walk test across farthest edge of coverage.

  Voltage changes greater than 1 VDC from the reference level are desirable. If changes are less than plus or minus 1 VDC, the device may fail to respond at this distance if the temperature difference between the intruder and the background is very small. Try adjusting the unit up or down to maximize the voltage change during walk test.

- Turn on all heating and cooling sources that would normally be in operation during times of protection. Stand away from the unit and outside the protection pattern, then monitor background noise for at least 3 minutes. Readings should not deviate more than .15 VDC from the reference level. If it does, eliminate the cause, or readjust the unit slightly.

FINAL SETUP

- Set detector Mode Programmer plug for radio operation when final testing is completed. This mode disables the LED.

  NOTE 1: *Repeated or prolonged usage of the detector in the LED Mode will reduce expected battery life.*

  NOTE 2: *When in the Radio Mode, an alarm can be transmitted only after there has been three (3) continuous minutes of NO ACTIVITY in the detector's coverage patterns AFTER THE PREVIOUS ALARM.*

- This completes testing of the detector. Please refer to any additional instructions that may concern testing of the radio transmitter.

BE SURE TO PUT THE MODE JUMPER BACK INTO THE "RADIO MODE" WHEN DONE TESTING.

POWER SOURCE: Two (2) 9 volt alkaline batteries

BATTERY LIFE: Twelve months or more in RADIO MODE. Continued operation in the LED MODE after initial installation will drastically reduce battery life.

BACKGROUND NOISE VOLTAGE: Passive Infrared "noise" is caused by changes of temperature of solid objects, size and closeness to the detector, and amount of temperature. This noise is changed into a voltage which can be read by a meter. The maximum allowed noise, with no motion, is 0.15V DC.

TEMPERATURE RANGE: +32°F TO +120°F (+0°C TO +49°C)

TEST FEATURES: Test voltage pins for visual (with meter) or audible (with sona) indication of pattern. May also be used for measuring background thermal disturbance. Fast-reset LED walk light indicates when unit alarms, the LED shows present disturbances. When in the LED mode the PIR will transmit every time tripped.

TRANSMITTER LOCKOUT: In the Radio Mode the transmitter will transmit once, then "lockout" (i.e.,, not transmit again) unless the detector sees no motion for at least 3 minutes. Any movement prior to 3 undisturbed minutes causes this timer to reset and another 3 undisturbed minutes would be required before the unit will transmit.

NOTES ON INTERFACING OTHER PASSIVES TO AN ITI TRANSMITTER

It is possible to interface one of our Door/Window Sensors to another manufacturers passive Infrared detector. There are, however, several things that must be taken into account.

(1) Remember, with our passive we monitor both batteries, if you use someone else's, only our battery will be monitored, the battery that powers the passive will not report to the CPU when it is getting low.

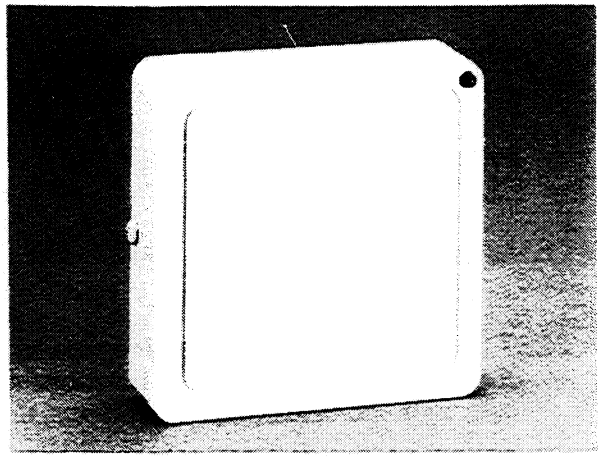
(2) Our transmitter does not detect its own low battery until it gets down to about 5.7 volts. Most passives will not work at this low a voltage. Many will false alarm between 6.5 and 7 volts. This would be several months before the battery in our transmitter would even report that its battery is getting low.

(3) Our passive has a three minute lockout timer built in so it will not trip hundreds of times a day in a busy family room or retail store. Without this timer the battery life can be shortened dramatically. We have known batteries to drain in as few as 2 or 3 months. Be sure the passive you use has a 3 to 5 minute timer built-in.

(4) In summary, it is best to use the PIR we supply, unless you can overcome all the problems outlined above.

SOUND SENSOR
Model 60-049

The Sound Sensor has not been
investigated by Underwriters Laboratories.



OVERVIEW

The ITI Sound Sensor consists of a sound discriminator and a special ITI transmitter built into the same unit. The sound discriminator circuitry is specially made to our specifications by Unisec, Inc. The Sound Sensor is designed to respond only to intense sounds: breaking glass, splintering wood, metal-to- metal contact, etc.

SETTING THE PROPER HOUSE CODE AND SENSOR NUMBER

The ITI Sound Sensor has a programming comb, just like a Door/Window Sensor which must be properly cut or bent to the desired House Code and Sensor Number. To expose the programming comb you must open the back of the detector and GENTLY unplug the transmitter board. Cut the comb in place, or remove it from the plastic base, whichever you find easier. Select a sensor number for any interior momentary device, sensors 60 through 67.

INSTALLATION CONSIDERATIONS

(1) Although our Sound Sensor can protect a large area, we recommend that you be conservative in determining how much area you want one Sound Sensor to protect. Sound discriminators can be a cause of false alarms if the sensitivity is set too high in an attempt to cover too large an area.

(2) Never install two sound sensors in the same room. If both were tripped at the exact same moment by the same loud noise, the transmissions could clash and one or both might not be received by the CPU.

(3) Some large commercial plate glass windows which have a thickness of 1/4" (6 mm) or more are tempered glass. Tempered glass has different shattering frequency characteristics than normal window glass encountered in homes. Do not use a Sound Sensor to protect commercial tempered glass.

(4) Installation of a Sound Sensor requires common sense when deciding on whether or not an environment is suitable. With a passive Infrared sensor, you must avoid sources of heat such as heat vents and windows. With a Sound Sensor you must avoid sources of loud noises, such as those listed below:

1. Avoid doors with metal mail chutes or door knockers.
2. Avoid metal pole buildings and buildings with sliding metal or metal rollup doors.
3. Avoid china or glass stores.
4. Avoid noisy machinery and air compressors.

5. Avoid mechanical rooms and furnace rooms.
6. Avoid steam heat radiators that can clang or hiss.
7. Avoid small dogs with high pitched barks.
8. Avoid "squeeze toys" that whistle when played with.
9. Keep a sensor 10 feet away from a telephone or doorbell.
10. Some electronic telephones and electronic door chimes have sonic ringers that can cause problems.
11. Avoid buildings that shake from nearby airports or railroad tracks.

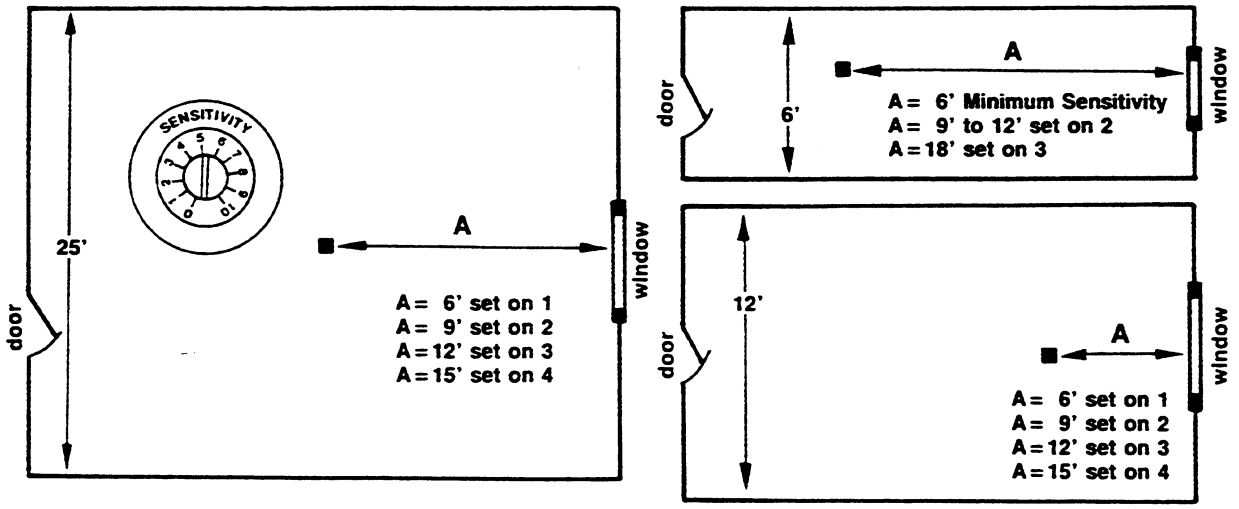
(5) If you are in doubt whether or not an area is quiet enough for a Sound Sensor, then try it. Turn the sensitivity up all the way to 10. Then turn on everything that makes noise. If it doesn't trip when set at full sensitivity, then odds are it won't trip when set to a normal setting of 1 to 5.

INSTALLATION INSTRUCTIONS

(1) Mount the Sound Sensor in its permanent location. Select a location that is, if possible, equal distance from all glass that is to be protected.

NEVER locate the Sound Sensor more than 15 feet from the farthest glass area to be protected. The Sound Sensor can be ceiling or wall mounted.

(2) By using the drawings below as a guide, set your preliminary sensitivity.



(3) Close all doors, windows and curtains in the area to be protected if they will be closed when the system is armed.

(4) Turn on all sound producing equipment that normally operates during the time the sensor will be armed (heaters, air conditioners, etc.).

(5) Arm your CPU to Level 9, SENSOR TEST.

SETTING SENSITIVITY WITH THE IMPACT SIMULATOR

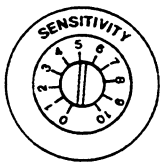
(1) When testing, hold Impact Simulator near glass that is being protected. If several windows are in the same room, test at the farthest point.

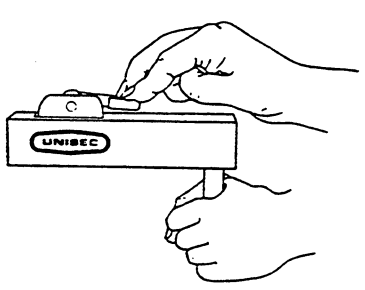
(2) If windows being protected have curtains, hold the Impact Simulator behind the curtains when testing. A Sound Sensor may not detect a window being broken if the window is behind heavy insulated or quilted shades or curtains.

