DESTINY 6100

Installation Instructions

Dear Dealer/Installer:

We appreciate your decision to use the Destiny 6100 for this installation. As a division of the Pittway Corporation and member of the ADEMCO Security Group, we are proud to provide you with equipment made by ADEMCO, the world's largest alarm manufacturer. The manufacturing facility is ISO 9001 certified and contains the most modern automated manufacturing and testing equipment in the industry.

The most important design resource for **apex** is our dealers. Our technical support staff (800-272-7937) is always anxious to hear feedback. After all, most of the ideas for features in **apex** panels come from our dealers.

While keypad programming has become simpler in this latest **apex** control panel, we strongly recommend using the FREE upload/download software that can be obtained from your distributor, downloaded from the **apex** BBS at (919)954-0318 or downloaded from our web site (*www.ademco.com/apex*). The software reduces the amount of time necessary to program a system and provides built in safeguards that reduce the possibility of incorrect programming. Remember the system can be computer programed both off and on site.

Thanks again for choosing **apex** . We are confident you will agree that you have made an excellent choice.

Sincerely,

Jim Filer
President

Software Revisions

Current software at time of printing:

Control Panel:	8.06	Speech:	1.09
RKLCD Keypad:	4.04	RK36 Keypad:	4.01
HWB416:	3.00	TS16:	3.03
EXP8:	1.01	Bridge (Gate):	1.03
Downloader	1.00		

8.05 To 8.06 Panel Software Revision History

Changes
- Wiring diagram reflects latest change for UL Aug '98 requirements (page 12)
- Grounding requirements for UL installations (page 13)

Corrections
- Increased number of Central Station report codes to 49 (page 8).
- Added "*Report Transmitter Low Battery to Central Station*" originally omitted (page 24).

Enhancements
- *Smoke Verification* added to meet UL Aug '98 requirements (page 33).
- *Speaker (Bell) Supervision* added to meet UL Aug '98 requirements (page 34).
- *Smoke Detector Low Battery Warning* added to meet UL Aug '98 requirements (page 34).
- *RF Jam Detection* added to meet UL Aug '98 requirements (page 34).

New Locations
- Added locations 0251,0252, and 0253 for smoke verification under *System Times* section (page 38).

Table of Contents

4   [System Options and Times]

5   [Central Station Features]

6   [Keypad Functions]

7 [User Codes]

8 [Control Channels]

1 *Specifications*

Electrical: Voltage Input: 16.5 VAC 40 VA from supplied transformer

External Speaker: 10 Watt minimum, 8Ω horn type - Ademco 713 or equivalent. Total speaker load must be between 4Ω and 16Ω.

Internal Speaker: Speaker supplied in all compatible keypads. For stand-alone operation 10 Watt minimum, 8Ω - Ademco 746 or equivalent. Total speaker load must be between 4Ω and 16Ω. **For UL installations, an Ademco 705 speaker must be connected to the "EXT" and "COM" terminals.**

Auxiliary Power Output: 13.5VDC, 1.85 AMP max - **Not evaluated for UL installation**

Switched Fire Output: 13.5 VDC, 1.85 AMP max

Two Wire Smoke Detectors: Up to 12 per system
> **Note: Switched Fire Output and Two Wire Smoke Detectors are not to exceed 10mA in a UL installation**

Back-up Battery: 12VDC, 7AH gel cell. YUASA NP7-12 or equivalent.
> **For UL installations use 2 - batteries with SA5140-1 cable assembly**

CAUTION: Total current draw of Auxiliary + Smoke + 4 wire bus power is not to exceed 2 Amps. **In UL installations total current draw must not exceed 400mA**. Test installation for 1 minute in alarm to ensure sufficient power.

Communicator: Supports: 3/1, 4/1/1, 4/2 extended, Ademco Contact ID
49 report codes
DTMF and pulse dialing
DPDT line seizure
Two telephone numbers and two account codes, dial both numbers
Split reporting of selected codes
Alternate number dialing if primary number fails
Programmable number of dialing attempts
Programmable to enable or disable the communicator

Two-Way Voice: Microphone inputs: 3 separate, individually controlled channels.
Microphone: 5V shielded 2 conductor omnidirectional electret condenser microphone.
Frequency response 50-10K. -64db sensitivity, TWM-25K or equivalent.

System Zones: 96 using the following inputs:
- 80 - programmable fully supervised wireless alarm points (with H series receiver)
- 16 - programmable fully supervised hardwire inputs on the control panel
- 64 - programmable fully supervised hardwire inputs on multiplexed expansion boards
- 1 - 2-wire smoke loop
- 8 - keypad alert
- 8 - wireless keypads (when available)
- 1 - local phone activation
- 1 - remote phone / phone line monitor activation
- 8 - X-10 sending units (**Not UL listed for fire or burglary functions and are intended for home automation.**)

Auxiliary Outputs: 1 - Form C 10A 24VDC system relay
7 - Pull to ground, 12 volt, 100mA outputs, not to exceed 500mA total.
> **Not to be used in a UL installation**

Speaker Output:	10 Watt internal siren driver with full speech
	10 Watt external siren driver with full speech
	Designed for use with 8Ω, 10 watt minimum speakers.
	Total impedance for either driver not to drop below 4Ω
	For UL installations use a Ademco 705 speaker which must be connected to "EXT" and "CON" terminals.

Smoke Detectors:

ESL 429 Series	- 2 wire Photoelectric
System Sensor 2112/24B	- 4 wire Photoelectric (**Not evaluated for UL installation**)
System Sensor 2112/24BT	- 4 wire Photoelectric (**Not evaluated for UL installation**) w/heat sensor
System Sensor 2100	- 2 wire Photoelectric (**Not evaluated for UL installation**)
System Sensor 2100T	- 2 wire Photoelectric (**Not evaluated for UL installation**) w/heat sensor

Dimensions: 15.1" L x 13.05" W x 3.5" D w/ door.

System Keypads:
Fully spoken enunciation of zones and system status
6 Programmable manual activations
Lights and appliance control for home automation
3-way Monitor mode - Speech, Silence, Chime
Dimensions: 7" x 4 3/4" x 1" deep

Keypad Wiring:
4-wire bus
    -red and black - power
    -green and white - data
2-violet - audio
No smaller than 24 gauge, up to 50', 22 gauge over 50'
Microphone wire- 22 gauge, 2 conductor shielded

Transient Protection:
Multiple level surge filters are on all zone inputs, power supply, keypad connection, siren outputs, auxiliary power supply, and the telephone interface. The circuit board is designed to provide spark gap protection to catch high voltage impulses at the wiring terminals. Protective ground planes surround sensitive areas preventing the spread of damaging voltage surges. Metal Oxide Varistors (MOV's) are in all critical areas to further reduce surges. Sidactors and PTC Thermistors protect the phone line input. Transient protection is most effective when the panel is earth grounded.

Nonvolatile Memory: Maintains programming options with no power to the control.

System clock:
Time-of-day clock with a backup circuit designed to deliver continuous power for two weeks on a full charge.

System Watchdog:
All precautions have been taken to prevent spurious operation of the control caused by voltage surges, however, temporary disruption of the microprocessor can occur, leading to improperly processed routines. The system is equipped with a watchdog circuit that watches processor operation and resets the microprocessor if an error should occur.

Supervision:
The following trouble conditions are always monitored:
Loss of AC power
Backup battery low voltage
Communicator failure
Phone line loss
High current conditions (system shorts)
Zone expansion failure
Receiver or bridge board failure (panel supervises bridge, bridge supervises receiver(s))
Transmitter supervision signals - trouble indication within 6 hours (if programmed)

Advanced Features: Home automation capability
                    Phone access for both installer and end user
                    Speech synthesis
                    Alert memory in activation order
                    Event log memory in activation order
                    Audible RF test mode with serial number identification
                    Unattended upload/download programming (**Not evaluated for UL installation)**
                    Serial Interface (RS-232) printer / automation interface
                    Temporal fire notification tones

Items Included With the Control Panel:

Please examine the contents of the shipping box for the following items:

1	- Control Panel	1	- Lock, key, and retaining clip
1	- 16.5 VAC 40 VA Transformer	17	- 4.7KΩ 1/4 Watt Resistors
1	- Auxiliary Output Harness	3	- Plastic mounting clip
1	- Microphone Harness	1	- Package of 4 standoff screws
1	- Installation Manual	1	- Back up battery leads
1	- Owners Manual	2	- Wallet End User Instruction Cards

Inserting the Cabinet Lock

1. Remove the cabinet door

2. Remove the lock knockout from the control cabinet door. Insert the
   key into the lock. Position the lock in the hole making certain that
   the latch will make contact with the latch bracket when the door is
   closed.

3. Hold the lock steady, and insert the retainer clip into the retainer
   slots. Position the clip as illustrated in order to permit easy removal.

Retainer Clip
(Note Position)

Retainer Slot
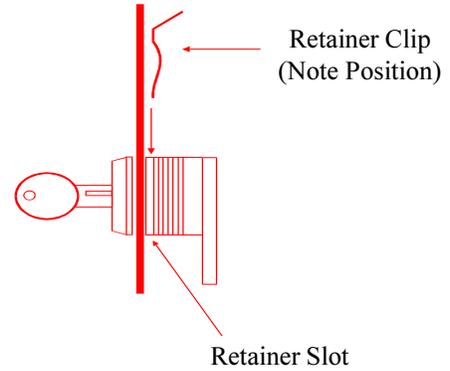
Mounting the Control Board

1. Hang the three (3) mounting clips (provided) on the raised cabinet
   (see below).

2. Insert the top of the circuit board into the slots at the top of the
   cabinet. Be certain that the board rests in the correct row (see
   below).

3. Swing the base of the board into the mounting clips and secure the
   board to the cabinet with the accompanying screws (see below).

Locked

Unlocked

Control Board

Control Board

Can

Plastic Mounting Clip

1

Note: Auxiliary Outputs are pull-to-ground on activation at 100mA per pin. Total Current can not exceed 500mA. Use of Auxiliary Outputs are not approved for UL installations.

Inputs may be wired with no End-of-line resistor, or 2-resistor supervision. See "Wiring On Input" for input diagrams and "Programming System Inputs to Zones" for programming information.

+++7654321

Hardwire Inputs

9 10 Com 11 12 13 14 Com 15 16
1 2 Com 3 4 5 6 Com 7 8

For UL Installations: Average current draw from the Battery not to exceed 400mA

See "Specifications" for compatible Smoke Detectors

4.7KΩ
4-Wire Smoke Detector

Receiver + Bridge current draw 115mA

Aux Relay
RC RNC RNO

12VDC 7Ah
12VDC 7Ah
Gel Lead Acid type Batteries

4.7KΩ
4.7KΩ

Black
White
Green
Red

SMk- Com Aux+ Red Grn Wht Blk

Aux Relay

6-Wire Keypad
RK36 current draw 50mA

Power Switch
On
Off

AC SMk- AC Int Ext Com T T1 R R1

16.5VAC 40VA Trans. (supplied)

4.7KΩ
2-Wire Smoke Detector

Violet
Violet

Mic Inputs
+123SS

+5 VDC
Microphone 1 Signal
Microphone 2 Signal
Microphone 3 Signal
Shield
Shield

To House Phones
Green
From Phone Company
Red
RJ-31X

1 8
RJ-31X PLUG

Warning: To prevent the risk of shock, disconnect telephone line at telco jack before servicing this unit

External Speaker 8Ω 10 Watt Min.
(See "Specifications" for compatible speaker)
Internal Speaker 8Ω 10 Watt Min.

12

Wiring Notes

Grounding: In UL installations where the Speaker Supervision option is enabled, grounding is not permitted.

      If grounding, it is recommended a system common be attached to a cold water pipe, 16ga. at 15 feet. Although cold water pipes have been the standard for earth ground, it is very common in modern construction that a cold water pipe does not provide an adequate ground due to the extensive use of PVC and other styles of "plastic" tubing. The best method for grounding the panel is to locate the panel in an area with easy access to the power company's earth ground.

Telephone Operation: In the event of telephone operational problems, disconnect the control panel by removing the plug from the RJ31X (CA38A in Canada) wall jack. We recommend that you demonstrate disconnecting the phones on installation of the system. Do not disconnect the phone connection inside the control panel. Doing so will result in loss of your phone lines. If the regular phone works correctly after the control panel has been disconnected from the phone lines, the control panel has a problem and should be returned for repair. If upon disconnection of the control panel, there is still a problem on the line, notify the telephone company and request prompt repair service. The user may not under any circumstance (in or out of warranty) attempt any service or repairs to the system. It must be returned to the factory for all repairs.

Communicator: Connection of the fire alarm signal to a fire alarm headquarters or a central station shall be permitted only with the permission of the local authority having jurisdiction. The burglary alarm signal shall not be connected to a police emergency number.

Codes: This equipment should be installed in accordance with National Fire Protection Association's Standard 72 Chapter 2 (National Fire Protection Association, Battery March Park, Quincy, MA 02269). Printed information describing proper installation, operation, testing, maintenance, evacuation planning and repair service is to be provided with this equipment.

Compliance: This device complies with part 15 of FCC rules. Operation is subject to the following two conditions: (1) It may not cause harmful interference. (2) It must accept any interference that may cause undesired operation.
Complies with Part 68 of the FCC rules for direct telephone interconnect.
FCC Registration Number: 107USA-74224-AL-T
Ringer Equivalence: 0.8
Use USOC RJ-31X telephone connection jack. Complies with ANSI/UL 1023 Household Burglary Alarm System Units and ANSI/UL 985 Household Fire Warning System Units.

Connections: Use UL Listed Cable for all connections.

Testing: Weekly testing is required to ensure proper operation of this system

Servicing: To prevent the risk of shock, disconnect telephone line at telephone company supply jack before servicing this unit.

Battery: Battery normally need not be replaced for at least 3 years. Use a 12 volt 7Ah battery (minimum). **For all UL installations use two 12 volt 7Ah batteries wired in parallel**.

1 *System Terminals*

House Phones: The R1 and T1 terminals provide telephone service to the house if the installation contains an RJ-31X terminal block for true phone line seizure.

Telephone Company: The incoming telephone service is wired through an RJ-31X jack to the R and T terminals on the control panel. If regular phone service is unavailable, the system will provide power and a distinct system tone to all in house phones.

Speakers: The control panel contains amplified internal and external siren drivers. Both internal and external speaker connections require 8Ω , 10 watt (minimum) speakers. The "EXT" and "COM" (speaker common) terminals provide full volume audio during activation. Mount the external speaker(s) in an area that is unaccessible to intruders and will provide a sufficient volume during an activation.

The "INT" and "COM" terminals produce speech, low volume monitor beeps, keypad echo beeps, system status, pre-alarm warning, and a high volume alert during activation. Typically, in non UL installations, the speakers (16Ω) in the RK series keypads are used as the only source for providing internal system audio; however in a UL installation the RK series keypads must be supplemented with an Ademco 705 speaker connected to the "EXT" and "COM" terminals. See "Specifications" for compatible speakers.

Wire all speakers in a series/parallel combination that does not allow the impedance for either the internal or external output to drop below 4Ω.

Transformer (AC Power):   Use a 16.5 VAC, 40 VA transformer (supplied) to supply AC power. Do not connect the transformer to a switched AC outlet. If an AC failure occurs, after 1 minute (programmable) the system will speak "POWER OFF", the keypad power LED will turn off, and the keypad status LED will begin to flash. After requesting system status the system will speak "POWER OFF" and the status LED will become solid. AC failure and restore conditions can be transmitted to the central station.

2-Wire Smoke Detectors: 2-wire smoke detectors are connected to the "SMK+" and "SMK-" terminals. Be certain to observe polarity. Smoke power reset is built into the panel by entering a valid full function user code followed by the "6" digit. A $4.7K\Omega$ resistor must be wired in parallel with the last detector in the loop. If a resistor is not used, or if there is a break in the loop, a TROUBLE indication will occur. Up to 12 2-wire smoke detectors can be powered by the smoke power supply. A high current situation on the smoke power circuit can be indicated at the keypad and/or communicated to the central station.

4-Wire Smoke Detectors: The "SMK+" terminal supplies up to 1.85 AMPs of power. A $4.7K\Omega$ resistor must be wired in parallel with the detector and wired to a zone input. Power is drawn from the SMK+ and COM terminals. Smoke power reset is built into the panel and is reset by entering a valid full function user code followed by the 6 digit. A high current situation on the smoke power circuit can be indicated at the keypad and/or communicated to the central station. **Use of 4-wire Smoke Detectors not evaluated for UL installation.**

Auxiliary Power: 12V+ Auxiliary power for hardwire devices such as motion detectors and glass break detectors is available on the "AUX" terminal. The auxiliary output is protected at 1.85 Amps. A high current situation can be indicated at the keypad and/or communicated to the central station.

The Destiny-6100 is compatible with the ADEMCO 4142-BLK removable terminal strips. If necessary, these connectors allow for quick replacement of the control board.

Keypad 4-wire Bus:	Connect corresponding 4-wire bus colored wires from peripheral devices to the appropriate terminals. Additional devices may be daisy chained or wired in parallel to the system board. The 4-wire bus is protected at 1.85 Amps. A high current situation can be communicated to the central station.
Auxiliary Relay:	A programmable relay is available on the "RC", "RNC" , and "RNO" terminals. Use "RC" for relay common, "RNC" for relay normally closed or "RNO" for relay normally open.
Battery Leads:	Connect the red lead to the + battery terminal and the black lead to the - battery terminal. If enabled, the battery is tested every 180 seconds to ensure it is present and charged. A low battery condition can be indicated at the keypad and/or communicated to the central station.
Auxiliary Outputs:	An auxiliary output wire harness is supplied for J4. There are 7 programmable output pins and 3 power pins. Pins 1-7 will provide a ground path when activated. Pins 8, 9 & 10 supply +12V DC. Do not exceed 100 mA per pin or 500mA total. These outputs are intended to drive relays with a coil impedance of 500Ω or greater or any other device requiring 100 mA or less. The outputs are not intended to power devices without the use of a relay. It is acceptable to power an LED when a 1 to 4.7KΩ, current limiting resistor is wired in series. **Use of Auxiliary Outputs is not evaluated for UL installation**. See Control Channel section for programming information.
Microphone Input:	A microphone wire harness is supplied at J1. Consult the Specifications section to determine compatible microphones. Up to 3 microphones can be wired in parallel to each of the 3 microphone inputs. Please note, if multiple microphones are wired to a single microphone input, the microphones must be turned off and on as a group. It is recommended to only wire 1 microphone to each of the 3 input channels allowing a central station to have full control of each microphone during a two-way session. **Use of two-way voice is not evaluated for UL installation**.
Power Switch:	Located in the center of the control board is a black slide switch which controls all power (including the battery) to the system. Up = ON; Down = OFF.
Volume Adjustment:	The potentiometer marked "VOLUME" on the left side of the control board controls the volume level of any system generated speech and the key depression feedback beeps. Using a small screwdriver, turn the potentiometer to obtain the desired volume. Clockwise increases volume. This adjustment will not the affect alarm notification volume from the speaker during an activation.
Program Switch:	Located in the upper right corner of the control board, this switch is used to return the system to various defaults. Holding the button down and releasing after a specific number of "beeps" will activate different system functions:

beeps	Action
1	Return user code 1 to default: 1,2,3,4
3	Enter direct connect mode (Same as 9952 in program mode)
5	Return service (program) code default: 9,1,7,3
10	Default panel
other	Three error beeps: no programming is affected.