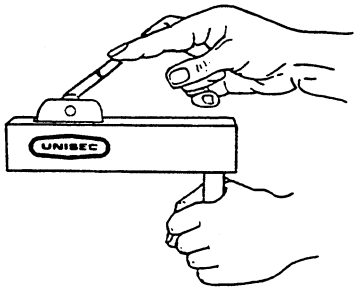
(3) Firmly hold the wood handle in your left hand and pull snap hook back all the way (180 degrees) and release. The Sound Sensor's LED should light and the CPU test beep should sound.

(4) Now pull the snap hook back 3/4ths way (135 degrees) and release. The Sound Sensor SHOULD NOT activate. If it does, the sensitivity is set too high.

(5) By moving the sensitivity adjustment 1/2 setting each time, increase or decrease the sensitivity until the sensitivity is correct according to the procedure in steps 3 and 4.

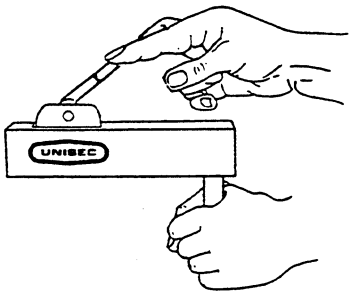


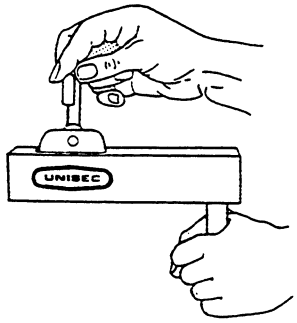




NOTE 1 You must wait a FULL 10 SECONDS between tests.

NOTE 2 For high sensitivity in sound isolated areas (such as in vaults or interior store rooms) you may set the sensitivity so it trips at 3/4 setting (135 degrees) but, does not trip at 1/2 setting (90 degrees).

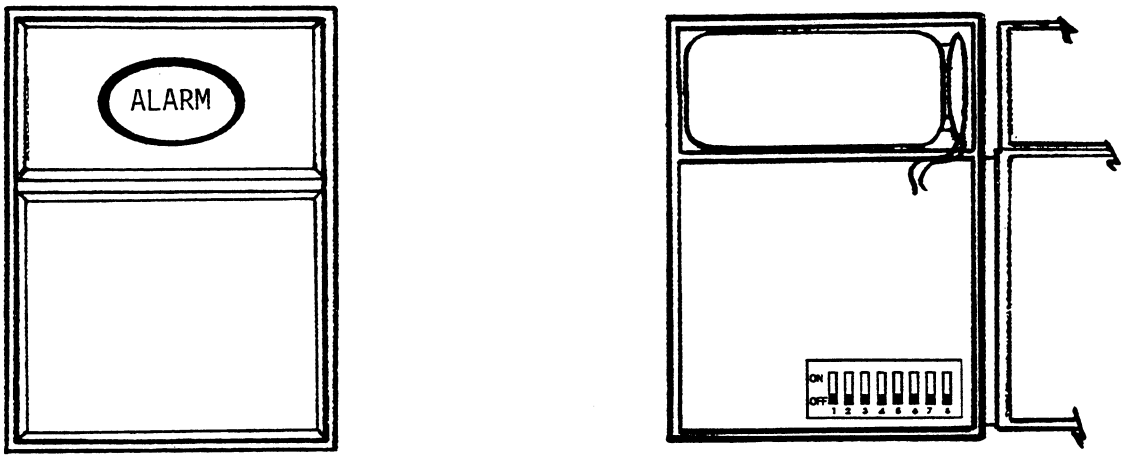




PORTABLE PANIC BUTTONS
Model # 60-035

The Portable Panic Button has not been
investigated by Underwriters Laboratories.

Portable, hand held "panic" transmitters can be carried about the house. They are used as panic buttons typically to activate 24-hour "police emergency" alarms or 24-hour "medical emergency" alarms. They could, however, be programmed to any Sensor Number from 02 to 76.



FRONT VIEW REAR VIEW

PORTABLE PANIC BUTTON

NOTE: PORTABLE PANIC BUTTONS DO NOT SEND A SUPERVISORY SIGNAL AS DO OTHER TRANSMITTERS. This is so they can be taken from the house without causing supervisory reports to be sent to the Central Station indicating they are missing. Because the portable panic button does not test itself through the use of supervisory signals it is important to instruct the customer to test the device regularly.

PROGRAMMING THE "PORTABLE PANIC BUTTON"

Program the Portable Panic Button's proper HOUSE CODE and SENSOR NUMBER by properly setting the switches on an eight position dip switch on the transmitter's PC board.

Switches 1 and 2 set the HOUSE CODE; 3-5 the first digit of the SENSOR NUMBER; and 6-8 the second digit of the SENSOR NUMBER.

SELECTING THE "HOUSE CODE"

To select the correct HOUSE CODE you must correctly set switch 1 and switch 2 of the 8 position switch block as follows:

HOUSE CODE	SWITCH # -1-	-2-
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

SELECTING THE 2 DIGIT SENSOR NUMBER

To select the correct 2 digit sensor number you must correctly set switches 3-5 for the first digit and 6-8 for the second digit. Refer to the table below:

SENSOR NUMBER	1st DIGIT SWITCHES 3 4 5	2nd DIGIT SWITCHES 6 7 8
POLICE EMERGENCY, **unsupervised**, loud intermittent police siren		
02	OFF OFF OFF	OFF ON OFF
03	OFF OFF OFF	OFF ON ON
POLICE EMERGENCY, **unsupervised**, silent		
04	OFF OFF OFF	ON OFF OFF
05	OFF OFF OFF	ON OFF ON
POLICE EMERGENCY, **supervised**, loud intermittent police siren		
06*	OFF OFF OFF	ON ON OFF
POLICE EMERGENCY, **supervised,** silent		
07*	OFF OFF OFF	ON ON ON

* **NOTE:** Sensors 06 and 07 are also set aside for Police Emergency, however, they are SUPERVISED. Thus, they would be used with a regular supervised transmitter wired to a panic button of some type. They would not be used with unsupervised portable panic transmitters.

MEDICAL EMERGENCY, **unsupervised,** low level beeping siren		
10**	OFF OFF ON	OFF OFF OFF
11**	OFF OFF ON	OFF OFF ON

** **NOTE:** Sensors 10 and 11 are set aside for Medical Emergency, however, they are UNSUPERVISED. Thus, they would be used with a ITI Portable Panic Button.

The central station operator can change 10 and/or 11 to supervised if you want to use them with a fixed panic button wired to a supervised transmitter. He or she would use the GROUP command as shown below:

```
GROUP 10 01 C     <<< Where 10 is the sensor number
GROUP 11 01 C     <<< Where 11 is the sensor number
```

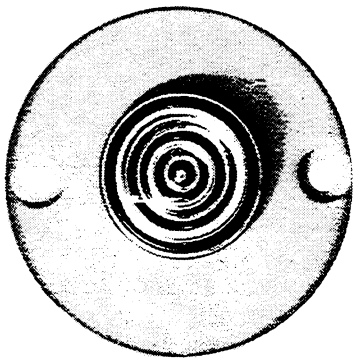
Refer to the Central Station Manual for more details.

INSTALLATION

Most of the time Portable Panic Buttons don't require any installation, since your customer will want them to remain completely portable. However, sometimes you might want to attach some Velcro hook and loop tape to a Panic Button. You could then locate them next to a entry door that a stranger might come to, near beds, etc.

FREEZE DETECTOR

The freeze detector has not been investigated by Underwriters Laboratories.



Our Freeze Detector is a separate detector that you can easily connect to a Door/Window Transmitter. The most most common use of a Freeze Detector will be in a home to detect a furnace failure.

Our freeze detector will open a switch when the temperature drops to about 45°F. In the event the Freeze Detector is ever activated, it typically must be heated up to 55° F for it to reset.

LOCATING A FREEZE DETECTOR

More than one Freeze Detector may be necessary to adequately cover a large home or business. If you rely on only one detector keep in mind that it only monitors an open area of about 900 square feet (30'x30'). Thus, be sure to locate a single detector in area of the home or business that is likely to get cold first in the event of a furnace failure.

In general, mount a Freeze Detector on an interior wall in an open, heated area of the building where the temperature would drop in the event of a furnace failure. Always follow the manufacturers guidelines when mounting a freeze detector, however, some DO's and DON'Ts follow:

DO NOT locate the detector in the same room as a furnace, water heater, or any other heat source that might stay warm after the furnace was to fail.

DO locate the detector in an area that is likely to get cold first.

DO NOT locate the detector on an outside wall or near the basement floor.

DO locate the detector on an interior wall low in the room.

DO NOT locate the detector in a confined area such as a small closet.

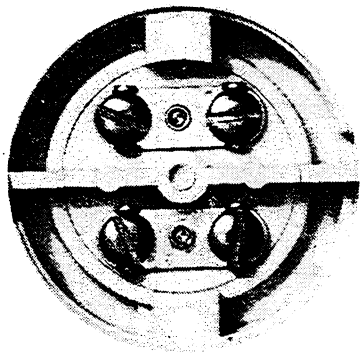
DO locate the detector where there is free movement of air.

SELECTING THE DETECTOR NUMBER

Choose a sensor number from among the 24 Hour Environmental Sensor Numbers, 12 through 17. Program the freeze detector transmitter just like you would any other Door/Window Transmitter.

CONNECTING A FREEZE DETECTOR TO A DOOR/WINDOW TRANSMITTER

Connect the detector to the NORMALLY CLOSED contacts on the bottom of a Door/Window Transmitter. Refer to the wiring diagram on page 54.

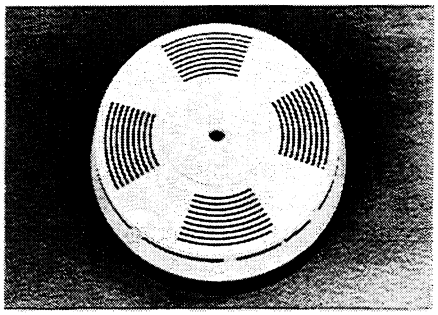


TESTING THE FREEZE DETECTOR

Arm the CPU to protection Level 9, SENSOR TEST. Place an ice cube (or use freeze mist spray) against the flat surface of the thermostat disc. The Freeze Detector will trip the transmitter as soon as you cool it down to 45°F. To reset the Freeze Detector, warm it with your thumb.

ESL SMOKE SENSOR

Model SMK-2, Part #60-032. Underwriters Laboratories
Listed Single Station Smoke Detector.



The ESL Smoke Sensor (SS) is a photoelectric type that contains its own alarm horn and low battery annunciator. It has an output that will trip a special transmitter already built into the detector. The built in alarm will sound as long as smoke remains in the detector. It is powered by two 9 volt alkaline batteries. The unit will make a short "beep" sound every minute when the smoke detector's battery becomes low. If the transmitter battery becomes low it will send a LOW BATTERY report to the SX-IVB.

THIS SMOKE DETECTOR REQUIRES DURACELL BATTERIES. DO NOT USE ANY SUBSTITUTES.

Refer to the Owners Manual included with each smoke detector for detailed information on the detector. Also, be sure to give the Smoke Detector's Owners Manual to the purchaser of the system after the installation is complete.

Additional information on Household Fire Warning is available at nominal cost from: The National Fire Protection Association, Battery March Park, Quincy, MA 02269. Request NFPA Std. 74.

LOCATING THE SMOKE SENSOR

While it is not possible to get too specific about smoke detector location (since each house has different design requirements), there are some guidelines that can be followed. **Refer to the detector's Owners Manual for detailed information on detector location.** Some additional hints appear below:

* Determine the best locations for each smoke sensor so as to optimize early detection and maintain accessible escape routes out of the building.

* Stairways - A smoke detector should be located at the bottom of the basement stairwell(s). For all other levels, it is usually best to locate smoke detectors at the top of the stairwell.

* Sleeping Areas - A smoke detector should be located in any hallway servicing bedrooms. For maximum protection, place a smoke detector inside each bedroom, especially smoker's bedrooms or bedrooms where electric blankets or other electrical devices are used.

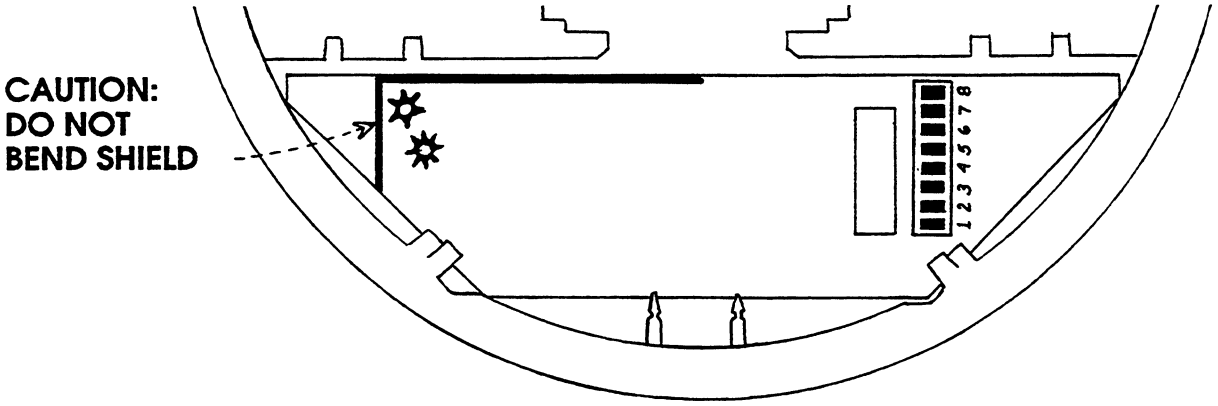
* Ceilings - Whenever possible, mount detectors on ceilings, as close to the center as possible. When mounting on ceilings, make sure that the detector is no closer than 4 inches from any wall. For wall mounting, make sure that the nearest edge of the detector is at least 4" and no more than 6" from the ceiling.

* Avoid mounting detectors on any sloped surface.

PROGRAMMING THE SMOKE SENSOR'S TRANSMITTER

Open the smoke sensor's hinged cover by removing the mounting bracket and releasing the cover latch by pushing on the plastic tab recessed into the bottom of the detector.

Program the smoke sensor transmitters proper HOUSE CODE and SENSOR NUMBER by properly setting the switches on the eight position dip switch on the bottom of the smoke sensor.



Switches 1 and 2 set the HOUSE CODE; 3-5 the first digit of the SENSOR NUMBER; and 6-8 the second digit of the SENSOR NUMBER.

SELECTING THE "HOUSE CODE"

To select the correct HOUSE CODE you must correctly set switch 1 and switch 2 of the 8 position switch block as follows:

HOUSE CODE	SWITCH # 1	2
0	OFF	OFF
1	OFF	ON
2	ON	OFF
3	ON	ON

SELECTING THE SENSOR NUMBER

To select the correct 2 digit SENSOR NUMBER you must correctly set switches 3-5 for the first digit and 6-8 for the second digit.

SENSOR NUMBER	1st DIGIT SWITCHES 3	4	5	2nd DIGIT SWITCHES 6	7	8
20	OFF	ON	OFF	OFF	OFF	OFF
21	OFF	ON	OFF	OFF	OFF	ON
22	OFF	ON	OFF	OFF	ON	OFF
23	OFF	ON	OFF	OFF	ON	ON
24	OFF	ON	OFF	ON	OFF	OFF
25	OFF	ON	OFF	ON	OFF	ON
26	OFF	ON	OFF	ON	ON	OFF
27	OFF	ON	OFF	ON	ON	ON

INSTALLING THE SMOKE SENSOR

Mount directly onto wood surfaces using the screws provided with every detector. If mounting onto plaster or drywall be sure to use the plastic screw anchors provided. Drill a 3/16" hole for the plastic anchors.

TESTING SMOKE SENSORS

The following procedure can be used for testing. This procedure can be done now or you can wait until the final testing of the entire system.

1. Make sure that the CPU is programmed with the sensor number(s) of the smoke sensor(s) being installed. If they are not, program them into the CPU following the procedure outlined in the section PROGRAMMING THE SX-IVB.

2. Arm the CPU to protection Level 9 (SENSOR TEST). The sensor numbers of the smoke sensors being tested should scroll through the CPU display window.

3. Refer to the Smoke detector's installation manual for testing procedures.

   Optionally "canned smoke" or some other smoke source (a smoldering hemp rope) can be used to test the detector. Use canned smoke sparingly, a one or two second spray from 2-3 feet will be sufficient. Don't give a can to your customer. Too frequent use may affect detector sensitivity.

4. Check the scrolling sensor numbers on the CPU. The sensor transmitted successfully if the detector's sensor number is no longer displayed.

5. It is a good idea to check the CPU fire alarm by disarming to Level 0 and setting off the detectors. Any sirens should sound with a steady loud siren. The smoke sensor alarm will stop a few seconds after the test button is released.

NOTE 1: The alarm system sirens and the smoke sensor's built in siren will BOTH sound when smoke is detected. The CPU alarm is cancelled from the Wireless Touchpad (access code + 0) and the detector's alarm is cancelled by fanning the detector free of smoke, or by releasing the test button.

NOTE 2: If the phone jack is plugged in, the Central Station* will receive the alarm. The Central Station* must be informed before testing begins.

* U.L. NOTE: The ITI Central Station Receiver has not been investigated by U.L.

HEAT DETECTORS

OVERVIEW

The information on this page is general in nature. Be sure to read the specification sheets that come with the thermostats you select. ***Select only sensors that have been listed by UL.***

Heat detectors, which can be connected to a Door/Window Transmitter, are designed to detect the heat caused by a fire. There are two types, Fixed Temperature Thermostats and combination units called Rate-of-Rise Thermostats, which also include a fixed temperature thermostat in their design. Either of these types of heat detectors can be connected to a sensor.

FIXED TEMPERATURE THERMOSTAT

Fixed temperature thermostats detect the heat from a fire at certain temperatures, typically either 135° F or 190° F. The 135° thermostats are ideal for normal room use. Use the 190° thermostats where ambient temperatures exceed 100° F, such as in attics, boiler rooms and hot kitchens.

Typically, Fixed Temperature Thermostats are U.L. Listed to permit spacing of 20 feet by 20 feet giving area coverage of 400 square feet per thermostat. Check the specifications of the thermostat you select.

RATE-OF-RISE THERMOSTATS

Rate-of-Rise/Fixed Temperature Thermostats are typically U.L. Listed for protecting spaces of 50' x 50' or 2,500 square feet. Like other thermostats, these will initiate an alarm signal when a fixed temperature is reached, typically 135°F or 190-200°F. In addition, since many fires grow rapidly in intensity, resulting in fast rising temperatures, these detectors are designed to sense the rate at which temperature is changing. They will, therefore, respond to any increase in temperature which is abnormally fast. You must be careful not to mount Rate-of-Rise detectors too close to something that changes temperature fast, such as above an oven or near a heat duct, furnace or boiler.

Rate-of-Rise thermostats should not be tested with a flame since this will necessitate replacing the unit. When tripped by rapid temperature increases, these thermostats will reset themselves if the fixed setting is not reached.

SELECTING THE SENSOR NUMBER

Choose heat detector sensor numbers from the fire group, sensors 20-27. Program the House Code and the Sensor Number just as you would for a Door/Window Sensor.

INSTALLATION

Thermostats are typically open circuit devices which supply a closure on alarm. The thermostats can be mounted in unheated areas such as garages and attics, but remember the transmitter must be mounted in a heated area of the dwelling. Ceiling mounting near center of area to be protected is recommended.

TESTING

Periodic testing of the thermostats is recommended. Heat from any convenient source such as a portable hair dryer is suggested.

PROGRAMMING THE SX-IVB

Now that you have the CPU, Wireless Touchpads and the various sensors installed you can program the delays, access codes and the sensor number of each transmitter into the CPU's memory. You use the Wireless Touchpad to program the CPU.

Following the instructions below you should now program the following information into the memory of the CPU:

SENSOR NUMBER of every transmitter
ENTRY DELAY TIME
EXIT DELAY TIME
ACCESS CODE
DURESS CODE
Any OPTIONAL SENSOR NUMBERS (84,85,87,90 or 93)
Any OPTIONAL FEATURE NUMBERS (A0 thru A7)

To begin programming you must:

1. Be sure the CPU is in Protection Level 0.
2. Be sure to use a Wireless Touchpad set to the proper House Code.
3. Turn the Program Switch "ON" (up) to select program mode.
   The Protection Level Window should show "P". The sensor number window will scroll all preprogrammed numbers and any regular sensor numbers that you programmed previously.