Hardwire Inputs:	There are 16 hardware inputs on the control panel. Through programming, each input can be wired in one of three ways: with a 4.7KΩ end-of-line resistor (EOLR), without an EOLR, or with class-A 2-resistor supervision.

|		
1	Two-Way Adjustment:	The potentiometer marked "2-WAY VOL" controls the volume level of voice over the phone line to the inside speaker during two-way communication or paging. Using a small screwdriver, turn the potentiometer to obtain the desired volume. Clockwise increases volume. This adjustment will not the affect alarm notification volume from the speaker during an activation. **Use of two-way voice is not evaluated for UL installation**.
	Upload / Download LED:	At the top right of the board is a yellow LED labeled "U/D" which is illuminated when there is a modem to modem connection during upload or download.
	POWER LED:	At the top right of the board is a red LED labeled "POWER" which is illuminated when the system is receiving power.
	STATUS LED:	At the top right of the board is a green LED labeled "STATUS" which flashes to show the microprocessor is functioning. An incoming ring detection will cause this LED to flash very fast.
	Dial LED:	At the top right of the board is a red LED labeled "DIAL" which is illuminated during digital communication and remote phone access. The Dial LED is used as a diagnostic tool to analyze communication problems. The number of flashes after a failed attempt correlates to the communication stage that caused the system to fail. See "Communicator Diagnostics" for more information.
	Phone LED:	At the top right of the board is a green LED labeled "PHONE" which is illuminated when the system's supervision of the phone line verifies a valid phone line on "R" and "T." If the system does not confirm a phone line, the LED will turn off. Phone line failures can be indicated at the keypad as well as sound a local alarm. Phone line restoration can be communicated to the central station.
	X-10 TW-523 Interface:	Plug a standard RJ-12 cord into J5 on the middle right side of the board when using the X-10 TW-523 (X-10 Pro PSC05) module for lighting options. The termination of the four wire connection will be another RJ-12 jack plugged into the TW-523. The cord must have four wires (see "X-10 interface Cord"). 2-wire cords will not work. **Use of X-10 is not UL listed for fire and burglary functions and is intended for hom automation**. See Control Channel section for programming information.

X-10 Interface Cord

A 4-conductor phone cord must be used to connect an X-10 TW-523 (X10-Pro PSC05) to the interface jack on the control panel. Maximum cord length is 15 feet. The conductors must be in the following order:
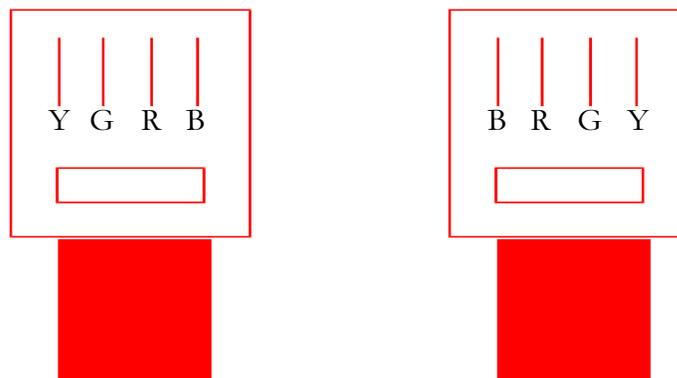
Wiring an Input Using an End-of Line Resistor

4.7KΩ

4.7KΩ

Normally Closed   Normally Open
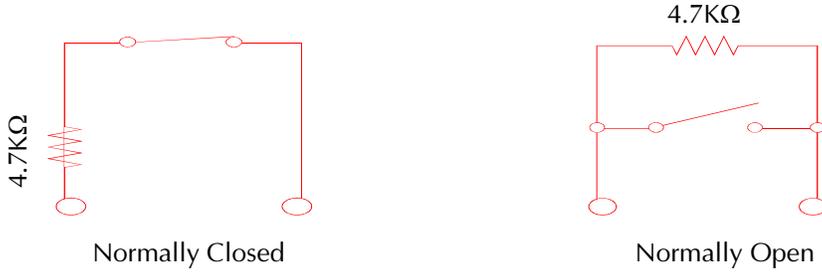
Single E.O.L Resistor: Traditional inputs are wired with a single end-of-line resistor. An open or short is treated as an open. A single end-of-line resistor is only effective if the resistor is placed after the last device wired in an input loop. This is the only suitable wiring method for smoke loops.

Wiring an Input Using 2 End-of Line Resistor Supervision

4.7KΩ

4.7KΩ

4.7KΩ

4.7KΩ

Normally Closed   Normally Open
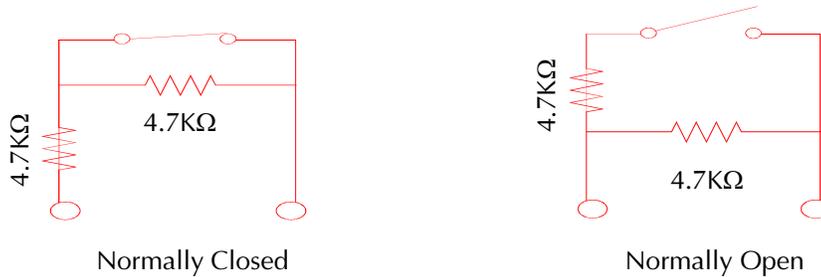
Only use 1 End-of-Line Resistor on smoke detector loops.

Two Resistor Supervision: This wiring arrangement allows the system to detect and handle open loops and shorts as a trouble condition. Through programming, trouble conditions can be communicated to the central station and show trouble status on a keypad.

Wiring an Input Using No End-of Line Resistors
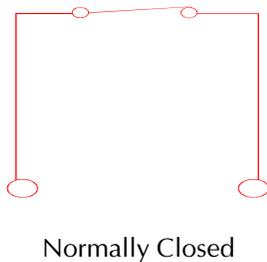
All inputs that do not use end-of-line resistors must be wired with a normally closed sensor

Normally Closed

No End-of-Line Resistor: The option is recommended only for "non-perimeter" zones that do not require tamper protection. There is no tamper protection (other than a cut loop shows an open) without a resistor and all loops that do not use a resistor must be normally closed.   **No End-of Line Resistor is not evaluated for UL installation**.

Programming

System options are contained in EEPROM. Each programmable section of memory has a 4 digit location and a three digit value. To reduce the amount of programming necessary, each location is supplied with a default value. The programming process can be simplified and the chances of programming errors can be reduced by obtaining a copy of the DOS based PC software available from APEX, the BBS at 919-954-0318 or download from our web site (*www.ademco.com/apex)*. The BBS settings are no parity, 8 bits with 1 stop bit, and connection speeds up to 28.8 baud.

Program Mode

To program new values into memory locations, it is necessary to first place the system into program mode. This is achieved in the same manner from a keypad or remote telephone; from keypad mode (anytime the system is in an idle state) enter the service code (factory default of **9,1,7,3).** The system will respond with "ENTER PROGRAM MODE." The LED's on keypads will turn off (RK36) or the display will show "Program Mode Active" (RKLCD).

Locations and Values

Programming requires the entry of a valid 4 digit program location followed by the entry of a 3 digit programming value. When a valid program location is entered, the inside speaker will emit one beep. Press the H (# from telephone) and the system will speak the current value in the location. To establish a new value, reenter the 4 digit location and type the desired new value after the single confirmation beep. The system will confirm the new program value by speaking the location followed by the value. To cancel current entries at any time prior to the system speaking the programming confirmation, press A (* from telephone), at that point a new location can be entered. If the system responds with three beeps after a location is entered, an invalid location has been entered. Values entered into undocumented locations may cause spurious system operation.

Automated Locations

The first set of locations in most sections of this manual are titled "Automated Programming Locations." An automated location is designed to reduce the amount of programming required by the installer. Based on the programmers inputs to prompted questions, the system does the required conversions and automatically places the correct values in memory locations. This process saves the installer time and reduces the risk of potential programming errors. Instead of entering a location and a value, enter the desired memory location (they always start with 9). The system will prompt for programming information. A full explanation of each automated prompt is located in the chapter in which the location appears.

Exiting Program Mode

To exit program mode, enter **9,8,9,9**, instead of a program location, the system will respond with "EXIT PROGRAM MODE." If a key (or digit) is not pressed within the time period programmed in location **0781**, the system will automatically exit program mode.

Quick Start

Keypad connection: Connect a hardwire keypad to keypad terminals on the control board, be certain to properly match the colors as follows: Black to **BLK**, Red to **RED**, Green to **GRN**, White to **WHT**.

Speaker connection: Connect the violet keypad speaker leads to the **INT** and **COM** terminals on the control board.

Power connection: Connect the power transformer to the AC terminals on the control board and plug the transformer into an unswitched 120 VAC outlet.

Apply power: Turn the power switch to the "ON" position (up). Wait for a start tone(s) followed by a pause and two beeps.

Setting time and day: The panel **MAY** prompt "Press 2 and 8 to set time" if the clock was not set prior to transit or if the capacitor responsible for sustaining the clock dissipated during transit and stocking. Press the 2 and 8 keys on the keypad simultaneously. The panel will prompt for a 4 digit time (use a leading 0 for times under 10:00), followed by a prompt for AM or PM. The next prompt is for the day of the week (1-Sunday, 2-Monday, 3-Tuesday, 4-Wednesday, 5-Thursday, 6-Friday, 7-Saturday). Enter a two digit month, two digit date and two digit year.

Arm and disarm: Press the **A** key on the keypad and the green AWAY LED will light. "ARMED TO AWAY" will be heard through the speaker. To disarm, push **1,2,3,4** (default Primary User Code) on the keypad. The AWAY LED will go out and "CONTROL IS DISARMED" will be heard.

Default Panel: **To ensure erroneous values are not stored in memory from the manufacturing and/or testing the panel should be defaulted before installation. Enter 9,1,7,3 followed by 9,9,8,2.**

Program: Proceed with programming to suit the installation.

System Input Overview

The diagram below shows each of the available system input types and the maximum number of each device that can be integrated into the system.

8 X-10 Sending Units	1 Two Wire Smoke Loop	8 Keypad Alarm Points	1 Phone Alarm
80 Wireless Alarm Points / Portable inputs (with H series receiver)	8 Wireless Keypads (When available)	16 Hardwire System Inputs	64 Expansion Hardwire Inputs
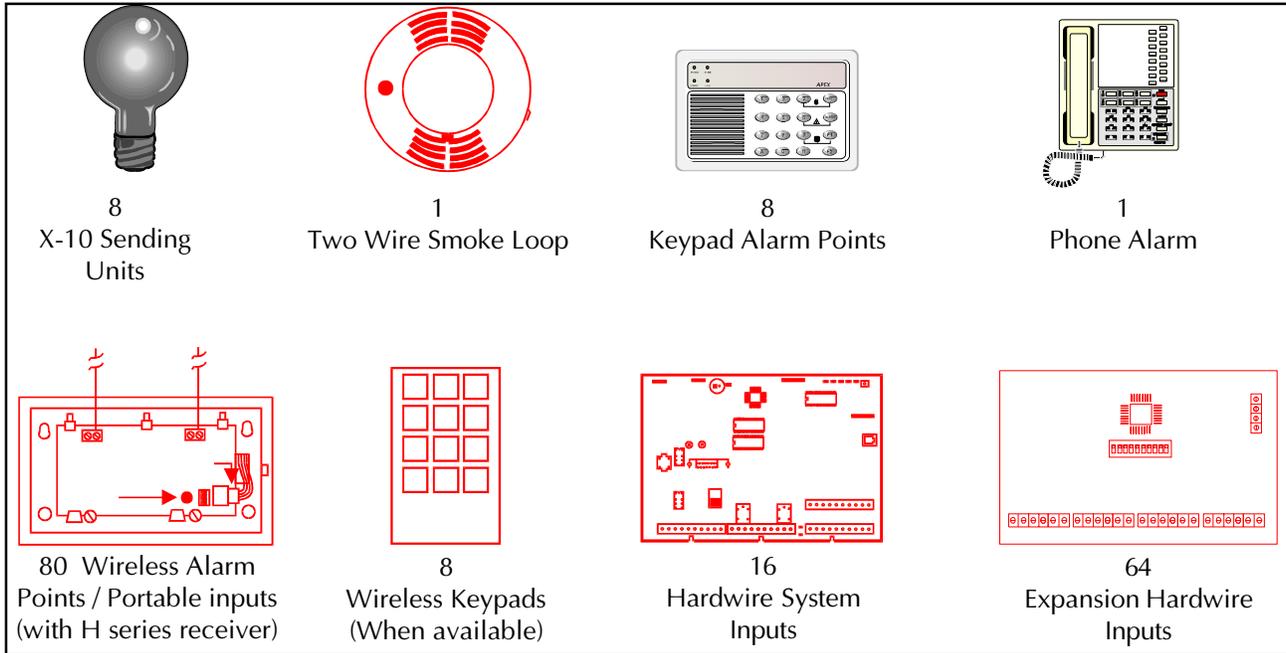
**Each input used is assigned to a System Zone.
There are 96 System zones available.**

Programming System Inputs

Before programming, determine all of the system inputs that are being used and assign a zone number for each input. All zones may have one input and each input can only be assigned to one zone. Each loop on a multiple input transmitter is considered to be a single input. Therefore, if all three inputs on a three loop transmitter are being used, each input is assigned to a different zone.

20

System Setup Example
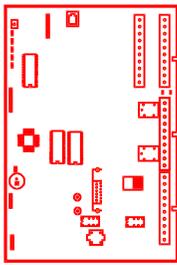
Hardware Device Types   **System Zone Assignments**
* Zone Assignments - flexible

System Board Inputs 1-16 —— System zone 1-16
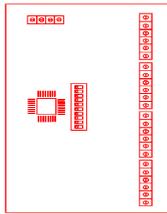
HWB 416 Inputs 1 - 8 —— System zone 17 - 24

HWB 416 Inputs 9 - 16 —— System zone 25 - 32
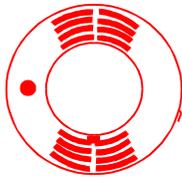
Two Wire Smoke Loop —— System zone 33
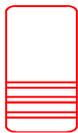
5817 Transmitter Inputs 1 - 3 —— System zone 34 - 36

5804 Panic —— System zone 37
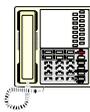
Local Phone Panic —— System zone 94
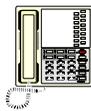
Phone Line Monitor —— System zone 95
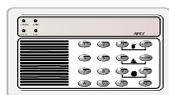
System Keypads —— System zone 96

21

Using This Manual:

This manual is not designed to be read like a book. The layout is intentionally designed as a reference guide that allows quick access to information while programming the system. It is strongly recommended that a first time installer attended training or bench test a system before attempting the first installation. For information on APEX training contact the sales department at 800-272-7937.

The layout of this manual is broken into eight separate sections. Each section begins with locations and ends with a full description of each option found in the location section. There are four styles of programming information in the system:

Automated Locations: Automated Location prompt for specific information and automatically record the appropriate information into the correct locations.

Value Locations: A documented location that contains a specific value (i.e. time, user number, etc.)

Option Location: Most system options require a total of option values to be placed in a location.

Example:

Options - Enter Total	Location	Value
Speak remote control menu (**Not evaluated for UL installation**)		**001**
Speak time and date when time is requested		**002**
Speak temperature when time is requested (See "Using a TS16")		004
Enable answer service override callback		008
Default	**0135**	**003**

The **bold** 001 and 002 states the values are included in a defaulted panel. To include the 3rd option, add 004 and enter the total (007) in location 0135. If no options were selected, enter 000.

Charts: Charts are used to provide a large number of locations in a small space. Depending on how the section is used, the locations in charts contain either an option value or a discreet value.

Example:

| Options	Value
2 end-of-line resistor supervision	064
No end of line resistor (**Not evaluated for UL installation**)	128
Default (1 end-of-line resistor)	**000**

The inputs across the top refer to which of the 16 terminals across the top the location is referring to. Below each input is a location. To program system input number 11 for 2 resistor supervision, enter 2474,064. Each location referenced above is shipped with a 000 default.

Input	Defaults	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Options	000	2434	2438	2442	2446	2450	2454	2458	2462	2466	2470	2474	2478	2482	2486	2490	2494

Program a Zone

Each input used in the system must be assigned a zone number and zone options to allow the system to process opens and closes in the desired manner. To simplify the process, the system has an automated menu system that only requests a small amount of information. Based on the responses, the software will automatically set defaults and establish the link between the zone number and hardware.

The first five questions for zone programming are always the same. During these questions the Monitor button will return to the previous question, F1 will play the current value, and F2 will accept the current value and advance to the next prompt.

At any time during the zone programming process, the A key will clear an entry for the current prompt. The H key returns the system to the first prompt. From the first prompt, the H key will exit to program mode.

Note: when H is pressed, any programming changes for the current zone are lost, pressing H after an F2 confirmation will still erase any changes. Zone programming selections are saved only after the final question is answered and the system advances to the "Next Zone" prompt.

Zone Questions

Enter program mode: Default 9,1,7,3. The panel will speak "Enter Program Mode"

Enter 9,9,4,0:   Program a zone automated location.

2 digit zone number: Enter the desired zone number 01 - 96. For zones under 10 use a leading zero (1=01).

3 digit zone type: Enter the desired three digit value from the Zone Type chart (next page). If the hardware device type for this zone is a under the "Button" device heading, use 015 as the zone type.

3 digit zone options 1: Add the values for the desired options in the Zone Options 1 chart (next page) and enter the total as a three digit number. Use a leading zero as necessary. If the hardware device type for this zone is a under the "Button" device heading, use 000 as Option 1.

3 digit zone options 2: Add the values for the desired options in the Zone Options 2 chart and enter the total as a three digit number. Use a leading zero as necessary. If the hardware device type for this zone is a under the "Button" device heading, use 000 as Option 2.

3 digit device type: Enter the three digit number corresponding to the device for this zone in the Hardware Device Type chart (next page).

To accept device: If the device number is correct, press F2. Otherwise, press monitor and enter the correct value.

Once F2 is pressed, Monitor will not step back to the device prompt.
If a mistake has been made, press H, and reprogram the zone

The common Zone information is complete, proceed to the appropriate hardware device type questions for information on prompts that correspond to specific hardware. This information is found immediately after the zone options on the next page.

System Input Automated Programming Locations

3 | *Zone Type

Type	Value
Exterior Instant	000
Exterior Delay 1	001
Exterior Delay 2	002
Interior Instant	003
Interior Delay 1	004
Interior Delay 2	005
Fire	006
Panic	007
Silent Panic	008
Emergency	009
Follower	010
Aux Type 1	011
Aux Type 2	012
Day Zone	013
Step arming	014
Button device type	015
Sunrise / Sunset	016
Disable	255

Zone Options 1

Options - Enter Total	Value
Report Alarm Activation to Central Station	016
Report Transmitter Low Battery to Central Station	032
* Display open status at keypad	064
Default	**000**

Zone Options 2

Options - Enter Total	Value
*+ Area 1	**001**
*+ Area 2	002
*+ Area 3	003
*+ Area 4	004
*+ Area 5	005
*+ Area 6	006
*+ Area 7	007
*+ Area 8	008
* Suppress Speech/Beeps for monitor	016
* Suppress "OPEN" from being spoken during monitor	032
* Suppress siren on activation	064
Default	**001**

* Options are ignored for all button type devices.
+ Choose only ONE area for the zone to be assigned to ONLY if split arming is being used.
Split Arming is not permitted in a UL installation.