PROGRAMMING OPTIONS

ADDING A SENSOR

Be sure the program switch is ON. Press STATUS on the Wireless Touchpad. This will momentarily clear the Sensor Number display. Before the display starts to cycle through again, depress the TWO DIGITS (i.e.: 05 not 5) on the Wireless Touchpad which make up the sensor number you wish to add. No wait is required before entering the next sensor number, but you must press the STATUS key before each sensor number (i.e. STATUS 35; STATUS 36). After adding all desired sensors, check the Sensor Number Window to be sure all are there.

DELETING A SENSOR OR PRE-PROGRAMMED SENSOR

Be sure the program switch is ON. Press BYPASS and the two digit sensor number to be deleted. If you delete several sensors, you must push the BYPASS button each time. No wait is required. After deleting any sensors, check the Sensor Number Window to be sure they are gone.

NOTE: Except for adding & deleting sensors, changes do not take effect unless confirmed by the "bouncing balls". Entering the wrong number of digits or a number out of the proper range prevents the change from taking effect.

CHANGING ACCESS CODE (preset to 1234)

Be sure the program switch is ON. Press the two AUXILIARY touchpads and then the desired four digit access code. Now wait for the "bouncing balls" to appear in the Sensor Number window and for an audible beep from the interior sirens. This indicates the data was accepted. If the bouncing balls don't appear, try again.

To avoid confusion, do not choose an access code in which two consecutive digits are identical. For example, do not use 1224. You can select 1212 if you want, since the double digits are not consecutive.

CHANGING DURESS CODE * (There is no preset Duress Code)

Be sure the program switch is ON. Press both POLICE buttons and the desired last two digits of the duress code, and wait for the "bouncing balls". The first two digits are the same as the Access Code set above. **WARNING: Make the last two digits of the Duress Code totally different from ALL DIGITS of the Access Code.**

CHANGING THE HOUSE CODE and the CARRIER CURRENT CHANNEL

It is not necessary to program the CPU's HOUSE CODE. It was set automatically to the same House Code that you set up in your Wireless Touchpad when you programmed in the first sensor number above. The CARRIER CURRENT CHANNEL is preset to "0".

If you wish to CHANGE the HOUSE CODE and/or CARRIER CURRENT CHANNEL then do this:

Be sure the program switch is ON. Press both FIRE buttons and a two digit number, and wait for the "bouncing balls". The first digit is the Carrier Current Channel and the second digit is the House Code. You must select the same Carrier Current Channel & House Code selected for any Wireless Interior Sirens. The four most common codes are 00,01,02,03. The Carrier Current Channel is used only by the CPU and the Wireless Interior Siren. The House Code is used by all components. If you change the House Code the Wireless Touchpad must be changed to agree with the number entered to continue programming.

CHANGING ENTRY DELAY TIME (preset at 32 seconds)

Be sure the program switch is ON. Press both POLICE buttons then STATUS and then the two digit entry time in seconds, from 0 to 44, and wait for the "bouncing balls". The number entered is rounded down to a multiple of four seconds.

CHANGING EXIT DELAY TIME (preset at 32 seconds)

Be sure the program switch is ON. Press both POLICE buttons then BYPASS and then the two digit exit time in seconds, from 0 to 44, and wait for the "bouncing balls". The number entered is rounded down to a multiple of four seconds.

OPTIONAL SENSOR NUMBERS *

The following are OPTIONAL SENSOR NUMBERS. These sensor numbers need to be programmed into the CPU memory if you want their respective features to work. They can also be deleted if a customer decides to have a feature removed from the system.

SENSOR NUMBER	ACTIVE LEVELS	DESCRIPTION
84	0 - 8	OPENING REPORT. If 84 is initialized, the CPU will report "84 OPENING REPORT" if an arming level is changed and the level being left was a closed level (3,4,5,6 or 7). 84 will clear from the CPU display after successfully reporting to the Central Station. **You MUST initialize 85 and you MUST NOT initialize A6 for this feature to work properly.**

* U.L. NOTE: Not investigated by Underwriters Laboratories.

SENSOR NUMBER	ACTIVE LEVELS	DESCRIPTION
85	0 - 8	CLOSING REPORT. If 85 is initialized, the CPU will report "85 CLOSING REPORT" if an arming level is changed and the level being entered is a closed level (3,4,5,6 or 7). 85 will clear from the CPU display after successfully reporting to the Central Station. *You **MUST** also initialize 84 and you **MUST NOT** initialize A6 for this feature to work properly.*
87	0 - 8	FORCE ARMED. If 87 is initialized, the CPU will report "87 FORCE ARMED" whenever the BYPASS button on the Wireless Touchpad is used to bypass a sensor or to gain access to a protection level. The sensor number that was bypassed will also report. 87 will clear from the CPU display after successfully reporting to the Central Station.
90	0 - 8	A/C FAILURE. If 90 is initialized, the CPU will report "90 A/C FAILURE" when the AC power at the outlet that the CPU is plugged into has been off for 15 minutes. Use this feature only when there is a special need. Remember, if you ever were to have a city wide power failure all systems set to report a 90 A/C FAILURE will report at once.
93	0 - 8	WEEKLY TEST. If 93 is initialized, the CPU will report "93 WEEKLY TEST" to the Central Station once every seven days. The first report will be made 12 hours after the CPU was first powered up and every 7 days thereafter. 93 will clear from the CPU display after successfully reporting to the Central Station.

ADDING AN OPTIONAL SENSOR NUMBER

You add an OPTIONAL SENSOR NUMBER just like you would add a regular sensor number. First, be sure the program switch is ON. Press the STATUS button, then immediately press the optional sensor number desired (84,85,87,90 or 93). If you add several optional sensors, you must push the STATUS button each time.

DELETING AN OPTIONAL SENSOR NUMBER

You delete an OPTIONAL SENSOR NUMBER just like you would delete any other sensor number. First, be sure the program switch is ON. Press the BYPASS button, then immediately press the optional sensor number to be deleted. If you delete several optional sensors, you must push the BYPASS button each time.

OPTIONAL FEATURES PROGRAMMING *

The SX-IVB offers six optional features which are activated by programming the features number into the CPU memory.

FEATURE	DESCRIPTION
A0 - EXIT DELAY SOUNDS	WHEN NOT SET - Exit delay beeps will sound only once at the beginning of the exit delay. WHEN SET - Exit delay beeps will sound continuously throughout the exit delay time. RECOMMENDATION - Do not set under normal circumstances.

* UL NOTE: The optional features have not been investigated by UL.

FEATURE	DESCRIPTION - Continued...
A1 - NOT USED	NOT USED. Must always be left off.
A2 - NOT USED	NOT USED. Must always be left off.
A3 - DIGITAL COMMUNICATOR	WHEN NOT SET - System WILL dial the central station on alarm. WHEN SET - System will NOT report to the central station. **Note: The CPU should NOT be wired to the phone lines if A3 is set.** RECOMMENDATION - Set ONLY if system is to be a local non-reporting system.
A4 - LOW BATTERY REPORTS	WHEN NOT SET - Low batteries will report WEEKLY until replaced. WHEN SET - Low Batteries will NEVER report to the central station receiver. RECOMMENDATION - We recommend that this feature NOT BE SET so low batteries will report weekly.
A5 - SUPERVISORY REPORTS	WHEN NOT SET - Supervisories will report DAILY until repaired. WHEN SET - Supervisories will report WEEKLY to the central station receiver until repaired. RECOMMENDATION - We recommend that this feature be NOT SET so supervisories will report daily.
A6 - DIALER ABORT	WHEN NOT SET - System will report VIOLATION and CANCELLED even if a customer cancels an alarm within the first 15-20 seconds. WHEN SET - System will automatically abort the call to the central station if the customer disarms within 15-20 seconds of accidentally tripping the system. **RECOMMENDATION - To reduce unnecessary central station traffic we recommend this feature ALWAYS BE ACTIVATED OR SET. If Openings or Closings (84 + 85) have been selected then this feature MUST NOT be set.**
A7 HARDWIRE DISPLAY	WHEN NOT SET - The normal HARDWIRE INTERIOR SIREN can be connected to the CPU. WHEN SET - The HARDWIRE DISPLAY WITH BUILT-IN SIREN can be connected to the CPU, and not the HARDWIRE SIREN. RECOMMENDATION - Set ONLY if you plan to install our Hardwire Display and Siren Module. **NOTE: A resistor on the CPU board must be cut for the Hardwire Display and Siren Module to work properly. Refer to page 34.**

ADDING AN OPTIONAL FEATURE NUMBER (A0-A7)

Press both AUXILIARY buttons on the touchpad for one second, then immediately press the STATUS button. The letter "A" will appear in the sensor number display; now, immediately press the desired feature number (from 0-7). Wait for the bouncing balls to confirm your entry.

DELETING AN OPTIONAL FEATURE NUMBER

Press both AUXILIARY buttons on the touchpad for one second, then immediately press the BYPASS button. The letter "A" will appear in the sensor number display; now immediately press the feature number (from 0-7) which you want deleted. Wait for the bouncing balls to confirm your entry.

CONCLUSION

When finished programming, turn the CPU Program Switch back to the Normal Operation Mode (down). The protection level display will no longer show "P".

SETTING A SECONDARY ACCESS CODE

Your customer can set a secondary access code (for use by babysitter, etc...) any time he wishes. The program switch in the CPU must be in the OFF (down) position. Enter the primary access code, push STATUS, and immediately enter the desired four digit secondary access code. Now wait for the "bouncing balls" to appear in the Sensor Number window of the Central Processing Unit and/or listen for the protection level sound that accompanies the bouncing balls. When not used, program the secondary code to be the same as the primary access code.

CAUTION!! Do not make the Secondary Access Code similar to the Duress Code!

NOTE: The Secondary Access Code cannot be used to direct bypass sensors.

CENTRAL STATION RECEIVER PROGRAMMING

The ITI Central Station Receiver has not been investigaged by Underwriters Laboratories.