24

Hardware Device Types

Hardwire Inputs

Type	Description	Value
System Controller	16 hardwire inputs	000
HWB416	16 Zone expansion board	001
System Smoke Loop	2-Wire smoke loop	002
Local Telephone	Local telephone 5 zero activation	015
Phone Line Monitor	Loss of phone line activation	021
TS16 -only use 32-127 degrees F	Temperature Sensor	022

Alarm Point Transmitters

Type	Description	Value
5816 (MN)	2 input alarm point transmitter	003
*5816TEMP	Low temperature transmitter	004
5817	3 input alarm point transmitter	005
5818	Recessed door transmitter	006
*5819	3 input shock transmitter	007
5890	Passive Infrared	011
5849	Shock / Glass Detector	012
5806	Smoke Detector	018
5807	Smoke Detector	018
5808	Smoke Detector	019

* Not evaluated for UL installation

Button Type Devices - PROGRAM ZONE TYPE AS 015

Type	Description	Value
5801	4 button portable	008
*5802	1 button portable	016
*5802 CP	1 button portable	017
*5802 MN	1 button portable	009
5804	4 button portable	010
X-10	X-10 Channel On/Off Command	020
Keypad	Keypad alert activations	013

* Not evaluated for UL installation

Predefined Zone Assignments

From a defaulted panel the following zones are automatically assigned:

Zone 94:	Local phone	This is predefined to allow local phone access at default. To enable a 5 "0" activation as an input, assign a zone type to zone 94.
Zone 95: remote	Phone Line Monitor &	The phone line monitor device type must be assigned to a zone for
	Remote Phone	phone "User Code + Digit" activations. To enable the phone monitor, assign a zone type (recommended zone type: aux) to zone 95. When a phone line loss occurs, the zone will show open and beep the keypad as a trouble violation. Pressing the status button silences the beep.
Zone 96:	Hardwire keypad	All keypad activations for RKLED and RKLCD(#1) are defaulted to report as zone 96.

Hardwire Inputs

System Controller

2 digit Input Number: Enter the hardwire loop on the system controller being used. Valid inputs are 1-16.

The default for this input type is a single end-of-line resistor. This option can be changed to no end-of-line resistor or full 2 resistor supervision by entering the appropriate value in the locations below.

Options	**Value**
Speaker supervised Zone	008
Treat trouble as an activation	016
2 end-of-line resistor supervision	064
No end of line resistor (**Has not been evaluated for a UL installation**)	128
Default (1 end-of-line resistor)	**000**

Input	Defaults	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Options	000	2434	2438	2442	2446	2450	2454	2458	2462	2466	2470	2474	2478	2482	2486	2490	2494

HWB416 Zone Expansion Board

1 digit group number: Each HWB416 has two groups of 8 zones that are separately controlled by dip switches. Inputs labeled 1-8 are the 1st group and 9-16 are the second group. If a second HWB416 is added to the system, the 1st section would be group three and inputs 9-16 would be group four. Enter the appropriate group number for the desired input. Valid inputs are 1-8 (lower inputs on HWB416 #1 through the high group of inputs on HWB416 #4).

1 digit input number: Enter the input number from the selected group. Lower inputs (1-8) are entered as written on the HWB416. For zones in the high group (9-16), subtract 8.

Example: To program input 15 from group 4 (HWB416 #2) enter input number 7

The default for this input type is a single end-of-line resistor. This option can be changed to full 2 resistor supervision by entering the appropriate value in the locations below.

Options	**Value**
2 end-of-line resistor supervision	128
Default (1 end-of-line resistor)	**000**

HWB416 Group	1	2	3	4	5	6	7	8
Option	2513	2533	2553	2573	2593	2613	2633	2653

System Smoke Loop

There are no additional questions for this input type.

Local Telephone

While in local phone keypad mode, a user can activate a zone by entering 5 zeros. This zone type is traditionally programmed as a 24 hour panic. There are no additional questions for this input type.

Phone Line Monitor

The phone line monitor input becomes active upon loss of phone line. For notification at the keypad, this input can be programmed as an auxiliary zone type for enunciation at the keypad, a day zone for extended monitoring and alerts while armed, or a 24 hour panic for alarm activation upon loss of phone line (not recommended).   There are no additional questions for this input type.

TS16 - Only use between 32 - 127 degrees F

Temperatures from a TS16 can be used as a zone input. The system will prompt:

2 digit input number: The system supports up to 16 separate TS16s. Enter the TS16 address to be used. Legal values are 1 - 16.   Use the locations below to program the TS16. A temperature at or above the High point is an open. A temperature at or below the Low temperature is an open. The hysteresis setting determines how far the temperature must rise (above Low setting) or fall (below High setting) for the zone to restore. **TS16 inputs are not evaluated for UL installation**.

Options - Enter Total	Location	Value
Enable TS16		001
Speak all temperature transmissions		002
Speak when time is requested		004
Open zone at High Temperature setting		016
Open zone at Low Temperature setting		032
Hysteresis 2 degrees		064
Hysteresis 4 degrees		128
Default (TS16 disabled)		**000**

TS16	Defaults	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Option 1	000	6657	6669	6681	6693	6705	6717	6729	6741	6753	6765	6777	6789	6801	6813	6825	6837
High Setpoint	000	6659	6671	6683	6695	6707	6719	6731	6743	6755	6767	6779	6791	6803	6815	6827	6839
Low Setpoint	000	6660	6672	6684	6696	6708	6720	6732	6744	6756	6768	6780	6792	6804	6816	6828	6840

Note: If a Low setpoint and High setpoint are being used then: Low + hysterics must be less then High - hysterics. Hysterics settings of 2 and 4 can be added (192) for a hysterics of 6 degrees. If values 64 and 128 are not used, the hysteresis is 1 degree.

Alarm Point Transmitters - Supervised

7 digit serial number: Enter the serial number listed on the bar code label. Only enter the seven numbers. The leading letter on the label is not used.

Accept serial number: If the serial number is correct, press F2. Otherwise, press monitor and enter the correct value.

The following is only prompted on multiloop transmitters:

1 digit input number: Use the transmitter loop locations to determine the input.

5816 (MN)

Loop 2
Loop 1

5817

Loop 1   Loop 2   Loop 3

5819

Loop 2
Loop 3   Loop 1
(Shock Input)
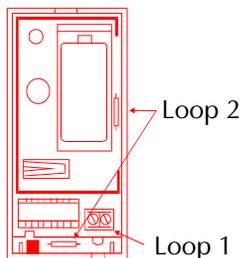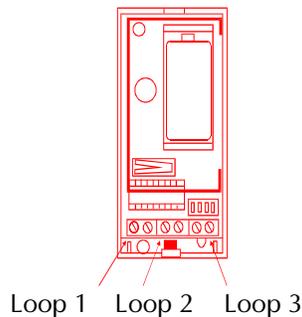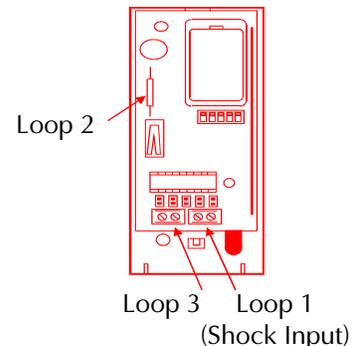
Button Type Devices

Portable Transmitters - Not Supervised

7 digit serial number: Enter the serial number listed on the bar code label. Only enter the seven numbers. The leading letter on the label is not used.

③ Accept serial number: If the serial number is correct, press F2. Otherwise, press monitor and enter the correct value.

3 digit function code: Enter code from the Button Functions chart.

If the transmitter has multiple buttons, the prompt will advance to the next button:

2 digit user number: Enter the user number assigned to arming functions.

5801

Button 3 — Button 2
Button 4 — Button 1

5804

Button 3 — Button 2
Button 4 — Button 1
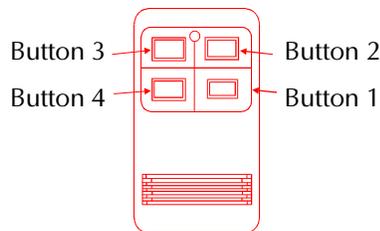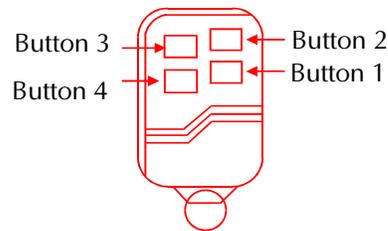
X-10

X-10 On or Off commands can be used as a zone input. The system will prompt:

1 digit input number: The system supports up to 8 separate X-10 addresses as valid inputs. Enter the X-10 input channel number to be used. Legal values are 1 - 8.   Use the locations below to program the X-10 CHU assignment (listed in the "Control Channel" section), and button functions for On and/or Off commands. When an X-10 input is used for an arming function, the system refers to user 32 options. **X-10 inputs are not UL listed for fire and burglary functions and are intended for home automation.**

Input	Defaults	1	2	3	4	5	6	7	8
CHU Assignment	000	5570	5576	5582	5588	5594	5600	5606	5612
On (Button) Function	255	5572	5578	5584	5590	5596	5602	5608	5614
Off (Button) Function	255	5573	5579	5585	5591	5597	5603	5609	5615

Keypad

1 digit keypad number: The system supports addressable and non-addressable keypads. Each addressable keypad (up to 8) has programmable key combinations, a zone number assignment, and the ability to program a four word description that is spoken during keypad alert activations. For more information, see the Keypad section of this manual. Those keypads that are not addressable share keypad address number 1. For non-addressable keypads, enter 1, for addressable, enter 1-8. Note, if keypads are not assigned to a zone they are assigned to zone 96 by default.

Button Functions

Option	Value
Speak Time	000
Toggle Monitor	001
Speak Long Term Memory	003
Silence Day Zone	004
Speak Status	005
24 Hour Fire	006
24 Hour Panic	007
24 Hour Silent	008
24 Hour Emergency	009
Enter Remote Control	012
Extended Monitor A	013
Extended Monitor B	014
Enter Bypass Mode	015
Set Time	016
Step Arming	017
Arm to AWAY	018
Arm to HOME	019
Disarm	020
Sunrise	021
Sunset	022
Remote System Mode (for use with RS-232 adapter only)	023
Output Control #1	024
Output Control #2	025
Output Control #3	026
Output Control #4	027
Output Control #5	028
Output Control #6	029
Output Control #7	030
Output Control #8	031
Output Control #9	032
Output Control #10	033
Output Control #11	034
Output Control #12	035
Output Control #13	036
Output Control #14	037
Output Control #15	038
Output Control #16	039
Disable	255

Note: "Output Control Channel" options and channel assignment locations are published in the "Control Channels" section. See "Key Function Values" in the Keypad Functions section for definition of terms.

3

Editing Zone Programming

Once a zone has been programmed, the system provides a quick method for editing zone values. Enter 9,9,4,0 followed by the zone number. As each input prompt is played, press F1 and the system will replay the current value. To change the configuration, enter a new value. To accept a current value, press F2. The Monitor button will return to the previous prompt. The Monitor button will not return to prompts once the system has asked for F2 to confirm. Any changes made only take effect if the final question is answered and the system speaks exit.

Deleting a Zone

A zone can be deleted by entering a device type of 255.

Programming System Inputs to Zones Terms

System Input Automated Programming Locations

RF Strength Mode:	This mode reduces the sensitivity of the receiver and speaks the serial number for all 5800 signals.
Exit Program Mode:	Removes the system from program mode and places the system in keypad mode.

Zone Types

Exterior Instant:	Exterior instant zones instantly sound an alarm when the system is armed to HOME, AWAY or Night. When the system is not armed, monitor mode is active, and the zone is programmed to show open/close status at the keypad, the system will speak the zone description or sound a monitor beep when the zone input is activated. Exterior Instant zones can be programmed to sound an alarm when the input is activated during an exit delay (System Options - Group 2, option 008). Otherwise, the exterior instant zone will respond in the same manner as when the system is not armed.
Exterior Delay #1:	Tripping an exterior delay input places the system into a pre-alarm mode if the system is armed to AWAY or HOME (unless "No entry delay for Exterior Delay #1 in Home" is selected in System Options - group 2). The system refers to entry delay time #1 to determine the pre-alarm duration. If pre-alarm expires without a user entering a valid disarm code, the system will sound an alarm. When the system is not armed, monitor mode is active, and the zone is programmed to show open/close status at keypad, the system will speak the zone description or sound a monitor beep when the zone input is activated. During an exit delay, Exterior Delay zones respond in the same manner as when the system is not armed. In Night mode, this zone type acts an exterior instant.
Exterior Delay #2:	Same as above but uses programmable entry delay time #2.
Interior Instant:	The interior instant zones are active in the AWAY mode only. No monitor function is provided for interior zones (except during extended monitor). During an exit delay, an opening is ignored.
Interior Delay #1:	Same as Exterior Delay #1 except active only in AWAY mode and no monitor is provided.
Interior Delay #2:	Same as Exterior Delay #2 except active only in AWAY and Night mode and no monitor is provided. Uses delay time #2.
Fire:	Fire zones respond with short high volume tones over the internal and external speakers. The system will alternate between the tones and speaking "FIRE, FIRE," followed by the up-to-four-word zone description, and "REMAIN CALM, LEAVE IMMEDIATELY."
Panic:	Panic zones respond with a high volume alert on both the internal and external speaker. The alert consists of a pulsed tone followed by "ALERT, ALERT", and the up-to-four-word description of the zone.

Silent Panic: Silent panic zones respond by activating the communicator. An activation appears in system status, however no audible indication is given.

Emergency: Emergency zones respond though inside speakers only. The alert consists of a pulsed tone followed by "ALERT, ALERT", and the up-to-four-word description of the zone.

Follower: An interior follower zone is active in the AWAY mode only. A follower acts as an instant zone providing an exterior delay zone is not previously tripped. When the system is in pre-alarm, the follower follows the pre-alarm time. No monitor function is provided and during an exit delay, an opening is ignored.

Auxiliary: Auxiliary zones are non-burglary zones designed to provide an automation, information, or service input to the system. This zone type does not activate an alarm even when the system is armed. When monitor mode is active, the zone is programmed to show open/close status at keypad and speak auxiliary zone type (System Option - Group 5, option 001) is enabled, the system will speak the zone description or sound a monitor beep when the zone input is activated. An auxiliary zone can be programmed to alert the central station.

Day: When the system is not armed a Day zone will cause an Extended Monitor activation and can send a Day Zone Trouble report to the central station. When the system is armed a Day Zone will act like an Exterior Instant. A day zone extended monitor activation can be cancelled with the "Silence Day Zone" button function.

Step Arming: The arm/disarm zone type is used for momentary arming inputs such as a keyswitch or touchpad. Each time the zone is closed the system moves in order between the following stages. Starting with the system disarmed, the first momentary closure will arm the system to AWAY. A second momentary closure, before exit delay time expires, will arm the system to HOME. A third closure, or a second closure after exit time has expired, will disarm the system. Arming to Night is not available if an arm/disarm zone is used. If split arming, user code 32 will determine which areas are armed or disarmed. Even if force arming is not programmed, the system will always force arm any open zones when an arm/disarm zone is used. A step arm/disarm reports the central station as user 32. **This option is not evaluated for UL installations**.

Button: Used for Button Type Devices. A "button" zone type behaves the same as disabled (255). The button function(s) assigned to the input determines the devices functionality.

Sunrise/Sunset: Used to provide the system with light/dark information. Control Channels can be programmed to operate based on sunrise/sunset. Default polarity is closed = light, open = dark. An option is available in the PC software to reverse polarity.

Zone Options 1

Report to Central Station: Programs a zone to activate a digital communication to the central station if the zone is the cause of an alert condition.

Report Low Battery to Central Station: Program a zone to report transmitter low battery condition to central station.

Display open at keypad: Used to show when specified zones are open. Typically, all internal zones (PIR's, Smoke Detectors) are **not** programmed to show status at the keypad. This prevents constant status light flashing and the LCD keypad scrolling zones that are repeatedly tripped. External zones (windows, doors) should be programmed to show status so the user is updated to all perimeter changes. Zones that are programmed not to show open at the keypad are not included in the monitor mode, unless extended monitor is used. Thisprogramming option does not affect opening (disarming) and closing (arming) reports to the central station.

Zone Options 2

Area: When Split Arming is enabled, this option determines which of the 8 areas the zone is assigned. Do not add multiple areas.

Suppress monitor: This option will prevent a zone from being enunciated when the system is in monitor mode.

Suppress open: This option will prevent the system from speaking the word "OPEN" at the end of a zone description. This is useful when the object being monitored does not have an open or closed state such as a driveway motion detector.

Suppress siren: This option will cause a zone that normally produces an audible activation to produce a silent alarm. The activation appears in system status and on an LCD display, however no audible indication is given.

System and HWB416 Inputs

Two resistor supervision: When an input is programmed to be completely supervised, the control will recognize traditional opens and closes as well as a break or short in the loop.   A break or short can produce a zone trouble condition which will be shown on the keypad. If programmed, trouble condition can cause an alarm condition if the trouble occurs while the system is armed. A trouble will clear when the loop has been corrected. See "Hardware and Wiring" for a wire loop diagram. Fire zones are fully supervised with one resistor and can not be wired with a 2 resistor combination.

No end-of-line resistor: With this option selected, the panel does not look for a 4.7KΩ resistor on the input loop. This option can only be used with normally closed loops. **No End-of Line Resistor is not evaluated for UL installation**.

Using a TS16 - Only use between 32 - 127 degrees F

Enable TS16:   If a TS16 is installed, use this option to enable the TS16 options. **TS16 sensors not evaluated for UL installation**.

Speak transmissions: A TS16 sends a temperature each time the temperature changes. In addition, a TS16 sends a status message every minute or ten minutes based on the dip switch setting. With this option set, the panel will speak the temperature each time a message is received from the TS16.

Temperature with time: With this option set the selected TS16's description and temperature will be spoken whenever time is requested. Note: option 004 in System Options - Group 6 must be set for this option to function.

Use High/Low Setting: This option determines if the High and/or Low trip points should be used to cause a zone activation. If neither option is selected, the zone will never show open.

Hysteresis: This setting specifies how much the temperature must fall below the high setpoint or rise above the low setpoint for a close to occur. Hysterics settings of 2 and 4 can be added (192) for a hysterics of 6 degrees. If values 64 and 128 are not used, the hysterics is 1 degree.

High/Low setting: These temperature settings determine when the panel will show the attached zone as open or closed. The zone will show open when the setpoint is reached. To prevent open/close cycling when the temperature is around the setpoint, a hysterics option is available.
                              Note: If a Low setpoint and High setpoint are being used then:
                              Low + hysterics must be less then High - hysterics. See "Key Function Values" in the Keypad Functions section for definition of terms.

Smoke Verification

Enable Verification: Smoke verification in the panel is handled as follows:

1) Smoke verification works with on-board hardwire and the 2-wire smoke loop only.

2) All HWB416, RF, and keypad smoke zones do not use smoke verification, they will activate a smoke alarm after the first trip.

3) While a smoke verification sequence is active, the smoke reset function is "locked out".

4) For zones that can use smoke verification, no audible notification is given for the first
   trip. If the zone is set to show open/close, this will show up as an open only.

5) Smoke verification must be enabled with option 001 in location 0250. It is disabled with 000 by default.

Smoke reset sequence: Upon the trip of an on-board or 2-wire smoke zone, the smoke power relay activates and drops smoke power. The relay will remain off for the period in seconds that is programmed in location 0251. A value of 000 is treated as 256 seconds. The default is 005 (5)seconds. During this period, all on-board and 2-wire smoke zone trips are ignored. **Location 0251 must be 010 (10 seconds) for a UL installation.**

After the power off delay is completed, the panel will restore smoke power and start a settling delay. The period of this delay is determined by the value in seconds that is programmed in location 0252. The default value is 010 (10)seconds. During this period, all on-board and 2-wire smoke zone trips are ignored. **Location 0252 must be 025 (25 seconds) for a UL installation.**

After the settling delay completes, the panel begins a "window" delay and starts watching for another on-board or 2-wire smoke zone trip. The period of this "window" is determined by the value in seconds programmed in location 0253. The default value is 120 seconds. **Location 0253 must be 120 (120 seconds) for a UL installation.**

Any trip during the "window" period results in a smoke alarm activation. Note that this activation need not be from the same zone that started the smoke verification sequence; any other on-board or 2-wire smoke zone that trips during the "window" delay will cause a smoke alarm activation. This is a fail-safe so that if the initial detector that started the smoke verification sequence has been damaged, some other detector will hopefully be tripped.

Once the smoke verification sequence starts a smoke alarm, all delays are cancelled and the sequence begins again for the next on-board or 2-wire smoke zone trip.

It should be noted that since smoke verification only applies to on-board and 2-wire smoke zones, smoke zones from any other source will immediately trip a smoke alarm and cancel the smoke verification sequence.

3

Speaker (Bell) Supervision

Speaker supervision requires the connection of a jumper wire from the speaker output terminal (INT or EXT) to a selected hardwire input terminal and two 4.7K resistors in parallel be connected between the (AUX+) terminal and the selected hardwire input terminal where the jumper is attached.

3

UL requires that at least one internal speaker, excluding RK series keypad speaker(s), must be supervised and connected to the "EXT" and "COM" terminals. Supervised speaker(s) must be connected to one of the 16 on-board hardwire inputs. The option programming location for the hardwire input to be supervised as a speaker zone (see page 26) must have a value of 008. With a value of 008 programmed, an open or short in the speaker wire will cause a trouble condition. To have a trouble condition be treated as an activation, program 024 in the hardwire input option location.

If multiple speakers are connected are needed for supervision, they must be connected in series. This way, any break in the loop will be properly detected. All speakers connected in series must have similar ratings.

> NOTE: The panel common **must no**t be connected to an earth ground. The speaker supervision will not detect aground fault if the panel is grounded. **Earth ground is not required in UL installations**.

If a loop programmed as a speaker supervision zone does not have the option set to "treat trouble as an activation" the panel will display trouble at the keypad and send trouble/ trouble restore reports to the central station.

If programmed to "treat trouble as activation", the panel will treat the speaker supervision as any other zone. You may program the zone to any legal zone type.

Smoke Detector Low Battery Warning

Upon detection of a low battery from a transmitting device assigned as a Fire zone type, the panel will start a warning beep, the STATUS LED will flash the low battery condition will be displayed (RKLCD keypads only).

Pressing the STATUS key will silence the warning beeps, the STATUS LED will remain solid. The low battery condition will continue to be displayed on the RKLCD.

UL requires the low battery warning feature alert the homeowner of a continuing low battery condition at least every 4 hours until such time that battery is replaced. If a low battery condition still exists, within 4 hours the panel will restart the warning as described above.

> Note: If programmed a transmitter low battery warning report (see Zone Options 1) will be sent to the Central Station upon initial activation of condition. If programmed a transmitter low battery restore report will be sent to Central Station when condition is corrected.

RF Jam Detection

RF jam detection feature senses when a radio receiver is being jammed or an interference exists which could possibly prevent proper operation of the receiver. The receiver will detect any interference that persists for 20 seconds or longer. The Bridge board polls each receiver every 30 seconds for a jamming condition.   A jam condition is detectable within a maximum of 60 seconds of the 20 second (or longer) interference.

A detected RF jam causes the panel to produce a trouble warning beep and flashing of the STATUS LED on the keypad. Pressing the STATUS key will silence the beeping and cause the panel to speak the message, "Receiver Overload". The status condition will clear when the interfering signal goes away.

> Note: No central station reports are associated when this condition is detected.

This Page Intentionally Left Blank

System Option Automated Programming Locations

[4]

System Options - Group 1

Options - Enter Total	Location	Value
Automatic time control of remote channels in AWAY mode only 002		
Disarm before rearm		**004**
Mute external Speaker (external driver -off, internal driver - adjustable)		008
Access code before arm 016		
Speak pre-alarm instead of tone		**032**
3 digit disarm code 064		
Speak system status with 1st digit of a user code		**128**
Default ....**0130** **164**		

System Options - Group 2

Options - Enter Total	Location	Value
Automatic "force arm" (no second key press) (**Not evaluated for UL installation**) 004		
No exterior instant exit delay 008		
No entry delay for Exterior Delay 1 in HOME mode 016		
Auto 96 hr clear of long term memory and event memory log 032		
Zone trouble = zone activation when armed 064		
Default ....**0131** **000**		

System Options - Group 3

Options - Enter Total	Location	Value
Speak time remaining and end of exit delay (inside speaker every 10 seconds)		**001**
Track activations and record in Long Term Memory		**002**
Voice driver		**004**
*{ **Enable split arming** (**Not permitted in a UL installation**) 008		
Echo local phone speech to inside speaker 016		
Enable night mode		**032**
Enable two-way voice call back (**Not evaluated for UL installation**) 064		
Default ....**0132** **039**		

* Note: When using Split Arming, all zones MUST be assigned to an area (zone option 2). Any zones without an area assignment WILL NOT CAUSE AN ACTIVATION WHEN ARMED! It is strongly recommended to use PC software on all systems that utilize Split Arming. Split Arming requires all RKLCD keypads to run software 4.03 or later.

System Options - Group 4

Options - Enter Total	Location	Value
Prevent access to Program Mode when armed		001
Enable smoke low battery warning at 4 hour interval (**Required for UL installation**)		002
Suppress Dialer during 2-way callback wait period (**Not evaluated for UL installation**)		128
Default	**0133**	**000**

System Options - Group 5

Options - Enter Total	Location	Value
Speak auxiliary zone type		**001**
Speak status immediately after local phone access		002
Silence inside speaker in HOME/Night mode (**Not evaluated for UL installation**)		004
Speak zone description in Extended Monitor		**008**
Disable force arming (**For UL installations this option must be enabled**)		064
Default	**0134**	**009**

Note: This option is not available when Split Arming is enabled.

System Options - Group 6

Options - Enter Total	Location	Value
Speak remote control menu (**Not evaluated for UL installation**)		**001**
Speak time and date when time is requested		**002**
Speak temperature when time is requested (See "Using a TS16")		004
Enable answer service override callback		008
Default	**0135**	**003**

System Access Codes

PC Access Code	Location	Default
Digit 1	0495	010 (*)
Digit 2	0496	010 (*)
Digit 3	0497	001
Digit 4	0498	002

Program Mode Access Code	Location	Default
Digit 1	0769	009
Digit 2	0770	001
Digit 3	0771	007
Digit 4	0772	003

Local Phone Access Code	Location	Default
Digit 1	0784	010 (*)
Digit 2	0785	011 (#)
Digit 3	0786	255 (N/A)
Digit 4	0787	255 (N/A)

Secured Callback Access Code	Location	Default
Digit 1	0789	002
Digit 2	0790	005
Digit 3	0791	008
Digit 4	0792	000

Answering Machine Override Digit	Location	Default
Digit	0774	011 (#)

System Times

System Time Options	Time Increment	Location	Default
Entry delay 1 (**Not to exceed 45 seconds in a UL installation**)	seconds	0136	020
Entry delay 2 (**Not to exceed 45 seconds in a UL installation**)	seconds	0137	020
Exit delay (**Not to exceed 60 seconds in a UL installation**)	seconds	0138	030
Alarm cut off and reset (**Not to be less than 4 minutes in a UL installation**)	minutes	0139	005
* Duration between fire, tamper, trouble chirps	seconds	0142	005
* Duration for recognition of AC power loss	minutes	0153	001
Time frame for User Test Timeout	minutes	0154	003
Duration between spoken "Pre-alarm" cycles (000 = 3 seconds)	seconds	0156	000
Fire cut off and reset (**Not permitted in a UL installation**)	minutes	0157	005
Fire siren tone duration before speech	seconds	0158	005
Burglary siren tone duration before speech	seconds	0159	005
Smoke verification smoke off duration before restore (**Must be 10 seconds in a UL installation**)	seconds	0251	005
Smoke verification smoke power restore duration (**Must be 25 seconds in a UL installation**)	seconds	0252	010
Smoke verification "window" delay duration (**Must be 120 seconds in a UL installation**)	seconds	0253	120
Number of 4 second samples to determine loss of phone line		0456	006
Answer service callback override wait time	seconds	0470	025

* 000 disables (**Must be enabled for UL installation**)

Automatic Arming and Disarming

This feature has not been evaluated for a UL installation

Options - Enter Total	Location	Value
Arm to AWAY		001
Arm to HOME		002
Disarm		008
Force arm with open zones		016
5 day cycle (otherwise 7 day cycle)		032
Default (Automatic Arm / Disarm disabled)	**0169**	**000**

Monitor Trouble Conditions

Option	Location	Value
* High current (001 to enable)	0240	001
* Monitor low battery and enable battery test (001 to enable)	0241	000
* Communicator fail (001 to enable)	0242	000

* 000 disables (**Must be enabled for UL installation**)

Bypass Options

This feature is not permitted in a UL installation

Option - Enter Total	Location	Value
* Open zones automatically bypassed at "force arm"		001
* Zones bypassed by "force arm" auto unbypassed at disarm		002
Unbypass all bypassed zones automatically at disarm		004
Default (Force Armed zones reactivated when shut)	**0243**	**000**

* These Bypass options are not available when Split Arming is enabled.

Time Options	Time Increment	Location	Default
No. of activations before Auto-Bypass - 000 disables		0176	000
Time frame activations occur within	hours	0177	024

Phone Access Options

Options	Time Increment	Location	Default
Number of rings for pickup (minimum of 002, 000 disables)		0458	010
Inactivity time before automatic hang up while in user phone access .. seconds		0780	015
Inactivity time before automatic hang up/exit when programming .... seconds		0781	060

Event Memory Log

Choose upload days total	Location	Value
Sunday		001
Monday		002
Tuesday		004
Wednesday		008
Thursday		016
Friday		032
Saturday		064
Clear Event Memory Log after upload		128
Default (Report on the 1st of every month)	0245	**000**
Number of retires when dialing	0246	**008**

4

System Options and Times Terms

System Option Automated Programming Locations

Clear EML and LTM: The Event Memory Log and Long Term memory can be cleared by entering 9898.

Unattended program download: Used in installations where the programming for the panel is entered into the PC software prior to the installation of the control panel. The software is left in auto answer mode allowing the panel to call to PC, match numeric account numbers, and download the programming file. Use location 9909 to set the panel account number and enter the PC phone number in 9904 (shared with automatic EML upload). To initiate to automatic download sequence enter 9953. (**Unattended Program Download not permitted for UL installation.**)

Direct connect: Used with the PC software. Connect the modem to any in-house phone jack or to the panel's R and T terminals. Activate the direct connect option in the PC software and with the control panel in program mode, enter 9952.

Event Memory Log: The control panel has a built-in 512 event system memory log (EML) that can be retrieved manually with the upload/download software package or automatically by programming the control panel to call a computer with the upload/download software running in the automatic EML upload mode.

Automatic EML upload: The event memory log can be automatically uploaded to a PC in auto answer mode. Program location 0245 to select the day or days of the week to upload the event memory log. To upload on multiple days, the values can be added. Choose a time to upload the log and enter the time in 24 hour format in location 9997. Use location 9909 to set the panel account number and enter the PC phone number in 9904 (shared with unattended program download).

Speak software revision: As dealers present ideas for new control panel options, the software is updated, although all software is labeled, this location verifies the software revision number.

Set time and date:	After entering 9991 the system will prompt "Enter Eleven." The time, day, and date are entered in the following format HHMMWMMDDYY. HHMM - Military time, if the hour value is less than 10 use a leading zero. W - Day of the week: 1-Sun 2-Mon 3-Tue 4-Wed 5-Thr 6-Fri 7-Sat. MM - Month. Months less than 10 use a leading zero. DD - Day of Month. Days less than 10 use a leading zero. YY - Enter the last 2 digits of the year.

Auto arm/disarm:	Choose the arming and disarming options and enter the total in location 0169. Use location 9993 to enter the arm and disarm times in 24 hour format. Location 0169 requires the sum of selected options. If **001** and **002** are programmed together, arming to AWAY will take precedence. If arm and disarm options are both selected, setting the same time for both will never produce an automatic disarm. When **016** is not selected and there are zones open the system will not arm. In a partitioned system, the control will use the areas designated for user code 32 to determine areas to arm and/or disarm. **Automatic arm/disarm is not permitted in a UL installation**.
Speak time and date:	This allows a convenient method to check the system time and date in program mode.

System Options - Group 1

Control of remote channels only in AWAY:	With this option programmed, the automatic turning on and off of control channels will take place when the system is armed to AWAY. **Control channels are not UL listed for fire or burglary functions and are intended for home automation**.
Disarm before rearm:	With this option selected, the system can only be armed from AWAY to HOME after disarming and vice versa. This prevents an intruder from turning off interior protection if they are able to circumvent perimeter protection.
Mute external speakers:	This option sends all tones to the inside speaker and is adjustable with the inside speaker volume adjustment. The external speaker channel is turned off. The main use of this feature is for testing alarm activations.
Access code before arm:	In this configuration, a full access code (arm/disarm code) must be entered to arm the system. Once armed, the system must be disarmed to allow a change from one arming mode to another.
Speak pre-alarm:	When this option is selected the system will repeat "ENTRY DETECTED" followed by a zone description during pre-alarm in place of a low volume siren tone.
3 Digit disarm code:	This is a global option that converts all access codes to 3 digits instead of the traditional 4 digits.
Speak system status:	When this option is selected, the system speaks status through the inside speaker or over the phone three seconds after pressing the first digit of a disarm code.

System Options - Group 2

Automatic force arm:	Without this option enabled, if a user attempts to arm the system with a zone open, the system will respond with "ZONES OPEN". The user can then "force arm" around the open zone. This temporarily bypasses the zone until the zone is closed. If this option is enabled, the open zone will automatically be temporarily bypassed (force armed) on the first key press. The user is never notified that zones are open unless system status is requested. **Automatic force arm is not permitted in a UL installation**.
No exterior instant exit delay:	When enabled, this option will eliminate the exit delay on all exterior instant zones following arming to either HOME or AWAY.

No entry delay in HOME: When enabled, this option will cause the exterior delay zones to become instant when the system is armed to HOME.

Auto. EML/LTM clear: All selected alerts that are sent to Event Memory Log and Long Term Memory are cleared every 96 hours.

Zone trouble activation: This option applies only to supervised zones. With this option enabled, all trouble conditions are treated as an activation when the system is armed.

System Options - Group 3

Signal end of exit delay: With this option, the system will speak "EXIT IS OVER" when the exit delay time has expired after arming. The system will also speak "EXIT IN (number of seconds remaining in exit delay)" every 10 seconds. NOTE: Exit delays greater than 90 seconds are not enunciated until 90 seconds remain in the exit countdown.

Track activations: With this option enabled, each individual zone activation will be written to long term memory as opposed to only the zone activation that created the alarm. For example, the back door causes an activation, then a passive infrared zone detects motion and then the front door opens. With this option enabled all of the activations will be written to memory versus only the back door. In addition, as each zone is violated the speech driver will speak the most recent zone violated as opposed to only the initial zone. Regardless how this option is programmed, each zone will be reported to the central station.

Voice driver: With this option selected, output to the speakers will alternate between siren tones and speech when there is a fire, burglary, emergency or panic activation. The system will say "FIRE, FIRE, REMAIN CALM, LEAVE IMMEDIATELY", "INTRUSION DETECTED, INTRUSION DETECTED", and "ALERT, ALERT". Not only will the type of activation be spoken, but also the description of the zone that caused it.

Enable split arming: The system can be divided into up to eight separate areas. Each zone is assigned to an area and each user code is assigned an area or multiple areas. With this option selected, the system will automatically require an access code before arming. Openings and closings can be reported by user. The 001 and 002 force arm bypass options in location 0243 are not available when using split arming. Night mode is not available in split arming. When automatic arming and/or disarming is programmed, the system will look to user code 32 to see which areas are to be armed and/or disarmed. **Split arming is not permitted in a UL installation**.

Echo local phone speech: When local (in house) phones are used as keypads, system speech is typically only heard through the phone. With this option selected, system speech will be heard through the inside speaker as well as the phone.

Enable Night mode: With this option selected, the system can be placed into Night mode. When the system is armed to HOME, press the H or # key. When armed to Night mode, both the AWAY and HOME LED's on the keypad will be lit, the entry delay doors become instant and interior delay #2 zones are active. To exit Night mode, disarm or press the H or # key to return to HOME mode. Night mode is not available if split arming is enabled.

Enable two-way callback: For this option to be used, at least one activation must be programmed to enable two-way voice/listen-in with the central station. After the digital communication, with this option enabled, the system will hang up and wait for the programmed time in location 0461 for a call back from the central station. The dialer LED will blink while waiting for the return call. The system will answer after the first ring and will automatically be in two-way with listen-in or will issue three beeps requesting a valid access code. If this option is not programmed, the system will hold the line after the kiss-off tone and will be in two-way listen in mode. See the "Communicator" for two-way callback options. **Two-way callback is not evaluated for UL installation**.

<div>4</div>

System Options - Group 4

No Program Mode Entry When Armed: With this option set, the system will not enter program mode with the panel armed.

Suppress dialing during two-way callback: With this option set, the panel will only send new activation information to the central station after a two-way callback call is complete. If this option is not set, a two-way session can be terminated by the panel to allow additional information to be sent. **Two-way callback is not evaluated for UL installation**.

System Options - Group 5

Speak auxiliary zone type: When this option is programmed and "Show open status at the keypad" is selected for an auxiliary zone type, the system will speak the zone description when the zone is opened.

STATUS on local phone: With this option selected the system will speak the system status instead of the acceptance tone when you access the system from local phones.

Silence inside speaker in HOME/Night mode: With this option selected, status, keypad echo and pre-alarm sounds to the inside speakers will be silenced when the system is armed to HOME or Night. Alarm activations will continue to sound. This option may be used in a home where someone is often coming home late at night and they do not want to disturb others when they arrive. T**his feature is not permitted in a UL installation and is not available when "Split Arming" is enabled**.

Speak extended monitor: When this option is programmed, during an extended monitor the system will repeatedly speak the zone description instead of activating a series of beeps.

Disable force arming: When this option is programmed, the system will not arm if zones are open unless the system is armed from an Arm/Disarm zone input.   **This option must be enabled in a UL installation**.

System Options - Group 6

Speak remote menu: When this option selected, entering Remote Control will speak a menu based on the remote control words programmed. The system will scroll through all active channels until a valid channel is selected.

Speak time and date: With this option enabled, the system will speak time and date whenever a user requests time (user code followed by 1).

Speak temperature: Speaks TS16 description and temperature after time is spoken. See Using a TS16.

Answering Machine Override Digit: If an answering machine is used on the same phone line as the control panel, the answering machine override feature in the panel must be used. Once the answering machine answers the line, enter the override digit. The system will respond with an access confirmation tone.