Although you can program most of the CPU's functions using a Wireless Touchpad, the following features and functions can only be programmed or changed from the Central Station:

1. CUSTOMER ACCOUNT NUMBER.

2. CENTRAL STATION RECEIVER PHONE NUMBER(s) - one or two numbers can be dialed by a SX-IVB.

MOST OF THE TIME ONLY THE ABOVE TWO ITEMS WILL BE PROGRAMMED BY THE CENTRAL STATION OPERATOR. OCCASIONALLY, THE OPERATOR MAY ALSO PROGRAM ONE OF THE ITEMS BELOW.

3. P MODE: There are four phone number modes or options to choose from. These can be programmed or changed only from the Central Station Receiver.

   P MODE 0: In P Mode 0 only 1 phone number is dialed, the second phone number is not used. The CPU powers up in Mode 0 and no programming need be done if only 1 phone number is to be dialed.

   P MODE 1: In P Mode 1 the second phone number is called only if the CPU fails to get through to the first number. The CPU will make 3 attempts to reach the first number before dialing the second number.

   P MODE 2: In P Mode 2 the CPU dials the first number to report all alarms except LOW BATTERY and SUPERVISORY. The CPU dials the second number to report LOW BATTERY and SUPERVISORY signals only.

   This mode would be selected by a company that wants alarm calls only to go to their central station operators and low battery & supervisory calls only to go to a different receiver in the service department.

   P MODE 3: In P Mode 3 the CPU dials the first number to report all alarms except LOW BATTERY and SUPERVISORY. The CPU dials the second number to report everything.

   This mode would be used by a company who is monitored by someone else and yet has an ITI receiver. The monitoring service would receive only alarm calls, but the alarm company would receive both a record of alarm calls and all low battery reports and supervisory reports.

4. EXPANDING GROUPS can only be done from the Central Station. For example, the CPU powers up with only 16 zones reserved for instant exterior zones (windows). What if your job calls for 25? In this case the Central Station Operator will use the GROUP command to give you more exterior instant zones.

5. REPORT TIME: The time of day that any low battery or supervisory signals would be sent to the Central Station can also be changed from the central station, although this is rarely necessary. This time would be preset to 12 hours after you first powered up the CPU. For example, if you first connected the battery to the CPU at 12 noon, the CPU would already be set to report any low batteries and supervisories at 12 midnight.

6. SIREN TIMEOUT. This is preset to about 4 minutes but can be changed to anywhere from 1 to 15 minutes.

7. PROTECTION LEVEL DISABLE: The central station operator can disable certain protection levels so that they do not work at all. For example, in a commercial installation you may want to disable all arming levels except 0, 4, 8 & 9. That way the system can only be completely disarmed (Level 0), armed for maximum protection (Level 4) or tested (levels 8 & 9).

8. In addition the central station operator can change the ACCESS CODE, DURESS CODE, ENTRY & EXIT DELAYS, etc. that are normally set from a Wireless Touchpad at the time of installation.

NOTE: Some of the above features can only be activated if the Central Station which does your monitoring has the software revision dated 12/07/84 or later.

CONNECTING THE CPU TO THE CENTRAL STATION

The ITI Central Station Receiver has not been investigated by Underwriters Labatories.

PRELIMINARY STEPS

Due to the variety of different Central Stations who program and receive the ITI equipment, it is impossible to provide you with specific instructions for connecting to your particular Central Station. Contact the Central Station who monitors your accounts for details. There are, however, certain steps and checks which apply regardless of which monitoring company you choose.

1. Use an RJ-31X analyzer to confirm that the jack is properly wired.

2. Verify that the CPU is plugged into the RJ-31X jack.

3. The CPU RAM must have been cleared when you first powered up the CPU. If you are not sure that it was cleared, repeat the RAM clear process described in the CPU Installation section.

4. Do not use a headset to attempt to listen to the programming while it is in progress. If you do, the CPU will not program properly.

5. Remember DO NOT hang up the telephone until AFTER you put the CPU on line by pressing the Access Code and Level 8 (PHONE TEST).

6. Under most circumstances programming the account number and telephone numbers takes only a couple of minutes to complete and verify. If you do not receive an acknowledgement call from the Central Station operator within 10 minutes, then either the Central Station missed the call or the call was terminated abnormally. This might tie up your customers phone line indefinitely, so you need to check to be sure the phone line is not still seized. If the line is seized then:

    1. Unplug the RJ-31X phone cord to free the line.
    2. Shut off the CPU power switch.
    3. Clear the RAM.
    4. Turn the CPU power switch back on and repeat the power up sequence.
    5. Call the Central Station for further instructions.

7. If your Central Monitoring Station uses the automatic TEST feature, the Central Station Receiver will cause the CPU to activate all of its sirens tones for a few seconds when the CPU first reaches the Central Station and then again when the operator releases the line during a Phone Test (level 8).

CENTRAL STATION CONNECTION

The following steps are an example of those you will do to connect to your Central Monitoring Station. As mentioned earlier, there will be slight variations depending upon who does your monitoring.

1. Most Central Stations will require that the ITI Central Station Data Card or, their equivalent of the card, be in their possession before final programming.

2. Call your Central Monitoring Station, identify yourself and tell the operator you wish to connect a new system. Provide the operator with the customer name as it appears on the CS Data Card or monitoring agreement.

3. Provide the operator with the telephone number that the CPU's RJ-31X jack is connected to.

4. Tell the operator about any unusual requirements to access the telephone network. For example, sometimes you must:

   (1) Dial "1" or "120" then the number.
   (2) Dial "8" or "9" to get an outside line.
   (3) Any pauses needed?

5. Inform the operator of any special programming necessary.

6. Hang up so the operator can call back on the same phone number the CPU and RJ-31X jack are connected to.

7. Make sure that the CPU is in operating mode, NOT program mode.

8. The operator will call you back and have you run a PHONE TEST by arming the system to protection Level 8.

9. When you arm to Level 8 the phone will go dead. You should hang up. The Operator will program the CPU for you. The phone line will be reconnected to the house phones when the programming is completed.

   The following will be programmed:

   (1) The customer's central station account number
   (2) The central station number(s) the CPU will dial.
   (3) Sensor Number "96" will be added.
   (4) Any special programming requirements you arranged for with the operator.

10. The operator will have assigned an account number, usually 5 digits in length. Write the account number on your copy of the Central Station Data Card and the Customer Data Card.

11. To be sure that the account number and phone number(s) have been correctly programmed, initialize a PHONE TEST (Level 8). You should get acknowledgement of a successful test within 1-2 minutes.

APPENDIX - A

TESTING YOUR WORK

After all the components of the system are in place, and the CPU has been programmed, the entire system should be checked out using the procedures outlined in this section.

PROTECTION LEVEL TEST / STATUS TEST

1. Disconnect the RJ-31X jack if connected.
2. Place each Wireless Touchpad on its mounting bracket. THIS IS IMPORTANT!
3. Arm to each protection level, 1 to 7. Listen for proper STATUS beeps.
4. Push the STATUS button at each level.
5. Activate various sensors about the house. Be sure the sensors that are supposed to work at each protection level do, and the ones that are supposed to be disarmed at each level are.
6. Disarm to Level 0 between each arming, or go directly from one arming level to another.
7. Repeat above from every Wireless Touchpad location.
8. Select protection Level 0 to end test.
9. Reconnect the RJ-31X plug when test is complete.

TESTING SECONDARY ACCESS CODE

Following the procedure on page 86 enter a secondary access code from one of the Wireless Touchpads. Try the secondary access code by arming the CPU to a new protection level to be sure it works properly.

Now, delete the secondary access code by making it the same as the primary access code. To do this enter the primary access code, push STATUS, then enter the primary access code again.

SENSOR TEST

Sensor Test (Protection Level 9) is used to verify a secure and reliable communications link between the CPU and each of the sensors at the installation site. It also allows testing of the communications between each Wireless Touchpad and the CPU. Additionally, the CPU standby battery is checked since the CPU automatically switches to battery power when Level 9 is selected.

If the backup battery is NOT charged to 6.4 volts the CPU will not go into level 9 properly, instead it will "click" and the displays will dim. You will need to charge the battery and you may need to clear the RAM if this occurs.

NOTES ABOUT SENSOR TEST

- When the system is set to protection Level 9 it cannot call the central station and affords no protection except DURESS calls. Thus, the CPU will automatically go to protection Level 0 fifteen minutes after entering Level 9. This restores basic (fire, panic, etc.) protection.
- Reentering Level 9 (without going to any other level) will reset the 15 minute timer, without changing the display, to give you more test time.
- Sensors require a 2 second "settle down" time between activations.
- You should have your Radio Signal Monitor connected during sensor test to help you debug any problems.

ACTION	CORRECT RESPONSE
1. Select protection Level 9.	All the sensors you programmed, plus pre-programmed sensors 80,81, & 82 should scroll through the sensor number display. Be sure everything is OK.
2. Activate each door/window sensor 2-3 times, including all doors, windows, cabinets, etc.	You should hear a loud "beep" from all sirens as each sensor tests and its sensor number will be removed from the CPU display. The sensor being tested will momentarily be displayed on the CPU when activated, then it will disappear.
3. Test each Passive Infrared (PIR) 2-3 times at various distances within its pattern.	Listen for the loud "beep" as you test each sensor. Remember the PIR needs 4 motion free minutes before each test.
4. Test each Smoke SENSOR 2-3 times.	See page 78 for details.
5. Test each PORTABLE PANIC BUTTON from several places.	Point out to your customer any poor reception areas within the house.
6. Activate all other sensors in the same manner.	Listen for the loud "beep" as you test each sensor.
7. Activate all three emergency calls from EVERY Wireless Touchpad.	Sensor Number 80 (FIRE), 81 (POLICE), & 82 (AUXILIARY or MEDICAL) should be removed from the display.
8. Check to see if any numbers still appear on the display	If so, retest these sensors.

DURESS CODE TEST

This feature has not been investigated
by Underwriters Laboratories.

The DURESS Code allows the customer to silently and secretly summon the Police. This is done by entering the 4-digit DURESS Code followed by any protection level. The SX-IVB responds to a DURESS Code in the same way as the regular Access Code, but it also silently and secretly calls the Central Station.

For personal safety reasons, 86 will not display when in alarm with an SX-IVB. However, it will be stored in memory.

CANCELLING A DURESS CODE

The policy at most central stations is to NEVER cancel a Duress Code.
Thus, the police will be dispatched whenever a duress code is reported,
even if a cancelled report is sent with it.

The DURESS Code will have the same first two digits as the customer's Access Code, the last two digits will be different. The DURESS Code can be entered at any time, in any protection level.