Answer service override: For installations that use answering services provided by the phone company. Two separate calls must be made to the system for the panel to answer. On the first call, let the phone ring twice and hang up. Call a second time, and the panel will answer on the first ring and respond with an access confirmation tone.

NOTE: For remote phone access to work correctly, the panel must be wired for full phone line seizure using an RJ-31X connection.

After the system confirmation tone, enter a valid disarm code that is programmed for remote phone access within 15 seconds. The system will respond with system status. Remote phone access operates in the same manner as local phone access, however, all arming state changes are echoed over the inside house speakers. During remote phone access, local phone access is unavailable and all local phones will receive a system beep every second signifying remote phone access is active.

NOTE: Some electronic phone systems use the * and # keys for additional functions. It may be required that the * and # are pressed twice for the system to generate the * or # tone.

4

System Access Codes

PC Access Code: Code required for programming the panel via computer software.

Program Access Code: Code required to place the system into program mode.

Local Phone Access Code: Code required to access the system from a local phone.

Secured Access Code: Code required for a central station to access the panel during two-way callback if the secured callback option is selected.

System Times

Entry delay 1 and 2:   The system provides two different entry delay times for exterior and interior delay zone types. Each of these times is programmable from 1 to 255 seconds. **Not to exceed 45 seconds in a UL installation**.

Exit delay: An exit delay time may be programmed for 1 to 255 seconds. **Not to exceed 60 seconds in a UL installation**.

Alarm cut off and reset: The system provides for an automatic reset (cut off high volume tones and system reset) in the range of 1 to 255 minutes. This time will also control the Any Activation control channel. **Not to be less than 4 minutes in a UL installation**.

Duration between fire, tamper, trouble chirps: For zone trouble, transmitter tamper, or a fire zone alert condition, a supervisory beep will be sounded at intervals determined by this time. For all activations except the fire chirp, the tone can be silenced by checking status. Valid times are from 1 to 255 seconds. If a value of 000 is programmed, this feature is disabled. **This feature must be enabled in a UL installation.**

Duration for recognition of AC power loss: For systems with a back up battery, the system can determine when AC power is lost. This location determines the time period in minutes before the system will recognize the power loss and speak "POWER OFF." If the communicator is programmed, it will send a report to the central station. Valid AC power loss recognition times are from 1 to 255 minutes. **This feature must be enabled in a UL installation.**

Duration between pre-alarm cycles:	The length of time the system pauses before saying "Entry Detected." The shortest time period is three seconds (000). Any value in this location is added to the default 3 seconds.
Burg tone before speech:	The length of time the system will create a burglary tone before speech.
Fire cut off and reset:	The length of time the system will stay in alarm without a disarm before the system stops the sirens and waits for another zone activation. **Fire cut off and reset is not permitted in a UL installation**.
Phone samples:	The built in phone monitor circuit can be adjusted based on the installation location. Every four seconds, the phone line is sampled, this option determines the number of samples needed for the panel to determine that a valid phone line has been connected or removed. In locations subject to brief phone outages use a higher number, in locations that have reliable phone service use a lower number. The default 6 works best in most applications.
User Test Timeout:	Controls the amount of time before the User Test Mode will automatically time out.
Answer service time:	This option is active only when Answer Service Override is enabled. This value determines the amount of time the panel will wait for a second call after hearing two rings on the first call.

Automatic Arming and Disarming

Arm State:	To automatically arm the system, include AWAY or HOME in the total for the "Automatic Arm / Disarm" option.
Disarm:	To automatically disarm the system, include Disarm in the total for the "Automatic Arm / Disarm" option.
Force arm w/ open zones:	To automatically force arm around open zones, include force arm around open zones in the total for the "Automatic Arm / Disarm" option. If this option is not used the panel will not automatically if a zone is open.
5 day cycle:	The automatic arm/disarm feature will occur every day unless the 5 day cycle is included in the "Automatic Arm / Disarm" option. The 5 day cycle is Monday through Friday.

Monitor Trouble Conditions

Monitor trouble:	The system can speak and indicate a high current situation, control low battery, and a failure to complete a digital communication as trouble conditions at the keypad. Entering 001 will enable speech and show the condition at the keypad while 000 disables this feature. **This feature must be enabled in a UL installation.**
Battery trouble:	Enables Battery test every 3 minutes. If the backup battery is under 10 volts, low battery can be displayed at the keypad and / or sent to the central station. **This option must be enabled in a UL installation**.

4

Bypass Options

Open zones bypassed: With open zones automatically bypassed at "force arm" enabled, zones are not force armed, they are bypassed. Therefore, if a zone is open and the system is force armed, the zone will remain bypassed even if the zone is closed. Without this option set, closing the zone will place the zone back into the system as a monitored input. This option is not available when the Split Arming Option is enabled. **Bypass is not permitted in a UL installation**.

Force bypass-unbypassed: The option "zones bypassed by force arm auto unbypassed at disarm" is useful if the option "open zones automatically bypassed at force arm" is enabled. With both options set, all zones that are bypassed at force arm will be unbypassed when the system is disarmed. This option is not available when the Split Arming Option is enabled. **Bypass is not permitted in a UL installation**.

Unbypass all bypassed: This is a global option that allows all bypassed zones to become unbypassed each time the system is disarmed. **Bypass is not permitted in a UL installation**.

Activations for bypass: Zones can be automatically bypassed, if the zone causes multiple activations within a specified time frame (reset each time the system is armed). The number of activations and time period are programmable. Once a valid disarm code is entered, the bypassed zone will be unbypassed. A program value of 000 disables this feature. A**utomatic bypassing of zones is not permitted in a UL installation**.

Time frame for bypass: The amount of time the activations must occur within before a zone is automatically bypassed. **Automatic bypassing of zones is not permitted in a UL installation**.

Phone Access Options

Rings for phone pickup: This location determines the number of rings before the panel answers the phone. Installations with an answering machine should be programmed with a longer ring count than the answering machine.

Phone inactivity hang-up: The amount of time the system will wait without activity before terminating the connection.

Program inactivity: The amount of inactivity time before the system exits program mode to keypad mode.

Communicator Automated Programming Locations

5

Communicator Times

Time Options	Time Increment	Location	Default
Delay before dialing after activation Phone #1 (000 - disables)	seconds	0437	002
Delay before dialing after activation Phone #2 (000 - disables)	seconds	0438	002
Off-hook time during listen-in before automatic hang-up (000 - 256 seconds)	seconds	0453	120
Central Station handshake wait period	seconds	0455	025
Two-way callback from central station wait period	minutes	0461	002
Voice only and two-way callback wait period for a valid code	seconds	0465	060
Maximum number of dialing attempts Phone #1		0449	008
Maximum number of dialing attempts Phone #2		0450	008
Touch tone (000) or pulse (001) dialing		0454	000
Ignore dial tone (for use with cellular backup) (001 - enabled)		0466	000

Reporting Options - Enter total		Value
Silent Knight Slow		000
Silent Knight Fast		001
Sescoa Fast (Radionics)		**002**
Multiple Reports / Connection		**008**
Voice Only		032
Phone #1 Default	**0441**	**010**
Phone #2 Default	**0443**	**010**

Reporting Format - Enter total		Value
3/1		000
4/2		001
4/2 extended w/ zone ID		002
4/1/1		004
Ademco Contact-ID (requires 4 digit account)		**008**
Phone #1 Default	**0442**	**008**
Phone #2 Default	**0444**	**008**

Two-Way Voice Options

This feature has not been evaluated for a UL installation

Voice Only Options - Enter total	Value
One Digit Access	001
Full User Code Access	002
The 0 digit exits to keypad mode	**008**

Two Way Callback Options		Value
One Digit Access		016
Full User Code Access		032
The 0 digit exits to keypad mode		128
Default	**0464**	**008**

46

Automatic Communicator Testing

	Location	Value
Choose to Report Daily, Weekly, or Monthly and enter the appropriate value		
Report Daily	0166	000
Report Weekly		064
Sunday		001
Monday		002
Tuesday		003
Wednesday		004
Thursday		005
Friday		006
Saturday		007
Enter Total (Example is Report on every Sunday)	0166	065
Report Monthly		**128**
Add the day of the month to use (valid days are 1-31)		**001**
Default (**Enter 000 for UL installations**)	**0166**	**129**

Fail To Open (Disarm) / Fail to Close (Arm)

Options - Enter Total	Location	Value
Enable Fail to Open		001
Fail to Close - Verify Armed to AWAY		002
Fail to Close - Verify Armed to HOME or Night		004
Fail to Close - Verify Armed to AWAY, HOME or Night		008
Use 5 day cycle (otherwise 7 day cycle)		016
Default (Fail to Open / Close disabled)	**0216**	**000**

Options - Enter Total	Location	Value
Check Area 1		001
Check Area 2		002
Check Area 3		004
Check Area 4		008
Check Area 5		016
Check Area 6		032
Check Area 7		064
Check Area 8		128
Default (No areas selected)	**0217**	**000**

Two-Way Digit Assignments

This feature has not been evaluated for a UL installation

Phone Digit	Default Function	Location	Default Value
0	Exit 2-way by going to keypad mode or hanging up	0223	000
1	Microphone #1 On	0224	001
2	Microphone #2 On	0225	002
3	Microphone #3 On	0226	003
4	Microphone #1 Off	0227	004
5	Microphone #2 Off	0228	005
6	Microphone #3 Off	0229	006
7	High microphone sensitivity	0230	007
8	Normal microphone sensitivity	0231	008
9	All microphones on	0232	009
*	Listen	0233	010
#	Talk	0234	011
	Rearrange Keypad phone digits (001 to change from default)	0222	000

Ademco Contact ID Report Codes

APEX Description	Code Sent to Central Station	ADEMCO Description
Exterior instant	E 131 Z	Perimeter burglary
Exterior delay 1	E 134 Z	Entry/exit burglary
Exterior delay 2	E 134 Z	Entry/exit burglary
Interior instant	E 132 Z	Interior burglary
Interior delay 1	E 132 Z	Interior burglary
Interior delay 2	E 132 Z	Interior burglary
Fire	E 110 Z	Fire alarm
Panic	E 120 Z	Panic alarm
Silent panic	E 122 Z	Silent
Emergency	E 100 Z	Medical
Follower	E 132 Z	Interior burglary
Auxiliary	E 150 Z	24 hour nonburglary
Duress disarm	E 121 0	Duress
Duress when not armed	E 121 0	Duress
Zone restore after activation	R 140 Z	General Alarm
Transmitter low battery	E 384 Z	RF low battery
Transmitter battery restore	R 384 Z	RF low battery
Zone trouble	E 370 Z	Protection loop
Zone trouble restore	R 370 Z	Protection loop
High current trouble	E 300 91	System trouble
High current restore	R 300 91	System trouble
Phone line restore	R 350 90	Communication
Open (disarm)	E 401 U	Open by user
Open after activation	E 450 U	Exception open
Close (arm)	R 401 U	Close by user
Force Arm	R 450 U	Exception close
Control low battery	E 302 92	Low system battery
Control battery restore	R 302 92	Low system battery
AC fail	E 301 99	AC loss
AC restore	R 301 99	AC loss
User communicator test	E 601 Z	Manual trigger test
Automatic communicator test	E 602 99	Periodic test report
Cancel	E 406 Z	Cancel
Zone bypass	E 570 Z	Zone bypass
Zone unbypass	R 570 Z	Zone bypass
Day zone trouble	E 135 Z	Day alarm
Day zone trouble restore	R 135 Z	Day alarm
Upload/download attempt	E 412 99	Success - download/access
Program mode entry	E 627 99	Program mode entry
Fail to open	E 453 99	Failed to open
Fail to close	E 454 99	Failed to close
Zone expander trouble	E 333 S	Expansion module failure
Zone expander trouble restore	R 333 S	Expansion module failure
Zone open	E 371 Z	Protection Loop
Zone restore	R 371 Z	Protection Loop
Tamper	E 383 Z	Zone tamper
Tamper Restore	R 383 Z	Zone tamper restore
Receiver Supervision Trouble	E 355 Z	Loss of radio supervision
Receiver Supervision Trouble Restore	R 355 Z	Loss of radio supervision

5

Report Codes

Report Type		Location	Value	
Exterior Instant	Central Station Report Code	0337	003	_____
	Dialer Option	0387	129	_____
Exterior Delay 1	Central Station Report Code	0338	003	_____
	Dialer Option	0388	129	_____
Exterior Delay 2	Central Station Report Code	0339	003	_____
	Dialer Option	0389	129	_____
Interior Instant	Central Station Report Code	0340	004	_____
	Dialer Option	0390	129	_____
Interior Delay 1	Central Station Report Code	0341	004	_____
	Dialer Option	0391	129	_____
Interior Delay 2	Central Station Report Code	0342	004	_____
	Dialer Option	0392	129	_____
Fire	Report Code	0343	001	_____
(Must enable in UL installations)	Dialer Option	0393	129	_____
Panic	Central Station Report Code	0344	002	_____
	Dialer Option	0394	129	_____
Silent Panic	Central Station Report Code	0345	002	_____
	Dialer Option	0395	129	_____
Emergency	Central Station Report Code	0346	005	_____
	Dialer Option	0396	129	_____
Follower	Central Station Report Code	0347	004	_____
	Dialer Option	0397	129	_____
Auxiliary Zone Type	Central Station Report Code	0348	005	_____
	Dialer Option	0398	129	_____
Duress Disarm Silent	Central Station Report Code	0349	002	_____
	Dialer Option	0399	129	_____
Duress When Not Armed	Central Station Report Code	0350	002	_____
	Dialer Option	0400	129	_____
Zone Restore After Activation	Central Station Report Code	0351	009	_____
	Dialer Option	0401	128	_____
Transmitter Low Battery	Central Station Report Code	0352	006	_____
	Dialer Option	0402	129	_____
Transmitter Battery Restore	Central Station Report Code	0353	009	_____
	Dialer Option	0403	129	_____
Zone Trouble	Central Station Report Code	0354	008	_____
	Dialer Option	0404	128	_____
Zone Trouble Restore	Central Station Report Code	0355	009	_____
	Dialer Option	0405	128	_____
High Current Trouble	Central Station Report Code	0356	008	_____
	Dialer Option	0406	129	_____
High Current Restore	Central Station Report Code	0357	009	_____
	Dialer Option	0407	129	_____
Phone Line Restore	Central Station Report Code	0358	009	_____
	Dialer Option	0408	128	_____
Open (Disarm)	Central Station Report Code	0359	011	_____
	Dialer Option	0409	128	_____
Open (Disarm) After Activation	Central Station Report Code	0360	011	_____
	Dialer Option	0410	128	_____

5

49

Report Type		Location	Value	
Close (Arm)	Central Station Report Code	0361	012	_____
	Dialer Option	0411	128	_____
Force Arm	Central Station Report Code	0362	012	_____
	Dialer Option	0412	128	_____
Control Low Battery	Central Station Report Code	0363	008	_____
	Dialer Option	0413	129	_____
Control Battery Restore	Central Station Report Code	0364	009	_____
	Dialer Option	0414	129	_____
AC Fail	Central Station Report Code	0365	008	_____
	Dialer Option	0415	128	_____
AC Restore	Central Station Report Code	0366	009	_____
	Dialer Option	0416	128	_____
User Communicator Test	Central Station Report Code	0367	007	_____
	Dialer Option	0417	129	_____
Automatic Communicator Test	Central Station Report Code	0368	007	_____
	Dialer Option	0418	129	_____
Cancel	Central Station Report Code	0369	000	_____
	Dialer Option	0419	128	_____
Zone Bypass	Central Station Report Code	0370	013	_____
	Dialer Option	0420	128	_____
Zone Unbypass	Central Station Report Code	0371	014	_____
	Dialer Option	0421	128	_____
Day Zone Trouble	Central Station Report Code	0372	008	_____
	Dialer Option	0422	128	_____
Day Zone Trouble Restore	Central Station Report Code	0373	009	_____
	Dialer Option	0423	128	_____
Upload/Download Attempt	Central Station Report Code	0374	015	_____
	Dialer Option	0424	128	_____
Program Mode Entry	Central Station Report Code	0375	015	_____
	Dialer Option	0425	128	_____
Fail to Open	Central Station Report Code	0376	011	_____
	Dialer Option	0426	129	_____
Fail to Close	Central Station Report Code	0377	012	_____
	Dialer Option	0427	129	_____
Zone Expander Trouble	Central Station Report Code	0378	008	_____
	Dialer Option	0428	128	_____
Zone Expander Trouble Restore	Central Station Report Code	0379	009	_____
	Dialer Option	0429	128	_____
Zone Open	Central Station Report Code	0380	000	_____
	Dialer Option	0430	000	_____
Zone Restore	Central Station Report Code	0381	000	_____
	Dialer Option	0431	000	_____
Tamper	Central Station Report Code	0382	008	_____
	Dialer Option	0432	128	_____
Tamper Restore	Central Station Report Code	0383	009	_____
	Dialer Option	0433	128	_____
Receiver Supervision Trouble	Central Station Report Code	0384	008	_____
	Dialer Option	0434	128	_____
Receiver Supervision Restore	Central Station Report Code	0385	009	_____
	Dialer Option	0435	128	_____

5

Dialer Options

Options - Enter total	Value
Dial Phone #1	**001**
Dial Phone #2	002
Enable two-way voice/listen in (**Not permitted in a UL installation**)	004
Dial alternate number if first choice fails	008
Record this report type in Event Memory Log	**128**
Default (for Fire and Burg)	**129**

Communicator Diagnostics

Dialer LED: The communicator has a built in diagnostic feature which can be very valuable in trouble shooting. The red Dialer LED indicates successful communication with the central station and if the communication fails it indicates at which stage the trouble occurred. Any time the communicator does not make a successful communication (except in the case of not having a good phone number programmed) it will make the programmed number of attempts. The message for no phone number will only be shown once. If a digital communication is initiated when the Phone LED is off (no dial tone present), the control will not attempt to dial out. Diagnostics will not be given. The only time "three flash" diagnostics will appear is when the phone line is present at the beginning of a communication and no dial tone is detected. If communication is unsuccessful, remove **everything** from R, T except the phone line. This includes test sets, as they may load the phone lines down, **even** with the monitor switched on. The program mode **9960** can be used to echo the entire communicator session though the internal speakers.

Dialer LED	Meaning	Corrective Measure
Extended on/off followed by one short on and off	Successful communication	None
Two short on and offs	No phone number	Check phone number programming
Extended on/off followed by three on and offs	No dial tone	Check phone line connection
Extended on/off followed by four on and offs	No handshake or busy signal	Check Reporting Format and number
Extended on/off followed by five on and offs	No kiss off tone	Check Reporting Format

User Communicator Test

A user Communicator test is integrated into the system to allow an end user to test the system on a regular basis. Enter a valid user code followed by the "0" digit. The system will speak "Enter User Test Mode." A User Communicator Test report is sent to the central station. WHILE IN TEST MODE THE SYSTEM CEASES TO BE A SECURITY SYSTEM. As each zone is tripped (including 24 hour zones) the system will speak the zone description followed by "active." After 3 minutes (programmable) the panel will automatically exit user test mode. To exit user test mode manually, enter a user code followed by the "0" digit.

Central Station Terms

Communicator Automated Programming Locations

Central Station Number: Space is provided for two 16-digit phone numbers. These numbers are programmed as normally dialed. To enter communicator phone numbers, enter the appropriate 9000 location and enter the number. The system places the numbers in the appropriate locations. There are characters that are available in the dialing string that are not found on the keypad. The chart below explains how to enter additional functions:

Dialing Feature	# or H Followed By
Dial *	1
Dial #	2
Wait for second dial tone	3
3 second pause in dialing sequence	4

    After the number is entered, press # or H key twice to save. Pressing the * or A key at any time during phone number will clear all digits that have been entered.

Central Station account: Each phone number has an account number associated with it. You may use a 3- or 4-digit account number. If Ademco Contact I.D. is being used as the reporting format, a 4 digit account number must be used. The system allows additional characters as follows:

Hexadecimal Digit	# or H Followed By
B	1
C	2
D	3
E	4
F	5

Speak phone number: To confirm programmed phone numbers, Enter the appropriate 9000 location and the number will be spoken. Special dialing feature codes will be heard as follows:

Dialing Feature	Spoken As
Dial *	Star
Dial #	Pound
Wait for second dial tone	Tone
3 second pause in dialing sequence	Pause

Speak account number: Speaks programmed account number.

Echo communicator: To listen to the communicator transmission through the inside speaker, enter 9960 while in program mode. Each communication will be heard over the inside speaker. When testing is complete, return to programming mode and enter 9960 to turn off the communicator monitor feature. Communicator monitor automatically turns off when the panel is turned off or when the two-way voice circuit becomes active.   Whenever possible use the communicator monitor feature instead of a telephone butt set. The panel's phone circuit is very sensitive to loading. A good test to attempt when experiencing communicator difficulties is to remove all connections from R1 and T1 and connect only the panel to R and T. This ensures a good phone connection and can help isolate troublesome connections.

Communicator Time Options

Delay before dial: For both phone numbers, the system will wait a programmed time period (1 to 255 seconds) after activation before dialing the central station. If a value of 000 is programmed, the communicator is disabled. If an alarm activation occurs and the system is disarmed before the delay expires, the system will not communicate to the central station. Valid delay values are 1-255 seconds.

Off-hook duration:	The system can be programmed to enter two-way after a digital communication. This location determines how long the system will hold the line without a valid two-way command before automatically dropping the line. Valid times are 000 - 255, 000 = 256 seconds.
C. S. handshake:	This location determines the amount of time the communicator will wait for a central station receiver digital handshake.
Callback wait duration:	The amount of time the panel will wait after a digital communication for the central station to call during a two-way callback session.
Voice only wait period:	Amount of time the system will wait for a valid code during a secured two-way callback or voice only session.
Dial attempts:	This option controls the maximum number of times the communicator will attempt to call the central station. If the communicator is unable to connect with a central station, the system will either stop dialing or begin dialing an alternate phone number. The system can be programmed to show communicator trouble at the keypad if all dialing attempts are unsuccessful. A communicator trouble condition will automatically clear from the keypad the next time the system is armed.
Touch tone / pulse:	This location determines the type phone service the panel uses for dialing. Program 000 for touch-tone or 001 for rotary.
Ignore dial toner:	This removes the dial tone detect in the panel for cellular backup units that do not supply dial tone.

┌───┐
│ 5 │
└───┘

Reporting Options

Silent Knight Slow:	Silent Knight, Ademco, Vertex, Adcor - 1400Hz handshake/kiss-off, 1900Hz data transmission, 51/49 millisecond tone (10 baud), 600 millisecond inter-digit delay
Silent Knight Fast:	Silent Knight Fast - 1400Hz handshake/kiss-off, 1900Hz data transmission, 40/30 millisecond tone (15 baud), 560 millisecond inter-digit delay
Sescoa Fast:	Sescoa, Acron, Vertex, DCI, Franklin - 2300Hz handshake/kiss-off, 1800Hz data transmission, 30/20 millisecond tone (20 baud), 800 millisecond inter-digit delay
Multiple reports:	Multiple reports will be sent to the central station in one phone connection as opposed to hanging up and re-dialing for each report.
Voice only:	This option is used for any reporting that is not a central station. Most commonly, this option is used for two-way calls to a users office or a numeric pager.
	There are three security options associated with a voice only communication, one digit access, full code access, and entering 0 to exit to keypad mode. If either of the access code options are selected, the panel will call the defined phone number and play a repeated beep until a valid code is entered or the voice only time expires. If neither code option is selected, the system will be in listen-in mode when the phone is answered. Without the "0 exits to keypad mode" option selected, the caller will not have access to keypad mode.
	When using a number pager, do not select one digit or full access code options and the panel will only make one dialing attempt.

3/1 format:	Communication format consisting of a 3 digit account number followed by a single digit (hexadecimal) activation type.
4/2 format:	Communication format consisting of a 4 digit account number followed by a two digit (hexadecimal) activation type.
4/2 extended format:	Communication format consisting of two lines of information: line 1: 4 digit account number followed by a two digit (hexadecimal) activation type. line 2: Last digit from line 1 repeated 4 times followed by a two digit (decimal) zone number.
4/1/1 format:	Communication format consisting of a 4 digit account number followed by a single digit (hexadecimal) activation type and a single digit (hexadecimal) zone number (15 max). Zones above 15 are reported as "F."
Ademco Contact ID:	A DTMF based reporting format. If this format type is enabled, it is not necessary to program report codes. It is still necessary to program the dialer options.

Two Way Options

Two Way Callback: Central stations that do not support two-way voice after a communicator transmission may require two-way callback. With this option enabled (System Option Group 3) the control panel will wait a programmed period of time (0461) after a digital communication for the central station to call. **Two-way voice is not evaluated for UL installation**.

There are three security options associated with two-way callback, one digit access, full code access, and entering 0 to exit to keypad mode. If either of the access code options are selected, the panel will answer the phone and play a repeated beep until a valid code is entered or the two-way callback time expires. If neither code option is selected, the system will be in listen-in mode when the phone is answered. Without the "0 exits to keypad mode" options selected, the central station will not have access to keypad mode.

Automatic Communicator Test

Choose if the communicator should send a test signal daily, weekly or monthly and enter the appropriate value in location 0166.

Daily: enter 000.

Weekly: enter 064 plus the value of the day to be used. To communicate on every   Tuesday, a value of 067 would be entered.

Monthly: enter 128 plus the day of the month to be used. To communicate on the 12th of every month, a value of 140 would be entered. If a day is chosen that is greater than the number of days in a given month, the transmission will occur on the last day of the month.

Enter automatic communicator test time in 24 hour format in location 9995.

For a UL installation, a communicator test must be performed daily.

Fail to Open/Close

Fail to Open/Close: Fail to open/close will check system arming status at a programmed time and report to the central station if the proper condition is not met. Program the option total in location 0216. Use location 9994 to program the appropriate fail to Arm time followed by the Disarm time in military format. For times below 10:00 use a leading zero. If only one arming state is being monitored, still enter two times. If the option is not selected the programmed time will be ignored.

Two-Way Digit Assignments

Two-way key functions: It is not recommended to alter the telephone digit assignments for two-way voice, however, to conform to some central stations this process may be necessary. To reassign the assignments, place a 001 in location 0222. Each of the two-way functions are listed along with the digit assigned. By altering the location values, each function can be reassigned to a new key digit. Take care when altering key assignments not to program a single digit to have multiple functions. The system will only expedite one function per telephone digit. **Two-way voice is not evaluated for UL installation**.

Dialer Options

Dialer Option: Each zone is individually programmed to report to the central station as well as each zone type. If a zone is programmed to report to the central station and the zone type is disabled or only programmed to report to the event memory log, the zone will NOT be reported to the central station.

Dial phone number 1: This option tells the control panel to always call phone number #1 if the corresponding zone type is the cause of an activation.

Dial phone number 2: This option tells the control panel to always call phone number #2 if the corresponding zone type is the cause of an activation.

Dial alternate number: If only one phone number is selected and the system is unable to communicate, the system will try to contact the second number.

Enable two-way voice: This enables two-way voice to be used after the digital communication to the central station. To enable two-way callback refer to System Options Group 3.

Record in EML: The system contains a 511 Event Memory Log (EML). Reports that are sent to the central station are available to be sent to the EML. Even if a report is not programmed to be sent to the central station it may still be programmed to be sent to the EML. Each report code can be recorded in the EML by adding the 128 value in the dialer option. The only method for retrieving the EML is with the PC based programming software. Once the EML reaches 512 events, all new events push out the oldest event. The EML can be cleared by entering 9898 from the keypad or phone while in program mode.

Report Code: All events that initiate a communicator report are associated with a report code (based on zone type) that appears at the central station.   Each report code can be defined for all report types except Contact ID. When Contact ID is used, no programming is required.
The following abbreviations are used in the "Ademco Contact ID Codes" Chart:

Z - Zone (up to 3 digits)
U - User number
E - Event or open
R - Restore or close
S - Section number

Keypad Automated Programming Locations

Clear user codes 2-32 0000
Clear keypad status 9897
Enter Zone / TS16 / Area word description 9920
Enter remote control channel description 9921
Speak Zone / TS16 / Area description 9930
Speak remote control channel description 9931
Speak a selected word 9999

Key Function Values

Option	Value
Speak Time	000
Toggle Monitor	001
Speak Long Term Memory	003
Silence Day Zone	004
Speak Status	005
24 Hour Fire	006
24 Hour Panic	007
24 Hour Silent	008
24 Hour Emergency	009
Enter Remote Control	012
Extended Monitor A	013
Extended Monitor B	014
Enter Bypass Mode	015
Set Time	016
Step Arming	017
Arm to AWAY	018
Arm to HOME	019
Disarm	020
Sunrise	021
Sunset	022
Remote System Mode (for use with RS-232 adapter only)	023
Output Control #1	024
Output Control #2	025
Output Control #3	026
Output Control #4	027
Output Control #5	028
Output Control #6	029
Output Control #7	030
Output Control #8	031
Output Control #9	032
Output Control #10	033
Output Control #11	034
Output Control #12	035
Output Control #13	036
Output Control #14	037
Output Control #15	038
Output Control #16	039
Disable	255

Keypad Option

Options - Enter Total	Value
Display time in 24 hour format	001
Default (standard time format)	**000**

6

Keypad Functions

Keypad Number	Defaults	1	2	3	4	5	6	7	8
3 – Status	006	3622	3646	3670	3694	3718	3742	3766	3790
6 – Monitor	009	3623	3647	3671	3695	3719	3743	3767	3791
9 – F1	007	3624	3648	3672	3696	3720	3744	3768	3792
1 – 7	255	3625	3649	3673	3697	3721	3745	3769	3793
2 – 8	016	3626	3650	3674	3698	3722	3746	3770	3794
3 – 9	255	3627	3651	3675	3699	3723	3747	3771	3795
Status	005	3628	3652	3676	3700	3724	3748	3772	3796
Monitor	001	3629	3653	3677	3701	3725	3749	3773	3797
F1	012	3630	3654	3678	3702	3726	3750	3774	3798
F2	000	3631	3655	3679	3703	3727	3751	3775	3799
Option	000	3637	3661	3685	3709	3733	3757	3781	3805
TS-16 Group 1	000	3642	3666	3690	3714	3738	3762	3786	3810
TS-16 Group 2	000	3641	3665	3689	3713	3737	3761	3785	3809
Area	255	3643	3667	3691	3715	3739	3763	3787	3811

6

TS16 Group 1

Options - Enter Total	Value
TS16 1	001
TS16 2	002
TS16 3	004
TS16 4	008
TS16 5	016
TS16 6	032
TS16 7	064
TS16 8	128
Default (No TS16 selected)	**000**

TS16 Group 2

Options - Enter Total	Value
TS16 9	001
TS16 10	002
TS16 11	004
TS16 12	008
TS16 13	016
TS16 14	032
TS16 15	064
TS16 16	128
Default (No TS16 selected)	**000**

Keypad Area Assignment

This feature is not evaluated for UL installation

Options - Enter Total	Value
Area 1	001
Area 2	002
Area 3	004
Area 4	008
Area 5	016
Area 6	032
Area 7	064
Area 8	128
Default (No area selected)	**000**

User Code + Digit Functions

User Code + Options	Local phone/keypads	Function	Remote Phone	Function
Function for User Code + 1	0178	000	0775	015
Function for User Code + 2	0179	001	0776	001
Function for User Code + 3	0180	013	0777	013
Function for User Code + 4	0181	014	0778	014
Function for User Code + 5	0182	004	0779	005
User Code + 6				Smoke Power Reset
User Code + 7				Change User Codes
User Code + 8				Speak Alert Memory
User Code + 9				* Bypass Mode
User Code + 0				User Test Mode

* Bypass Mode not permitted in UL installations.

6

Note: Local phone activations use zone 94 unless "Local Telephone" has been programmed to an alternate zone. Remote phone activations use zone 95 unless "Phone Line Monitor" has been programmed to an alternate zone.

Extended Monitor Times

System Time Options		Time Increment	Location	Default
Time extended monitor is displayed on the keypad (000 - continuous)		seconds	0236	030
Time between speech/beeps when extended monitor is active (000 - disable)		seconds	0237	005

Extended Monitor Zone Type Assignment

Zone Types - Enter Total for Extended Monitor A	Location	Value
Exterior instant		**001**
Exterior delay 1		002
Exterior delay 2		004
Interior instant		008
Interior delay 1		016
Interior delay 2		032
Follower		064
Auxiliary 1 and 2		128
Default	**0238**	**001**

Zone Types - Enter Total for Extended Monitor B	Location	Value
Exterior instant		**001**
Exterior delay 1		**002**
Exterior delay 2		**004**
Interior instant		008
Interior delay 1		016
Interior delay 2		032
Follower		064
Auxiliary 1 and 2		128
Default	**0239**	**007**

Vocabulary

Word	Location
A	233
Accept	251
Access	024
Account	025
Active	278
Air	205
Alarm	384
Alert	026
AM	033
And	197
Apartment	402
Apex	332
Appliance	027
April	430
Are	028
Area	029
Armed	030
Art	362
Asleep	281
At	306
Atrium	374
Attic	031
Audio	279
August	434
Auto	235
Automatic	283
Automation	344
Awake	280
Away	032
B	034
Baby	335
Back	035
Bar	176
Basement	036
Bathroom	037
Battery	038
Bay	039
Bedroom	040
Bell	366
Boiler	403
Bottom	041
Boys	042
Break	043
Breakfast	418
Building	404
Burglary	392
Butler	373
Button	206
Bypassed	044
C	045
Cabana	295
Cabinet	177
Call	388
Camera	207
Carbon monoxide	256

Word	Location
Ceiling	363
Center	208
Central	399
Change	250
Check	385
Choices	317
Christmas	320
Circuit	414
Closed	046
Closet	047
Code	048
Coffee	302
Communicator	175
Conservatory	334
Console	398
Control	049
Cool	234
Cooling	247
Corner	050
Court	376
Crawlspace	051
Current	270
Curtain	209
D	052
Danger	401
Date	299
Debounce	340
Deck	053
Decrease	346
December	438
Default	380
Defaults	381
Defined	284
Degrees	054
Delay	341
Den	055
Destiny	333
Detected	056
Detector	057
Device	397
Dialing	390
Digit	245
Dining	058
Disable	240
Disarmed	059
Dock	217
Door	060
Doors	218
Down	061
Driveway	198
E	062
East	063
Eight	008
Eighty	022
Eleven	011

Word	Location
Emergency	327
Enable	239
End	353
Energy	287
Enter	064
Entering	359
Entertainment	286
Entry	065
Equipment	405
Error	252
Exercise	300
Expander	423
Exit	066
F	067
Factory	406
Fail	068
Family	069
Fan	178
February	428
Fence	352
Fifteen	014
Fifty	019
Fire	070
First	071
Five	005
Flood	072
Floor	179
Florida	073
Force	074
Forty	018
Fountain	309
Four	004
Foyer	075
Freeze	290
French	076
Friday	276
Front	077
Full	322
Function	338
Furnace	258
Fuse	078
Gallery	345
Game	310
Garage	079
Garden	377
Gas	180
Gate	199
Girls	080
Glass	081
Good-bye	355
Great	082
Green	369
Group	285
Guest	083
Gun	181

Word	Location
Gym	294
H	232
Hall	084
Head	085
Heat	086
Heater	311
Heating	246
Hello	356
High	219
Hold	254
Home	087
Hottub	182
Hour	244
House	183
HVAC	439
In	088
Increase	387
Input	339
Inside	361
Instant	393
Interior	257
Intruder	089
Intrusion detected	090
Is	091
Jacuzzi	370
January	427
Jewelry	184
June	432
July	433
Key	253
Keypad	092
Kitchen	093
Lamp	094
Lanai	304
Laundry	095
Lawn	296
Leak	308
Left	097
Leave immediately	096
Level	185
Library	098
Light	099
Lightning	347
Lights	100
Line	210
Living	101
Loading	407
Lobby	211
Location	200
Lock	102
Loft	212
Loop	342
Low	103
Lower	213
Machine	408

Word	Location	Word	Location	Word	Location	Word	Location
Maids	214	Panic	220	Service	224	Tennis	375
Main	104	Pantry	364	Set	241	Test	416
Management	288	Parlor	188	Setback	237	Theater	316
Manual	236	Partition	400	Setbacks	238	Thermostat	267
March	429	Patio	203	Setpoint	324	Third	161
Master	105	Pause	124	Setpoints	325	Thirteen	013
Mat	215	Pendant	221	Setting	383	Thirty	017
Max	394	Perimeter	260	Seven	007	Three	003
May	431	Personal	354	Seventy	021	Thursday	275
Mechanical	291	Pet	189	Shed	409	Time	249
Medicine	186	Phone	125	Shipping	225	Tone	162
Mens	216	Place	307	Shock	145	Top	163
Menu	231	Play	126	Shop	146	Transmitter	262
Middle	106	PM	134	Showing	147	Trespassing	391
Minute	396	Pool	127	Side	148	Trouble	164
Mode	107	Porch	128	Simultaneously	412	Tuesday	273
Modes	243	Pot	303	Siren	365	Twelve	012
Module	108	Pound	129	Six	006	Twenty	016
Monday	272	Power	130	Sixty	020	Two	002
Monitor	187	Pressure	261	Sky	149	Type	336
Month	424	Pro	131	Slider	192	Under	165
Motion	109	Problem	132	Sliding	150	Unit	166
Motor	323	Program	133	Smart	313	Unoccupied	282
Mud	110	Protected	358	Smoke	151	Up	167
Natural	305	Pump	222	Soffit	319	User	168
Next	329	Radio	422	South	152	Utility	169
Night	111	Raise	360	Spa	193	Vacation	269
Nine	009	Reading	348	Spare	153	Valve	378
Ninety	023	Ready	395	Spot	419	Vanity	420
No	415	Rear	190	Sprinkler	297	VCR	293
Nook	112	Rec	135	Stairs	154	Video	315
North	113	Receiver	417	Stairwell	350	Volume	389
November	437	Red	367	Star	155	Waiting	265
Now	386	Remain calm	136	Station	410	Walk	170
Number	114	Remote	137	Stay	204	Warehouse	266
Nursery	115	Repeat	230	Stereo	321	Warning	371
O	116	Report	138	Stock	229	Water	196
October	436	Reprogram	328	Storage	156	Wednesday	274
Off	117	Restored	139	Stress	194	Welcome	289
Office	118	Restricted area	379	Studio	226	West	171
On	119	Right	140	Study	157	Window	172
One	001	Roof	223	Suite	351	Windows	263
Only	326	Room	141	Sump	227	Wing	411
Open	120	Run	301	Sun	158	Women's	264
Operating	268	Safe	191	Sunday	271	Work	298
Option	201	Saturday	277	Switch	248	Yard	228
Options	337	Save	330	System	159	Year	425
Or	202	Screen	142	Table	421	Yellow	368
Other	242	Second	143	Tamper	195	You	357
Out	121	Secure	312	Teen	015	Zero	000
Outlet	122	Security	314	Television	292	Zone	173
Over	123	Sensor	144	Temporary	382	Zones	174
Overhead	259	September	434	Temperature	160		
Overload	413	Serial	343	Ten	010		
Panel	331	Servants	372	Tenant	349		

6

Keypad Function Terms

Keypad Automated Programming Locations

Clear user codes: This location will erase user codes 2 through 32.