To activate the DURESS Code:

Enter the 4-digit DURESS Code + any protection level (usually level 0).

ACTION	CORRECT RESPONSE
1. Call Central Station and inform them of the DURESS CODE test by identifying yourself and giving the correct customer account number. Ask the Central Station Operator to call you back when the test comes through. Give the operator the correct phone number.	• Central Station Personnel authorize the duress code test, and repeat correct account number being tested and the phone number of the installation site.
2. Select any protection level by entering the DURESS CODE rather than the Access Code.	• The interior sirens will sound the appropriate number of beeps for the protection level selected. • The display will show nothing.
3. Enter the customer's ACCESS CODE + 0 from a Wireless Touchpad.	• CPU should disarm.
4. Wait for Central Station Operator to call and confirm the receipt of an "86" alarm.	• They should call within two minutes to confirm successful duress code test.

STANDBY POWER TEST

Follow the actions below and verify the correct indications and response to check the standby power.

ACTION	CORRECT INDICATIONS / RESPONSE
1. Unplug the CPU's transformer.	• The CPU display should remain lit. If the display goes blank immediately then either the battery is dead or disconnected; or the BATTERY FUSE has blown and must be replaced. All memory may be lost. • After a few seconds the power LED in the upper left corner of the CPU will blink on and off. (It glows steady when the CPU has AC power).
2. Verify that the system will operate using only standby power by selecting 2 or 3 different protection levels.	• System responds just as it would if operating on AC power. • NOTE: The wireless interior sirens will not respond when the CPU is unplugged. Only the hardwired interior sirens will be heard.
3. Plug the transformer back into the AC outlet.	• After a few seconds the power LED in the upper left corner of the CPU will glow steady again.

NOTE: The CPU has a power conservation procedure which will shut off the CPU visual displays after approximately 15 minutes of drawing from the standby battery.

AC POWER / TRANSFORMER TEST

1. Disconnect the <u>positive</u> battery lead.	• Everything should remain the same
2. Verify that the system is working properly.	• System responds just as it would if battery were connected.
3. Reconnect the battery lead.	

BYPASS TEST

The BYPASS feature allows the user to exclude a selected sensor or sensors when choosing a protection level. There are two methods of bypassing sensors, direct and indirect.

An example of its use would be if the customer wanted to protect the exterior of his home (Level 3), but leave his master bedroom windows open for ventilation at night.

If a system reports a violation to the Central Station, any sensors that are bypassed when the alarm occurred will also be listed on the Central Station report. (The CPU must be a SX-IVB and the central station software must be dated 12/07/84 or later for bypassed sensors to report.)

INDIRECT BYPASSING

ACTION	CORRECT INDICATIONS / RESPONSE
1. Select protection Level 0.	• CPU protection level display shows "O".
2. Deliberately open any exterior sensor (sensor numbers 34 - 57) and note its number.	• The sensor is open and remains open.
3. Select protection Level 3.	• CPU will not change protection levels (protection level display = "0"). • All sirens will emit a unique rhythmic "protest" beeping sound. • The sensor number of the open sensor will be displayed on the CPU. (NOTE: If more than 1 sensor is violated, the sensor numbers of all violated sensors will be displayed). • All four sensor condition LED's will blink simultaneously. (ALARM, SUPERVISORY, BYPASS, LOW BATTERY).
4. Select protection Level 0.	• "Protest" beeping ceases.
5. Select protection Level 3 via a Wireless Touchpad using the BYPASS key. (ACCESS CODE + 3 + BYPASS) NOTE: You must push BYPASS within 2 seconds of when the "protest" sounds begin.	• All sirens at the site sound a series of 3-beep groups for the duration of the exit delay time. • The CPU protection level LED reads "3". • The numbers of any sensors which were BYPASSED when protection Level 3 was selected are displayed on the CPU sensor number display when the BYPASS LED lights.

ACTION	CORRECT INDICATIONS / RESPONSE
6. Close and open the bypassed sensor or sensors a couple of times.	• The bypassed sensor or sensors do not cause an alarm when closed then opened again.

NOTE: With indirect bypassing you can only bypass sensors such as those on doors or windows which can be left in the alarm condition while attempting to arm the system.

DIRECT BYPASSING

ACTION	CORRECT INDICATIONS / RESPONSE
1. Select protection Level 0.	• CPU protection level display shows "0".
2. Select protection Level 3.	• CPU will arm to Level 3. The CPU display reads "3" and the sirens sound a group of 3 beeps.
3. Re- enter the access code + BYPASS + the sensor number you want to bypass. (Choose a number which would be active in protection Level 3.	• The CPU display will remain at Level 3, but whatever sensor you direct bypassed will display when the BYPASS LED lights.
4. Activate the bypassed sensor a couple of times.	• The bypassed sensor does not cause an alarm when tripped.

NOTE: Using direct bypassing you can bypass any sensor number, including smoke detectors and passive infrareds.

OPEN SENSOR PROTEST TEST

ACTION	CORRECT INDICATIONS / RESPONSE
1. Select protection Level 0.	• CPU protection level display shows "0".
2. Deliberately open one or more exterior sensors. (Sensor numbers 34-57)	• The sensor is open and remains open.
3. Select protection Level 3.	• CPU does not change protection levels. (Protection level display = 0. • All sirens emit the rhythmic "protest" beeping sound. • The sensor number of the open sensor(s) will be displayed on the CPU. • All four condition LED's blink simultaneously.
4. Leave the CPU protesting and go to the open sensor(s) and close it.	• When all open sensors are again closed the sirens protest beeping will stop automatically. • The sensor(s) numbers which were open will automatically clear from the display when closed.
5. Select protection Level 3.	• The CPU protection level changes to 3. • The system properly arms to Level 3.

ALARM MEMORY TEST

ACTION	CORRECT INDICATIONS / RESPONSE
1. Select protection Level 3.	• The CPU protection level display (ACCESS CODE + 3) reads "3".
2. Deliberately activate a sensor or sensors which are armed in Level 3. Remember these sensor numbers.	• Activating the sensor causes the CPU to go into its appropriate alarm sound.
	• The sensor number of the tripped sensors show on the CPU display when the alarm LED lights.
3. Select protection Level 0 to silence the alarm.	• The CPU protection level display reads "0".
	• The sirens stop.
	• Be sure to disarm quickly so the central station operator will not dispatch the authorities.
4. While watching the CPU display press the "STATUS" button on the wireless touchpad.	• The sirens will sound one long low level beep indicating protection Level 0.
	• Any sensors which had caused an alarm will momentarily be displayed when the alarm LED is lit.

NOTE: The alarm memory will clear automatically six hours after the protection level is changed. To clear it sooner than that, you can arm the system to Level 9.

PHONE TEST

This feature has not been
investigated by Underwriters Laboratories.

The SX-IVB uses a DB8 telephone plug, which fits the TELCO USOC RJ-31X jack. The jack must be properly installed in order for the PHONE TEST to work. Use a RJ-31X jack analyzer to test the jack before running a PHONE TEST.

The PHONE TEST verifies a secure and reliable telephone communications link between the customer's CPU and the ITI Central Station Receiver.

ACTION	CORRECT RESPONSE
1. Verify that the phone cord is plugged into the RJ-31X jack.	If not, connect it now.
2. Notify the Central Station of your tests.	Be sure they have a copy of the SX-IVB CENTRAL STATION DATA CARD.
3. Select protection Level 8.	Listen for correct audible status response.
4. Observe CPU display.	Should show protection Level 8. Also, the Sensor Number window should display "83" when the ALARM LED is lit.
5. Wait 2 minutes for either of two indications of a successful communications test.	(1) Central Station will phone you and confirm receipt of test, or: (2) The Central Station will activate the customers sirens causing them to sound each of their alarm sounds for two seconds each.

NOTE: 83 will clear from the display and the protection level will change to Level 0 when the test is successfully received by the central station receiver.

APPENDIX B - CENTRAL STATION DATA CARD

The following describes how each section of the Central Station Data Card should be filled out. It should be completed BEFORE going to the job site. Much of the information that must be put onto the data sheet is self explanatory. Below we will describe how to fill out any of the areas that might give you question.

1 - ACCOUNT NUMBER - The account number consists of five letters or numbers. The account number is in the form XX-XXX. Many central stations use the first 2 characters as the dealer ID and the last 3 as the customer number.

2 - CUSTOMER NAME - Put the homeowner's name or the business name here.

3 - SPECIAL INSTRUCTION NUMBER - In these spaces, you put the number of any special instructions that appear on the back of the form.

4 - CUSTOMER'S PHONE NUMBERS - For residential accounts, enter the home phone, husband's work phone and wife's work phone in these spaces. For commercial accounts you need only enter the business' phone number under "WORK PH#".

5 - ACTUAL CITY or LOCATION - In this space put the actual city, township, or parish that the account is located. This is usually, but not necessarily, the same as the Mailing City.

EXAMPLE 1 - The home is in the town of Cooper, but Cooper has a mailing address of St. Paul. You would enter COOPER, not St. Paul.
EXAMPLE 2 - The home is located in Alamo Township, however the mailing address is Minneapolis. You would enter ALAMO TOWNSHIP.

6 - MAILING CITY - Here is where you put the city name the post office wants.

7 - POLICE, FIRE, MEDICAL - Enter the exact name of the responding agency and their phone number. Be sure to include the area code for all phone numbers. **"911" is not acceptable for emergency phone numbers.**

8 - KEY? - Circle Y or N depending on whether this person has a key to your subscriber's premise.

9 - CONTACTS - Put the name and relationship of the subscriber's contact persons. For Example: Bob Smith (brother-in-law) or Jim Jones (neighbor).

10 - NUMBER - Enter the Sensor Number in this column.

11 - NOTIFY - Enter who should be notified if this SENSOR NUMBER reports an alarm to the Central Station. Choose only from these words:

POLICE	- if Police are to be dispatched
FIRE	- if Fire Department is to be dispatched
MEDICS	- if Paramedics or Ambulance is to be dispatched
CONTACTS	- if Contact Persons ONLY are to be notified. Usually this is for ENVIRONMENTAL zones (furnace failure, water in basement, etc.)