Clear keypad status: Under very unusual circumstances, a keypad may not receive a transmission from the control panel resulting in a status message not being cleared. This command clears all status messages at the keypad.

Enter zone / TS16 / Area description: This location provides a method for adding up to a four word description for each zone in the system. The panel will prompt for a three digit zone number followed by prompts for 4 words. Enter the three digit value for the desired word. If programming fewer than 4 words or to exit, press H. Zones 97 - 112 contain words for TS16 1-16. Zones 113-120 contain the words for split arming area 1 - 8.

Enter channel description: This location provides a method for adding up to a four word description for each control channel in the system. The panel will prompt for a two digit channel number followed by prompts for 4 words. Enter the three digit value for the desired word. If programming fewer than 4 words or to exit, press H. Valid channels are 01 - 56.

Speak zone / TS16 / Area description: This routine prompts for a three digit zone number. The system speaks the description associated with the selected zone. Zones 97 - 112 contain words for TS16 1-16. Zones 113-120 contain the words for split arming area 1 - 8.

Speak channel description: This routine prompts for a two digit channel number. The system speaks the description associated with the selected channel. Valid channels are 01 - 56.

Speak selected word: This is used to play a specific word from the vocabulary.

Key Function Values

Speak Time: Assign to a key to speak system time.

Monitor toggle: Toggle the monitor mode.

Speak long term memory: The system maintains a long term alarm memory for all alert activations. This is useful for identifying zones that cause the system to go into alarm. The zone activations can be retrieved by entering a valid user code followed by the 8 key. The system will speak up to 8 alert activations in order starting with the most recent.

Silence Day Zone: Cancels a day zone and extended monitor activation.

Speak Status: Speak current system status.

24 Hour Fire: Initiate a fire alert activation.

24 Hour Panic: Initiate a panic activation.

24 Hour Silent: Initiate a silent alarm activation.

24 Hour Emergency: Initiate an emergency alarm.

Enter Remote Control:	The 56 remote control channels can be accessed by telephone, keypad or wireless keypad. Enter remote control by entering 8,8,8,8 from any keypad or phone, or by pressing 1 & 7 (or programmed function key) simultaneously on a keypad, the system will enunciate a list of remote control channels available in the system. Enter two digits from 01 to 56 that represent the device to be controlled. The system will echo the word description. The A key turns the unit on and the H key turns the unit off. If the dimming option is not programmed, pressing the A key will toggle on and off. If the dimming option is selected, the first press of A will turn the unit on and subsequent presses of A will take the unit (only for X-10 not auxiliary output) through six stages of dimming. Each stage is echoed in speech by number from 1 to 6. After 6, the unit turns off. If a key is not pressed within 20 seconds, the control will automatically exit remote control. To manually exit remote control, enter 00 as the unit number.
Extended Monitor A/B:	With the system disarmed, entering a full function user code followed by the 3 or 4 digit, will place the system into extended monitor mode A or B. The system will speak "MONITOR ON" through the inside speaker. Entering a full function user code followed by 3 or 4 will clear any active extended monitor zones and stop the extended monitor beep or speech. The system will speak "MONITOR RESTORED." If the system is in extended monitor mode and there are no extended monitor zones active, entering a full function user code followed by 3 or 4 will take the system out of extended monitor mode. The system will speak "MONITOR OFF".

The enunciation feature of the control panel can be used to monitor exterior, interior, and follower zones. As an example, it may be desirable to monitor interior door activity of residents in a retirement home. Normal extended monitor activity is not sent to the central station. If a Day Zone causes an Extended Monitor activation when the system is not armed, a Day Zone Trouble can be sent to the central station.

There are two different levels or types of extended monitor, A and B. Locations 0238 and 0239 determine which zone types are to be monitored by each extended monitor type. Entering a full function user code followed by the digit 3 will place the system in extended monitor mode type A or enter the 4 digit for extended monitor type B.   When entering extended monitor the system responds with "MONITOR ON" through the inside speaker.

NOTE: You can only enter the extended monitor mode when the system is disarmed. If the system is in extended monitor mode it will automatically exit that mode when the system is armed.

Enter Time:	The panel will prompt for a 4 digit time (use a leading 0 for times under 10:00), followed by a prompt for AM or PM. The next prompt is for the day of the week (1-Sunday, 2-Monday, 3-Tuesday, 4-Wednesday, 5-Thursday, 6-Friday, 7-Saturday). Enter a two digit month, two digit date and two digit year.
Step Arming:	Each time a step arming button is depressed, the system steps the arming stage in order between the following stages. Starting with the system disarmed, the first press will arm the system to AWAY. A second press, before exit delay time expires, will arm the system to HOME. A third press, or a second press after exit time has expired, will disarm the system. Arming to Night is not available with step arming. If split arming is enabled, user code 32 will determine which areas are armed or disarmed. Even if force arming is not programmed, the system will always force arm any open zones when step arming is used. The step arming button function reports to the central station as user code 32. **Step arming is not evaluated for UL installation**.
Arm to AWAY:	Arm the system to AWAY, all open zones are force armed.

Arm to HOME:	Arm the system to HOME, all open zones are force armed.
Sunrise:	Available on all button devices but primarily used with an X-10 Sundowner. When using X-10 as an input, this button function tells the system that it is currently daytime. Control channels can be programmed to activate or restore based on sunrise/sunset.
Sunset:	Same as Sunrise but tells the system it is currently dark.
Disarm:	Disarm the system
Remote System Mode:	Places the system in a mode intended for sending keypress information to other systems through the RS-232 port. 'H' or '#' exits.
Output Control:	See "Control Channel" section.

Keypad Functions

Keypad Number:	The system supports addressable and non-addressable keypads. When addressable keypads are used, each keypad may have custom key combination configurations, a specific zone number, and custom speech descriptions during activations. Those keypads that are not addressable share keypad address number 1. Note, if keypads are not assigned to a zone they are assigned to zone 96 by default.
	Note: At time of printing, all LED keypads are non addressable (RK36). The RKLCD keypad is not addressable and is **NOT** compatible with this system. The RKLCD keypad is addressable and is designed for this system. Press the 1 and F2 keys simultaneously, the display will show "Keypad Numb = 1." Pressing 1 and F2 will advance to the next keypad number. Although the keypad's address can be advanced to 9 - 16, the system will only support 1 - 8. To clear the display, press status.
Key Combinations:	The chart is used for setting custom key combinations. Non addressable keypads and addressable keypad number 1 share the same locations. To change a key combination, select the column for the keypad and the desired key or combination. Enter the Key function in the location. Note, these key combination changes will not take effect until a zone is assigned to the selected keypad.
TS16 display:	Temperatures from TS16's can be displayed on individual keypads. TS16s 1-8 are entered into the group 1 location. TS16s 9-16 are entered into the group 2 location. Add the value for each TS16 to be displayed and enter the total in the appropriate location. It may take up to 10 minutes to display the temperature. To speed up the process, turn the panel off then on.
Area:	A keypad can be programmed to display information for specific areas when split arming is enabled. Enter the total of the values pertaining to areas for the keypad to display in the "area" location.

User Code + Functions

Codes 1 - 5:	These codes can be assigned to any of the "Key Functions." There are separate locations for local phone / keypads and remote phone.
Smoke Reset:	Enter a full function user code followed by the 6 digit to reset hardwire smoke detectors. Power to the smoke detectors is momentarily interrupted allowing them to reset. The system will speak, "SMOKE POWER" and activate the assigned smoke power trigger output.
Change User Codes:	See "User Codes" section

Speak Alert Memory:	To hear all activations stored in LTM enter a full function code followed by the 8 key. The LTM will be spoken in order starting from the most recent activation. If there are no activations stored, the system will sound three beeps. LTM and EML can be simultaneously cleared by entering 9898 in program mode. LTM will store 8 activations. If there are more than 8 activations, the oldest will drop off leaving room for the most recent.
Bypass Mode:	To bypass individual zones, enter a valid full function code followed by the 9 digit. The system will speak "BYPASSED MODE, ENTER ZONE NUMBER." Press a two-digit zone number (leading zero if necessary). The current bypass state of the zone is spoken. Pressing A toggles the bypass status (confirmed in speech). Pressing H exits bypass mode. To unbypass all bypassed zones, enter 00 as the two-digit zone number.

The following are system operation notes relative to bypass:

1) Bypassed zones will display open/close if programmed to do so.
2) Bypassed zones that show as open are ignored for purposes of forced arming.
3) No monitor speech or beep or alarm activation will occur for a bypassed zone.
4) Only zones that exist in the system can be bypassed. The system will issue 3-beeps if an invalid zone number is entered.
5) If the system is programmed for split arming, only zones in the partition(s) controlled
   by the user code you use to enter bypass mode can be bypassed.
6) Fire zones and disabled zones cannot be bypassed.
7) As a programmable option, any bypassed zone will automatically unbypass the next time the system is disarmed. If this option is not programmed, bypassed zones will remain bypassed until they are manually unbypassed.

Bypassing is not permitted in a UL installation.

User Test Mode:	See "Central Station Features."

Extended Monitor

Extended Monitor	This option determines the amount of time an extended monitor activation will remain in
keypad display time:	system status.
Time between beeps:	When using the extended monitor mode as an enunciator, you may wish to have audible indication as well as visual. The extended monitor speech or beep will sound at intervals determined by this time. Valid times are from 1 to 255 seconds. If a value of 000 is programmed, NO speech or beep will be heard.
Zone type assignment:	The extended monitor function is based on zone types, input the total of all of the zone type values that are to be monitored by the extended monitor function.

User Code Options

Options - Enter total	Value
Duress	001
Disappearing	004
Enable master functions - bypass mode, extended monitor, user code changes	**008**
Works on remote telephone	**016**
Works on keypads	**032**
Works on local telephones	**064**
Generate open report to CS and/or Event Memory log	002
Generate close report to CS and/or Event Memory log	128
Default - User code 1 (all others default 000) **0065**	**250**

User Code		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Location		0066	0067	0068	0069	0070	0071	0072	0073	0074	0075	0076	0077	0078	0079	0080
User Code	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Location	0081	0082	0083	0084	0085	0086	0087	0088	0089	0090	0091	0092	0093	0094	0095	0096

Program Mode Access Code Options 0773 048

Disappearing Code Activations

Option	Location	Default
Number of disappearing code activations 0129		001

Assigning User Codes to Areas

This feature is not permitted in a UL installation

Options - Enter total	Value
Area One	**001**
Area Two	**002**
Area Three	**004**
Area Four	**008**
Area Five	**016**
Area Six	**032**
Area Seven	**064**
Area Eight	**128**
Default - User code 1 ....**0811**	**255**

Note: Split Arming must be enabled in System Options Group 3.

User Code	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Location	0811	0812	0813	0814	0815	0816	0817	0818	0819	0820	0821	0822	0823	0824	0825	0826
User Code	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Location	0827	0828	0829	0830	0831	0832	0833	0834	0835	0836	0837	0838	0839	0840	0841	0842

User Code Terms

User Code Options

Changing user codes:	To change user code, in keypad mode, enter a full function user code (default user 1 is 1,2,3,4), followed by the 7 digit. The system will speak "ENTER USER NUMBER." Press the 2-digit number (01-32) for the user code you wish to change. You will then hear "ENTER CODE (the number you selected)". The next four digits pressed will be the new code. After the fourth digit, the system will speak "EXIT".
Removing user codes:	Follow the user code sequence and press the A key when prompted for the user code. NOTE: Code 1 cannot be removed; only changed.
User Code Options:	The locations below each user number control the capabilities of each code. Add the option values for each user and program the value in the appropriate location.
Duress:	When this option is enabled, the user code will issue a silent duress code to the central station.
Disappearing activations:	User codes 2-32 can be programmed as disappearing codes. A disappearing code remains active for the number of times programmed in location 0129. When a code becomes inactive, a user can reset the disappearing counter by changing the disarm code.
Master functions:	Adding this option allows a code to enter into bypass mode, extended monitor, and change user codes.
Remote telephone:	Allows use of the code from any off site touch tone phone.
Wired/wireless keypads:	Allows use of the code on system keypads.
Local telephones:	Allows use of the code on in-house touch tone phones.
Send Open report:	Each time the code is used for disarming a report is sent to the central station and/or the event memory log depending on the Open Report dialing options.
Send Close report:	Each time the code is used for arming a report is sent to the central station and/or the event memory log depending on the Close Report dialing options.
Program Code Options:	Works the same as other user code yet applies to the program mode access code.
Assigning Codes to Areas:	First decide which area or areas will be controlled by each user code. Select the appropriate location for the desired user location. Enter the total for all areas assigned to the user code.

7

Example: To have user code 3 control areas 1, 2 and 3, program **007** (**001 + 002 + 004**) in location **0813**.

Split arming is not permitted in UL installations.

Automation Overview

This feature is not UL listed for fire or burglary functions and is intended for home automation

All automation capabilities are centered around control channels. Each channel can be activated in five ways: time of day, system trigger, chain channel, zone open/close or manually from a keypad or telephone. Four programming option locations per channel determine how an X-10 and/or a auxiliary output (low current or relay) operates. Additional programming determines time of day operation, automatic turn off (pulse activation), preset dim, and the ability to call a chain channel. Each chain has the ability to activate up to 16 channels based on one input.

Begin programming control channels by referencing the "Control Channel Locations" chart. Start with channel 1 and program all devices that will be controlled by the system. Use one control channel for each device. For a channel to operate, all 4 options must be set and an X-10 and/or auxiliary output must be defined. Use location 9921 (keypad function) to define a four word description for each control channel.

Use channels 33 -56 (not spoken during remote control menu) to program alternate ways any devices should behave if the device is activated by a system trigger.

Create "chains" by programming a channel and enabling the "Activate Chain Channel" option in control channel options 3. Use the "Chain Group Assignments" chart to specify which channels should activate when the chain channel is activated. A chain channel can not be used to call another chain channel.

Use the "System Triggers" locations to call control channels when a specific event occurs. Individual zones can be used to activate control channels, see "Control Channel" terms for programming information.

Note: Only channels 1 - 32 can be assigned descriptions for the remote control menu.

Automation Example

This feature is not UL listed for fire or burglary functions and is intended for home automation

GOAL: This example will show how to program an X-10 "N-1 On" (from an X-10 transmitting device) command to toggle the following items on and off each time the command is sent:

> Channel 1: Aux output 9, a relay that controls a Jacuzzi pump
> Channel 2: An electrical outlet that controls the low voltage lights around the pool.
> Channel 3: Outside spot lights that should dim to level 4 when turned on

X-10 input to a zone: For the system to acknowledge the X-10 input, a zone must be created. Location 9940 (program a zone) is used to set a zone with a "button" zone type (015), zone options 1 and 2 are programmed as 000 and the device type is X-10 input (020). The system prompts for a 1 digit input number. There are locations reserved for 8 X-10 inputs (see X-10 On/Off Commands). Choose which of the 8 "banks" of locations that will be used (1).

X-10 input: Unlike security inputs, the system does not prompt for all of the information required to use X-10 as an input. The locations found in the "X-10 On /Off Commands" section define how the X-10 command should be processed. The first location determines the Unit CHU Assignment. This tells the system which house and unit code to listen for. Each X-10 input can be programmed for a separate On function or Off function. For this example the On command for N-1 (5570,016) is programmed with button function "Output Control #1 - Toggle On/Off" (5572,024)

Output control: The 16 Output Control functions give the ability to program "button" devices with the ability to always turn a control channel off or to toggle a channel on / off with each depression (or X-10 command). There are 16 control channel assignments that can be programmed for use with "button" devices. Since "Output Control #1" is being used, the assignment for Output Control #1 will contain the channel number that is to be activated. In this example channel 10 is used (4021,010). Set "Output Control #1" options for toggle (4022, 002).

Create Control Channels: Channel 1: Enable channel (4097,001), control aux output 9 (4119,009)
Channel 2: Enable channel (4121,001), control X-10 CHU# C-1 (4142, 064))
Channel 3: Enable channel and preset dim (4145,017 / 4148,002),
   control X-10 CHU# C-2 (4166,065), set dim level 4 (4168,004).

Create Chain Channel: Channel 10: Enable channel (4313,001), enable chain channel (4315.001),
set chain 1 (4334,001). There are 8 available "banks" of channels that receive
commands when the chain channel is activated.   The "Chain Group Assignments" table
provides the locations for the 8 sets of chains. In this scenario 3 of the 16 available
slots are being used in chain group #1.
Channel Activation #1 = 001
Channel Activation #2 = 002
Channel Activation #3 = 003
This tells the system to activate channels 1,2, and 3 each time unit 10 turns on or off.

Activate the Chain: The time programming for channel 10 will control channels 1, 2 and 3. In addition, if a
user selects channel 10 in remote control, all 3 channels will turn on and channel 3
will dim.