NOTE: Sometimes you don't want an ambulance or the paramedics dispatched in a medical emergency. For example, you simply may want neighbors or relatives called. In this case you could note this with SPECIAL INSTRUCTIONS or you could do this:

10 CONTACTS Medical Emergency - Call contacts only

12 - EXACT LOCATION/DESCRIPTION - It is important that you take care and fill out this column in detail. Try to limit yourself to these words to specify the floor level: BASEMENT, 1st FLOOR, MIDDLE FLOOR (for tri-level home), 2nd FLOOR, 3rd FLOOR, ATTIC. Use as few abbreviations as possible. For compass directions use: NORTH, NE, EAST, SE, SOUTH, SW, WEST, NW.

If you are describing a POLICE or FIRE emergency you should indicate the (1) floor level, (2) compass direction and (3) room name, if all are needed to give the exact location. Review the following good and bad examples:

BAD - Master bedroom - painted blue
GOOD - 2nd Floor, N.E. Corner Bedroom
COMMENT - A fire department may not be able to tell which bedroom is the master bedroom and customers repaint bedrooms different colors.

BAD - In the Den
GOOD - 1st Floor, Den, South end of house.
COMMENT - Words like den, library, & family room are too general.

BAD - Smoke Upstairs
GOOD - Floor 2, Smoke at top of stairway
COMMENT - Simply stating "smoke upstairs" may not be enough detail. Always indicate the floor level & the specific location on that level.

BAD - Intruder breaking into silver drawer in Buffet
GOOD - Middle Floor, Dining Room, Buffet silver drawer
COMMENT - Middle floor is a good term to use if it is the middle floor of a split level or tri-level home. Don't use it otherwise.

IN SPECIFYING DOORS THAT ARE PROTECTED FOLLOW THESE EXAMPLES:

BAD - Front Door
GOOD - 1st Floor, Front Door, faces Elm Street
COMMENT - If there were two doors on the front of the house then you would have to be even more specific (1st Floor, Front Door, East Side)

BAD - Garage Door
GOOD - Door between house and adjoining garage
COMMENT - Garage Door all alone might not mean the door from the garage to the house, but instead may mean the service door that leads from the garage to the yard.

If one of the ENVIRONMENTAL zones trips, you usually don't need to specifically locate where the detector is located, you simply note the nature of the problem. For example, the following are all good examples: FURNACE FAILURE, WATER IN BASEMENT, POWER FAILURE TO SUMP PUMP.

13 - SPECIAL INSTRUCTION NUMBER - Enter the numbers of any Special Instructions in these spaces.

14 - SPECIAL INSTRUCTIONS - Enter any special instructions here. See the sample Central Station Data Card that follows for several examples of when and why you might want to specify some special instructions.

15 - SERVICE DATA - Fill out this service information completely.

16 - LOCATIONS - Enter the locations of these devices as well as any HARDWIRE INTERIOR SIRENS and any OUTSIDE SIRENS.

17 - DATA CARD UPDATES - To be completed by Central Station personnel.

CENTRAL STATION DATA CARD

EXAMPLE OF COMPLETED FRONT SIDE

SX-IVB CENTRAL STATION DATA CARD ACCOUNT # KZ-617 (1)

(3) [1] NAME Fred and Marsha Dimes (2) Home Ph# (555) 344-7800 [ ]

ADDRESS 2345 Springhill Drive (4) Work Ph# (555) 388-9642 [ ]

ACTUAL CITY or LOCATION Alamo Township (5) Work Ph# (555) 344-0932 [ ]

MAILING CITY Kalamazoo (6) ST Mich ZIP 49001

POLICE: Kalamazoo City Police Ph# (555) 388-8000 [ ]

(7) FIRE: Alamo Township Fire Department Ph# (555) 343-1212 [ ]

MEDICAL: All City Ambulance (8) Key? Y N Ph# (555) 343-1234 [2]

CONTACT 1: John Dimes (brother) Key? Y N Ph# (555) 388-8285 [ ]

CONTACT 2: Jim Curle (neighbor) Key? Y N Ph# (555) 344-8712 [ ]

CONTACT 3: (9) Key? Y N Ph# ( ) [ ]

DEALER: Acme Alarm Company Key? Y N Ph# (555) 344-8736 [ ]

Notify dealer: [ ] At time of alarm, or [✓] With Activity Report

NUMBER	NOTIFY	EXACT LOCATION / DESCRIPTION	
03	POLICE	HAND HELD PANIC BUTTON PUSHED	[ ]
10	MEDICS	MEDICAL EMERGENCY	[2]
12	CONTACT	FURNACE FAILURE (3)	[3]
13	CONTACT	WATER IN BASEMENT	[ ]
20	FIRE	NW CORNER OF BASEMENT, FIRE IN FURNACE ROOM	[ ]
21	FIRE	FLOOR 2, BEDROOM HALLWAY, SMOKE	[ ]
30	POLICE	1ST FLOOR, SILVER DRAWER IN DINING ROOM BUFFET	[ ]
34	POLICE	1ST FLOOR, NORTH SIDE, FRONT DOOR	[ ]
35	POLICE	1ST FLOOR, DOOR FROM ATTACHED GARAGE TO HOUSE	[ ]
40	POLICE	BASEMENT, SOUTH SIDE, SLIDING PATIO DOOR	[ ]
41	POLICE	2ND FLOOR, NE CORNER BEDROOM, NORTH WINDOWS	[ ]
64	POLICE	1ST FLOOR, MOTION SENSOR IN DINING ROOM	[ ]
66	POLICE	2ND FLOOR, MOTION SENSOR IN BEDROOM HALLWAY	[ ]
73	POLICE	1ST FLOOR, KITCHEN DOOR LEADING TO BASEMENT	[ ]
			[ ]
(10)	(11)	(12)	[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]
			[ ]

CENTRAL STATION DATA CARD

EXAMPLE OF COMPLETED BACK SIDE

Continued..... ACCOUNT # KZ-617

NUMBER	NOTIFY	EXACT LOCATION / DESCRIPTION	
01	- - - - -	CPU TOO CLOSE - System conflict, notify service department	
80	FIRE	Manual FIRE EMERGENCY CALL from Customer	[3]
81	POLICE	Manual POLICE EMERGENCY CALL from Customer	[ ]
82	MEDICAL	Manual MEDICAL EMERGENCY CALL from Customer	[ ]
83	- - - - -	Customer Testing	[ ]
84	- - - - -	OPENING REPORT	[ ]
85	- - - - -	CLOSING REPORT	[ ]
86	POLICE	Silent "UNDER DURESS" CALL FOR POLICE from Customer . . .	[ ]
87	- - - - -	FORCE ARMED REPORT	[ ]
90	- - - - -	A/C POWER FAILURE	[ ]
91	- - - - -	LOW CPU BATTERY	[ ]
93	- - - - -	WEEKLY TEST	[ ]
95	- - - - -	A/C POWER RESTORED	[ ]

SPECIAL INSTRUCTIONS FROM FRONT SIDE AND ABOVE

[1] THE HOME IS LOCATED ON THE SOUTHWEST CORNER OF SPRINGHILL DRIVE AND SUNSET LANE.

[2] TELL ALL CITY AMBULANCE THAT MARSHA DIMES IS A STROKE PATIENT AND IS SUBJECT TO BLACKOUTS. TAKE HER TO BRONSON HOSPITAL. ALSO,

[ ] NOTIFY HER DOCTOR, DR. GLENN DOUGLASS (555) 344-9090.

[3] ALSO NOTIFY BEN CARTWRIGHT AT CARTWRIGHT FURNACE COMPANY.

[(13)] (14)

[ ]

****

SERVICE DATA - (15)

FREQUENCY: 340 MHz
HOUSE CODE: 03
CPU SERIAL# S8257

CIRCLE FEATURES SET:
84 85 (86) 87 90 (93)
A0 A3 A4 A5 A6 A7

CROSS OUT ARMING LEVELS YOU HAVE DISABLED:
1 2 3 4 (5) 6 7

LOCATIONS OF - (16)

CENTRAL PROCESSING UNIT	FRONT HALL COAT CLOSET
REMOTE DISPLAY/SIREN	MASTER BEDROOM WALL
WIRELESS TOUCHPAD #1	1ST FLOOR NEAR DOOR TO GARAGE
WIRELESS TOUCHPAD #2	2ND FLOOR IN MASTER BEDROOM
WIRELESS INTERIOR SIREN	UPSTAIRS BEDROOM HALLWAY
WIRELESS INTERIOR SIREN	
HARDWIRE SIREN	ABOVE COAT CLOSET DOOR

****

DATA CARD UPDATES: (17)

DATE	COMMAND	APPROVED	DATE	COMMAND	APPROVED
__/__/__	Installation date	_____	__/__/__	_____	_____
__/__/__	GROUP ___ ___ __	_____	__/__/__	_____	_____
__/__/__	GROUP ___ ___ __	_____	__/__/__	_____	_____
__/__/__	GROUP ___ ___ __	_____	__/__/__	_____	_____

APPENDIX C - CUSTOMER DATA CARD

The Customer Data Card is to be filled out and given to the customer to refer to. There is no need to keep it inside the CPU door since the Installation Record shown next contains the same information in even more detail.

EXAMPLE OF COMPLETED FRONT SIDE

SX-IVB
CUSTOMER DATA CARD

(give to customer)

ACCOUNT NUMBER ZZ-100 ACCESS CODE 1234

SENSOR	NOTIFIES	LOCATION
30	POLICE	"SPECIAL" protection - gun cabinet in den
34	POLICE	front entrance door
40	POLICE	master bedroom window
65	POLICE	motion sensor in dining room
80	FIRE	FIRE Emergency Buttons pushed on Wireless Touchpad
81	POLICE	POLICE Emergency Buttons pushed on Wireless Touchpad
82		AUXILIARY Emergency Buttons pushed on Wireless Touchpad
83	MONITORING CENTER	PHONE TEST (Level 8) Activated from Wireless Touchpad

SAMPLE

CUSTOMER DATA CARD

BACK SIDE

SX-IVB

SUMMARY OPERATION INSTRUCTIONS

How to "arm" your system—From a WIRELESS TOUCHPAD, enter your four digit ACCESS CODE immediately followed by the number of the Protection Level desired.

To assure proper arming, listen for the correct number of STATUS BEEPS, which will sound from most interior siren locations.

Two-tone "protest" beeping sound—If, when you attempt to arm your system, you hear repeated two-tone PROTEST BEEPS, this means a door or window has been left open. The number of the open door or window that should be closed before re-arming will be displayed on the front of the Central Processing Unit, and at any Remote Displays.

Bypassing an open door or window—If you wish to arm your system with a door or window purposely left open, then: (1) Enter your four digit ACCESS CODE immediately followed by the number of the protection level desired. (2) When the two-tone PROTEST BEEPS begin to sound, quickly press the BYPASS button.

Bypassing by sensor number—To BYPASS a particular sensor you can follow the procedure above, or: (1) Arm your system to the desired protection level, then (2) enter your ACCESS CODE, then immediately push BYPASS, followed by the 2 digit sensor number you wish to bypass.

How to disarm your system—From a WIRELESS TOUCHPAD, enter your four digit ACCESS CODE, immediately followed by the CANCEL/DISARM button ("0").

How to cancel an accidental alarm—From a WIRELESS TOUCHPAD, enter your four digit ACCESS CODE, immediately followed by the CANCEL/DISARM button ("0").

Status—To determine the current Protection Level, simply depress the STATUS button and listen to, and count, the STATUS BEEPS which will sound from most interior siren locations. A complete description of all the STATUS sounds is in your owners manual.

Alarm Memory—Push STATUS within six hours of disarming your system and any alarm in memory will be shown on the lighted display.

Emergency alarm buttons—If you have an emergency, you can sound the sirens and notify the proper authorities by simultaneously pushing both POLICE buttons, both FIRE buttons, or both AUXILIARY buttons.

Setting temporary access code—To activate a second arm/disarm access code for temporary use by a babysitter, etc. (1) Enter your regular ACCESS CODE, (2) Press the STATUS button, then (3) Enter the desired four number secondary access code. You will hear the current Protection Level tones sound if the Secondary Access Code is accepted by the system. If not, try again.

Testing your system—We recommend you test your system weekly. Refer to your Owners Manual for detailed instructions.

APPENDIX D - SX-IVB INSTALLATION RECORD CARD

The SX-IVB Installation Record Card is your record of the installation. There are two parts to this form. The card portion should be kept inside the CPU door as a permanent record of the installation. The paper portion should be returned to the office and kept in the customer's file for future reference.

As you can see, everything you would need to know if you had to replace the CPU, or any other component, is detailed on this card.

SX-IVB INSTALLATION RECORD

(Keep Inside CPU Door)

CUSTOMER NAME: _____ ACCOUNT #: _____

DATE INSTALLED: _____ INSTALLER: _____

CPU TYPE + SERIAL #: _____ FREQUENCY: _____ HOUSE CODE: _____

ACCESS CODE: _____ DURESS CODE: _____ ENTRY DELAY: _____ EXIT DELAY: _____

CIRCLE SX-IVB FEATURES SELECTED: 84 85 86 87 90 93 A0 A3 A4 A5 A6 A7

CROSS OUT ANY PROTECTION LEVELS DISABLED: 1 2 3 4 5 6 7

CIRCLE PMODE SELECTION:
0 = Phone 1 ALL, 2 Not Used
1 = Phone 1 ALL, 2 On Failure
2 = Ph 1 Alarms Only, 2 Supervisories & Low Batteries only
3 = Ph 1 Alarms Only, 2 ALL

ENTER SIREN TIMEOUT PERIOD IF CHANGED FROM DEFAULT SETTING OF 4 MINUTES: _____

ENTER ANY REGROUPING OF SENSOR NUMBERS DONE:

GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___
GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___
GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___	GROUP ___ ___ ___

SENSOR NUMBER	NOTI-FIES	LOCATION	SENSOR NUMBER	NOTI-FIES	LOCATION

SX-IVB SERVICE RECORD

The SX-IVB Service Record is on the back side of the SX-IVB Installation Record Card. The purpose of this form is two fold. First of all it is used to keep a record of the annual battery changeout dates. In addition, the servicing technician has spaces to detail any service performed on the system after the initial installation date.

SX-IVB SERVICE CALL RECORD

ALL BATTERIES CHANGED AND SYSTEM COMPLETELY.TESTED ON THESE DATES:

(1) ___/___ BY: _____ (5) ___/___ BY: _____ (9) ___/___ BY: _____

(2) ___/___ BY: _____ (6) ___/___ BY: _____ (10) ___/___ BY: _____

(3) ___/___ BY: _____ (7) ___/___ BY: _____ (11) ___/___ BY: _____

(4) ___/___ BY: _____ (8) ___/___ BY: _____ (12) ___/___ BY: _____

SERVICE PERFORMED: Detail below reason for Service Call and corrective action taken.

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

DATE: ___/___ BY: _____ REASON + ACTION (BE SPECIFIC): _____

APPENDIX E - PROTECTION PROVIDED CARD

The small "Protection Provided" card shown here is a completed sample of a card we send with every walnut Wireless Touchpad.

The SX-IVB has the capability to be armed to eight different levels of protection (0-7). Most homeowners only use three or four of these levels. The purpose of the card is to outline the use of the levels that your customer is going to use, in words that he will understand.

For the first few days, as your customer gets used to the system, he can refer to this card to help him select the proper arming level when he leaves home, when he goes to bed at night, etc.

The card is cut to a very precise size so that it will slip in the back of the walnut touchpad against the circuit board. This way, whenever your customer has to refer to the card he can simply lift the touchpad from the mounting bracket, turn it around, and read the information on the "Protection Provided" card.

LEVEL	PROTECTION PROVIDED
CODE + 0	All burglary protection OFF. Fire, Panic & Auxiliary ON.
CODE + 1	Gun cabinet only protected
CODE + 3	Doors & windows protected - use when at home
CODE + 4	Everything protected - use when away from home
CODE + ____	
CODE + ____	

LIMITED WARRANTY

on products manufactured by
Interactive Technologies Inc.

Equipment manufactured by Interactive Technologies Inc. (ITI) is warranted to be free from defects in material and workmanship. ITI's obligation under this warranty is limited to the repair or replacement of any defective equipment, including parts or components, for fifteen (15) months from the date of manufacture as indicated by the date and/or serial number on the product. This warranty does not cover parts requiring replacement as a result of normal wear and tear, catastrophe, fault or negligence of user or the wholesale buyer, improper use of the equipment or other causes external to the equipment.

This warranty extends only to wholesale customers who buy direct from ITI. ITI does not warrant its products to consumers. Consumers should inquire from their selling dealer as to the nature and extent of the dealer's warranty, if any.

Defective units, returned by the buyer at his own expense during the warranty period, will be repaired or replaced at the option of the manufacturer with an equivalent piece of remanufactured and tested equipment. The repaired or replaced equipment is then warranted for the balance of the original warranty or for ninety (90) days, whichever is longer.

Correction of such defects by repair or replacement of such parts or components shall constitute the fulfillment of all warranty obligations of ITI. ITI shall not be liable for any loss, damages or expenses directly or indirectly arising out of, or in connection with, the use or performance of these products or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation and reinstallation.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER'S EXCLUSIVE REMEDY WITH RESPECT TO ANY AND ALL LOSSES OR DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER, SHALL BE REPAIR OR REPLACEMENT, AS SPECIFIED ABOVE. MANUFACTURER SHALL IN NO EVENT, BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES, HOWEVER OCCASIONED, WHETHER BY NEGLIGENCE OR OTHERWISE. NO SUIT OR ACTION SHALL BE BROUGHT AGAINST MANUFACTURER MORE THAN ONE (1) YEAR AFTER THE ACCRUAL OF THE CAUSE OF ACTION THEREFOR.

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

MAINTENANCE AND INSPECTIONS

Regularly scheduled maintenance and inspections (at least yearly) are necessary to keep alarm systems in proper working order. You should offer a regular maintenance schedule to the system owner and user in addition to advising the user in the system's operation and limitations. Recommendations would include but not be limited to specific guidelines for weekly testing of the system.

The user may not under any circumstances try to service or repair the system; repairs must be done by the factory or an authorized service agency.

ALARM SYSTEM LIMITATIONS

Not even the most advanced alarm system can guarantee protection against burglary or fire. Alarm systems are subject to compromise or failure under the following conditions:

- If sirens or alarms are not placed within hearing range of persons sleeping or in remote parts of the house. Warning devices may not be heard if they are placed behind doors or other obstacles, or on levels distant from space frequently occupied by residents.
- If intruders gain access through unprotected points of entry, or if they have the technical means of bypassing or disconnecting part of the system.
- If power to detectors is discontinued or inadequate. Devices will not work if AC power supply is off and backup batteries are either missing, dead, or not installed properly.
- If smoke does not reach the detector. Smoke detectors cannot detect smoke in chimneys, in walls or roofs, or smoke blocked by a closed door, and they might not detect smoke or fire on a level different from the one on which they are located. Detectors may not be able to warn you in time about fires started by smoking in bed, explosions, gas leaks, improper storage of flammables, overloaded electrical circuits, or other types of hazardous conditions.
- If transmission lines are out of service. Transmissions from CPUs to central monitoring stations cannot be made over lines that are out of service. Telephone lines are also vulnerable to compromise by any of several methods.

Inadequate maintenance is the most common cause of alarm failure. Test your system weekly to be sure sensors and wireless touchpads are all working properly.

Although having an alarm system may make you eligible for reduced insurance premiums, the system is no substitute for insurance. Warning devices cannot compensate you for loss of life or property.

TELEPHONE PROBLEMS

Should problems develop with the telephone system, unplug the CPU from the RJ31X/RJ32X jack. If a problem still exists after disconnecting the CPU, notify the telephone company. If your regular phone works after the CPU has been disconnected from the phone lines, return the CPU for repairs.

Upon installation of the system demonstrate disconnection of the phones to your customer.

Disconnecting the phone connection inside the CPU will result in loss of power from the phone lines.

FEDERAL COMMUNICATIONS COMMISSION REGULATIONS

This equipment meets all applicable Federal Communications Commission (FCC) Part 15 specifications. The FCC requires that you be informed of the following:

This equipment can cause interference to TV and radio reception if not installed according to the manufacturer's instructions. FCC Rules are designed to provide reasonable protection against residential TV and radio interference. However, there is no guarantee against interference in any particular installation. If interference does occur, it can be corrected by one or more of the following measures:

- If an indoor antenna is in use, install an outdoor antenna.
- Move antenna leads away from the CPU.
- Reorient receiving antenna until interference is reduced or eliminated.
- Plug CPU into different branch circuit.

For additional help consult your dealer or an experienced radio/television technician. See also the FCC booklet, "How to Identify and Resolve Radio-TV interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402. Stock No. 004-000-00345-4.

NOTES

NOTES