Channel Activations

8 **This feature is not UL listed for fire or burglary functions and is intended for home automation**
Channels behave differently when they are triggered manually by a user versus when they are internally activated
by the system. The Preset dim function will not function if a channel is directly accessed by a user. If dimming is
enabled the channel can be manually dimmed; however the unit will always start at fully on. If a channel is
turned on by the system (time, zone open / close, chain channel, system trigger) the device will be turned on and
set to the preset dim level (if programmed). This has been implemented in this manner to ensure the dim level
spoken during remote control access correctly matches the actual dimming level of the device. To achieve a
preset dim level of a device through remote control, program a chain channel that controls the target control
channel. Only Off and On will be available through remote control. An On will activate the target channel
causing the device to turn on and automatically dim.
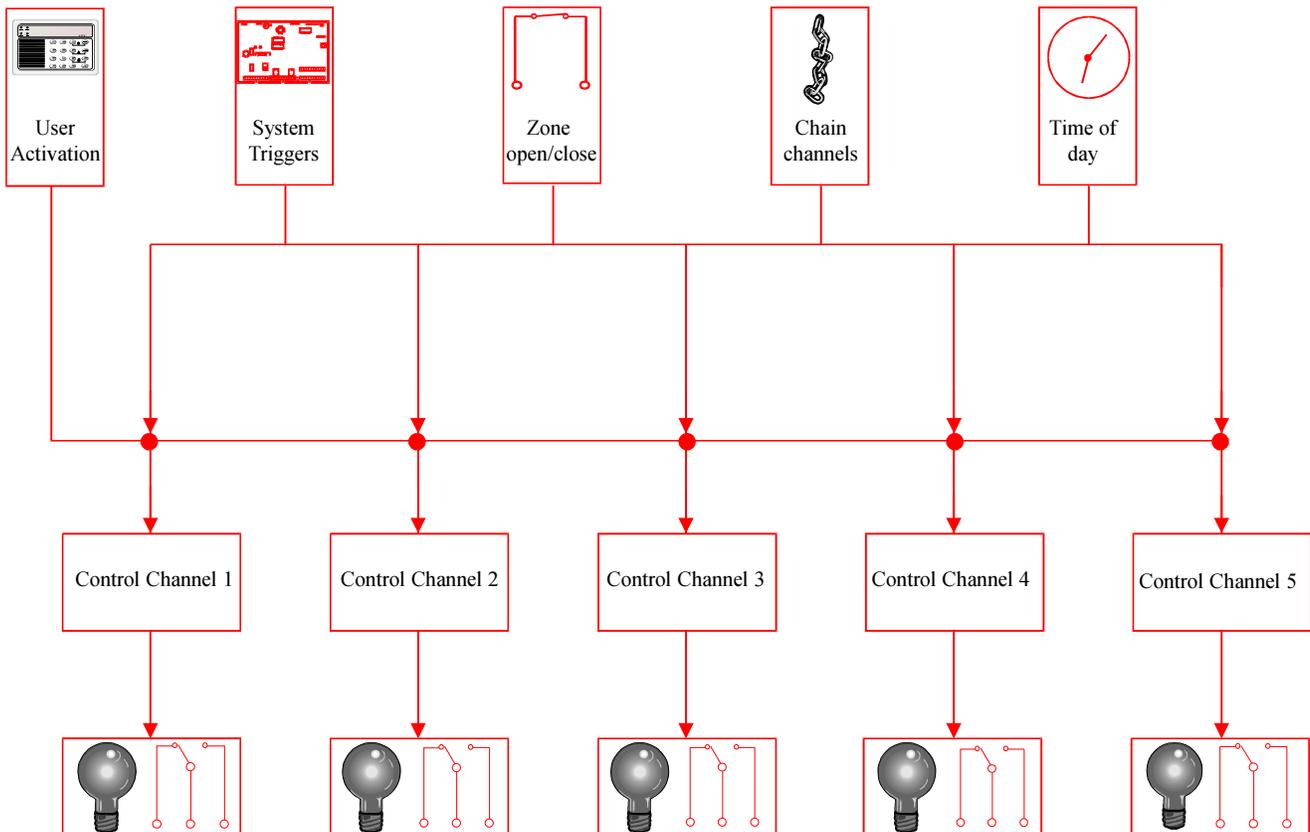
Automated Control Channel Locations

This feature is not UL listed for fire or burglary functions and is intended for home automation

Set control channel on/off times 9992

Control Channel Options 1

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total	Value
Enable Channel	001
Enable seconds for automatic turn off (otherwise minutes)	002
Restart timer delay on each activation	004
Enable automatic turn off	008
Enable dimming from Remote Control	016
On at Time of Day	032
Off at Time of Day	064
Default	**000**

Control Channel Options 2

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total	Value
Enable for Sunday	001
Enable for Monday	002
Enable for Tuesday	004
Enable for Wednesday	008
Enable for Thursday	016
Enable for Friday	032
Enable for Saturday	064
Default	**000**

Control Channel Options 3

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total	Value
Activate Chain Channel	001
Turn channel Off when light (Sunrise)	016
Turn channel On when light (Sunrise)	032
Turn channel Off when dark (Sunset)	064
Turn channel On when dark (Sunset)	128
Default	**000**

Control Channel Options 4

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total	Value
Flash (See Flash description when using flash with filters)	001
Enable Preset Dim	002
All House Code On/Off	004
Disable channel when light (sunrise)	008
Disable channel when dark (sunset)	016
* Disable channel when armed to HOME or Night	032
Disable channel when armed to AWAY	064
Disable channel when Disarmed	128
Default	**000**

* Arming and Disarm filters are not available when Split Arming is enabled.

Control Channel Locations

Channel	Defaults	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Option 1	000	4097	4121	4145	4169	4193	4217	4241	4265	4289	4313	4337	4361	4385	4409	4433	4457
Option 2	000	4098	4122	4146	4170	4194	4218	4242	4266	4290	4314	4338	4362	4386	4410	4434	4458
Option 3	000	4099	4123	4147	4171	4195	4219	4243	4267	4291	4315	4339	4363	4387	4411	4435	4459
Option 4	000	4100	4124	4148	4172	4196	4220	4244	4268	4292	4316	4340	4364	4388	4412	4436	4460
On Units	000	4101	4125	4149	4173	4197	4221	4245	4269	4293	4317	4341	4365	4389	4413	4437	4461
Chu / Chain	000	4118	4142	4166	4190	4214	4238	4262	4286	4310	4334	4358	4382	4406	4430	4454	4478
Aux Output	000	4119	4143	4167	4191	4215	4239	4263	4287	4311	4335	4359	4383	4407	4431	4455	4479
Preset Dim	000	4120	4144	4168	4192	4216	4240	4264	4288	4312	4336	4360	4384	4408	4432	4456	4480

Channel	Defaults	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Option 1	000	4481	4505	4529	4553	4577	4601	4625	4649	4673	4697	4721	4745	4769	4793	4817	4841
Option 2	000	4482	4506	4530	4554	4578	4602	4626	4650	4674	4698	4722	4746	4770	4794	4818	4842
Option 3	000	4483	4507	4531	4555	4579	4603	4627	4651	4675	4699	4723	4747	4771	4795	4819	4843
Option 4	000	4484	4508	4532	4556	4580	4604	4628	4652	4676	4700	4724	4748	4772	4796	4820	4844
On Units	000	4485	4509	4533	4557	4581	4605	4629	4653	4677	4701	4725	4749	4773	4797	4821	4845
Chu / Chain	000	4502	4526	4550	4574	4598	4622	4646	4670	4694	4718	4742	4766	4790	4814	4838	4862
Aux Output	000	4503	4527	4551	4575	4599	4623	4647	4671	4695	4719	4743	4767	4791	4815	4839	4863
Preset Dim	000	4504	4528	4552	4576	4600	4624	4648	4672	4696	4720	4744	4768	4792	4816	4840	4864

Channel	Defaults	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Option 1	000	4865	4889	4913	4937	4961	4985	5009	5033	5057	5081	5105	5129	5153	5177	5201	5225
Option 2	000	4866	4890	4914	4938	4962	4986	5010	5034	5058	5082	5106	5130	5154	5178	5202	5226
Option 3	000	4867	4891	4915	4939	4963	4987	5011	5035	5059	5083	5107	5131	5155	5179	5203	5227
Option 4	000	4868	4892	4916	4940	4964	4988	5012	5036	5060	5084	5108	5132	5156	5180	5204	5228
On Units	000	4869	4893	4917	4941	4965	4989	5013	5037	5061	5085	5109	5133	5157	5181	5205	5229
Chu / Chain	000	4886	4910	4934	4958	4982	5006	5030	5054	5078	5102	5126	5150	5174	5198	5222	5246
Aux Output	000	4887	4911	4935	4959	4983	5007	5031	5055	5079	5103	5127	5151	5175	5199	5223	5247
Preset Dim	000	4888	4912	4936	4960	4984	5008	5032	5056	5080	5104	5128	5152	5176	5200	5224	5248

Channel	Defaults	49	50	51	52	53	54	55	56
Option 1	000	5249	5273	5297	5321	5345	5369	5393	5417
Option 2	000	5250	5274	5298	5322	5346	5370	5394	5418
Option 3	000	5251	5275	5299	5323	5347	5371	5395	5419
Option 4	000	5252	5276	5300	5324	5348	5372	5396	5420
On Units	000	5253	5277	5301	5325	5349	5373	5397	5421
Chu / Chain	000	5270	5294	5318	5342	5366	5390	5414	5438
Aux Output	000	5271	5295	5319	5343	5367	5391	5415	5439
Preset Dim	000	5272	5296	5320	5344	5368	5392	5416	5440

8

Why Do X-10 Devices Turn Off Then On?

A limitation of X-10 is devices can not be "polled" to determine their current state. Almost all X-10 wall switches are only receivers, therefore, if a user manually dims or turns a light off, the controller has no manner to determine if the light is on or off. A second limitation of the X-10 protocol is that a dimmed light will not respond to a unit "on" command by going to full on. Therefore, until units begin to respond to the "preset dimming" section of the X-10 specification, a user can not dim a light from the phone or keypad to a specific dim level unless an off command precedes a unit "on" command. This ensures any of the following dim commands will match the level spoken by the system. This same issue affects the implementation of the preset dim command. This feature sends an off command followed by the appropriate dim command to arrive at the programmed dim level.

System Triggers

This feature is not UL listed for fire or burglary functions and is intended for home automation

Event	Location	Channel	Location	Option
Any alarm activation	0183	000	4053	006
Burglary	0184	000	4054	006
Fire	0185	000	4055	006
Panic	0186	000	4056	006
Silent Panic	0187	000	4057	006
Pre-alarm	0189	000	4059	006
Extended Monitor	0190	000	4060	006
Remote Phone Access	0191	000	4061	006
Emergency	0192	000	4062	006
Arm to HOME	0193	000	4063	006
Arm to AWAY	0194	000	4064	006
Arm to NIGHT	0209	000	4079	006
Arm to HOME, NIGHT, or AWAY	0195	000	4065	006
Disarm	0196	000	4066	006
Access code entered	0197	000	4067	006
Alert	0198	000	4068	006
Loss of phone line	0199	000	4069	006
Duress Disarm	0200	000	4070	006
Duress when not armed	0201	000	4071	006
AC Fail	0202	000	4072	006
Two-way Voice	0203	000	4073	006
Smoke reset	0204	000	4074	006
Speech Activation	0205	000	4075	006
Ring Detect	0206	000	4076	006
House Phone Off Hook	0207	000	4077	006
Communicator Fail	0208	000	4078	006

*(The events Arm to HOME, Arm to AWAY, Arm to NIGHT, and Arm to HOME, NIGHT, or AWAY are marked with *)*

8

*Note: Arming and Disarm trigger outputs are disabled when Split Arming is enabled

Option - Enter Total	Value
Activation Action	
Turn Control Channel Off	001
Turn Control Channel On	**002**
Restore Action	
Turn Control Channel Off	**004**
Turn Control Channel On	008
Default	**006**

X-10 Options

This feature is not UL listed for fire or burglary functions and is intended for home automation

Options	Location	Default
Number of times an X-10 transmission is made	0793	001
Delay before an X-10 transmission is made	0794	001

Option - Enter Total	Location	Value
Enable Echo mode - speak all incoming X-10 Channel / Unit Assignments		001
Include panel transmission in Echo mode		002
50 Hz X-10 mode		004
X-10 Options	**0788**	**000**

X-10 House Code - Unit Assignments (CHU)

A 1 096	B 1 112	C 1 064	D 1 080	E 1 128	F 1 144	G 1 160	H 1 176
A 2 097	B 2 113	C 2 065	D 2 081	E 2 129	F 2 145	G 2 161	H 2 177
A 3 098	B 3 114	C 3 066	D 3 082	E 3 130	F 3 146	G 3 162	H 3 178
A 4 099	B 4 115	C 4 067	D 4 083	E 4 131	F 4 147	G 4 163	H 4 179
A 5 100	B 5 116	C 5 068	D 5 084	E 5 132	F 5 148	G 5 164	H 5 180
A 6 101	B 6 117	C 6 069	D 6 085	E 6 133	F 6 149	G 6 165	H 6 181
A 7 102	B 7 118	C 7 070	D 7 086	E 7 134	F 7 150	G 7 166	H 7 182
A 8 103	B 8 119	C 8 071	D 8 087	E 8 135	F 8 151	G 8 167	H 8 183
A 9 104	B 9 120	C 9 072	D 9 088	E 9 136	F 9 152	G 9 168	H 9 184
A 10 ·· 105	B 10 ·· 121	C 10 ·· 073	D 10 ·· 089	E 10 ·· 137	F 10 ·· 153	G 10 ·· 169	H 10 ·· 185
A 11 ··· 106	B 11 ·· 122	C 11 ·· 074	D 11 ·· 090	E 11 ·· 138	F 11 ··· 154	G 11 ··· 170	H 11 ··· 186
A 12 ·· 107	B 12 ·· 123	C 12 ·· 075	D 12 ·· 091	E 12 ·· 139	F 12 ·· 155	G 12 ·· 171	H 12 ·· 187
A 13 ·· 108	B 13 ·· 124	C 13 ·· 076	D 13 ·· 092	E 13 ·· 140	F 13 ·· 156	G 13 ·· 172	H 13 ·· 188
A 14 ·· 109	B 14 ·· 125	C 14 ·· 077	D 14 ·· 093	E 14 ·· 141	F 14 ·· 157	G 14 ·· 173	H 14 ·· 189
A 15 ·· 110	B 15 ·· 126	C 15 ·· 078	D 15 ·· 094	E 15 ·· 142	F 15 ·· 158	G 15 ·· 174	H 15 ·· 190
A 16 ·· 111	B 16 ·· 127	C 16 ·· 079	D 16 ·· 095	E 16 ·· 143	F 16 ·· 159	G 16 ·· 175	H 16 ·· 191
I 1 224	J 1 240	K 1 192	L 1 208	M1 .... n/a	N 1 016	O 1 032	P 1 048
I 2 225	J 2 241	K 2 193	L 2 209	M2 001	N 2 017	O 2 033	P 2 049
I 3 226	J 3 242	K 3 194	L 3 210	M3 002	N 3 018	O 3 034	P 3 050
I 4 227	J 4 243	K 4 195	L 4 211	M4 003	N 4 019	O 4 035	P 4 051
I 5 228	J 5 244	K 5 196	L 5 212	M5 004	N 5 020	O 5 036	P 5 052
I 6 229	J 6 245	K 6 197	L 6 213	M6 005	N 6 021	O 6 037	P 6 053
I 7 230	J 7 246	K 7 198	L 7 214	M7 006	N 7 022	O 7 038	P 7 054
I 8 231	J 8 247	K 8 199	L 8 215	M8 007	N 8 023	O 8 039	P 8 055
I 9 232	J 9 248	K 9 200	L 9 216	M9 008	N 9 024	O 9 040	P 9 056
I 10 ·· 233	J 10 ·· 249	K 10 ·· 201	L 10 ·· 217	M10 ·· 009	N 10 ·· 025	O 10 ·· 041	P 10 ·· 057
I 11 ··· 234	J 11 ··· 250	K 11 ··· 202	L 11 ··· 218	M11 ··· 010	N 11 ··· 026	O 11 ··· 042	P 11 ··· 058
I 12 ·· 235	J 12 ·· 251	K 12 ·· 203	L 12 ·· 219	M12 ·· 011	N 12 ·· 027	O 12 ·· 043	P 12 ·· 059
I 13 ·· 236	J 13 ·· 252	K 13 ·· 204	L 13 ·· 220	M13 ·· 012	N 13 ·· 028	O 13 ·· 044	P 13 ·· 060
I 14 ·· 237	J 14 ·· 253	K 14 ·· 205	L 14 ·· 221	M14 ·· 013	N 14 ·· 029	O 14 ·· 045	P 14 ·· 061
I 15 ·· 238	J 15 ·· 254	K 15 ·· 206	L 15 ·· 222	M15 ·· 014	N 15 ·· 030	O 15 ·· 046	P 15 ·· 062
I 16 ·· 239	J 16 ·· 255	K 16 ·· 207	L 16 ·· 223	M16 ·· 015	N 16 ·· 031	O 16 ·· 047	P 16 ·· 063

X-10 Input On/Off Command Assignments

These locations are reprinted from the "Programming System Inputs to Zone" for reference during programming.

Input	Defaults	1	2	3	4	5	6	7	8
CHU Assignment	000	5570	5576	5582	5588	5594	5600	5606	5612
On (Button) Function	255	5572	5578	5584	5590	5596	5602	5608	5614
Off (Button) Function	255	5573	5579	5585	5591	5597	5603	5609	5615

Output Control Assignments

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total	Value
Turn Control Channel On	001
Toggle Control Channel On / Off	002
Suppress Speech on Activation	004
Default (Turn Control Channel Off)	**000**

Output Control #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Channel	4021	4023	4025	4027	4029	4031	4033	4035	4037	4039	4041	4043	4045	4047	4049	4051
Option	4022	4024	4026	4028	4030	4032	4034	4036	4038	4040	4042	4044	4046	4048	4050	4052

Zone - Control Channel Connection

This feature is not UL listed for fire or burglary functions and is intended for home automation

Option - Enter Total		Value
Zone Opens	Send an On Command	001
	Send an Off Command	002
Zone Closes	Send an On Command	004
	Send an Off Command	008
	Default	**000**

Zone	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Option	0901	0917	0933	0949	0965	0981	0997	1013	1029	1045	1061	1077	1093	1109	1125	1141
Channel	0902	0918	0934	0950	0966	0982	0998	1014	1030	1046	1062	1078	1094	1110	1126	1142

Zone	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Option	1157	1173	1189	1205	1221	1237	1253	1269	1285	1301	1317	1333	1349	1365	1381	1397
Channel	1158	1174	1190	1206	1222	1238	1254	1270	1286	1302	1318	1334	1350	1366	1382	1398

Zone	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Option	1413	1429	1445	1461	1477	1493	1509	1525	1541	1557	1573	1589	1605	1621	1637	1653
Channel	1414	1430	1446	1462	1478	1494	1510	1526	1542	1558	1574	1590	1606	1622	1638	1654

Zone	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Option	1669	1685	1701	1717	1733	1749	1765	1781	1797	1813	1829	1845	1861	1877	1893	1909
Channel	1670	1686	1702	1718	1734	1750	1766	1782	1798	1814	1830	1846	1862	1878	1894	1910

Zone	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Option	1925	1941	1957	1973	1989	2005	2021	2037	2053	2069	2085	2101	2117	2133	2149	2165
Channel	1926	1942	1958	1974	1990	2006	2022	2038	2054	2070	2086	2102	2118	2134	2150	2166

Zone	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Option	2181	2197	2213	2229	2245	2261	2277	2293	2309	2325	2341	2357	2373	2389	2405	2421
Channel	2182	2198	2214	2230	2246	2262	2278	2294	2310	2326	2342	2358	2374	2390	2406	2422

8

Chain Group Assignments

Channel Assignment	1	2	3	4	5	6	7	8
Channel Activation 1	5441	5457	5473	5489	5505	5521	5537	5553
Channel Activation 2	5442	5458	5474	5490	5506	5522	5538	5554
Channel Activation 3	5443	5459	5475	5491	5507	5523	5539	5555
Channel Activation 4	5444	5460	5476	5492	5508	5524	5540	5556
Channel Activation 5	5445	5461	5477	5493	5509	5525	5541	5557
Channel Activation 6	5446	5462	5478	5494	5510	5526	5542	5558
Channel Activation 7	5447	5463	5479	5495	5511	5527	5543	5559
Channel Activation 8	5448	5464	5480	5496	5512	5528	5544	5560
Channel Activation 9	5449	5465	5481	5497	5513	5529	5545	5561
Channel Activation 10	5450	5466	5482	5498	5514	5530	5546	5562
Channel Activation 11	5451	5467	5483	5499	5515	5531	5547	5563
Channel Activation 12	5452	5468	5484	5500	5516	5532	5548	5564
Channel Activation 13	5453	5469	5485	5501	5517	5533	5549	5565
Channel Activation 14	5454	5470	5486	5502	5518	5534	5550	5566
Channel Activation 15	5455	5471	5487	5503	5519	5535	5551	5567
Channel Activation 16	5456	5472	5488	5504	5520	5536	5552	5568

Control Channel Terms

Automated Control Channel Locations

Set On/Off: This location is used to program automatic on and off times for control channels. Enter 9992, the system will respond "ENTER UNIT." Enter a control channel number, if the channel is 1-9 use a leading zero. The next prompt is "ENTER ON." Enter the on time in 24hr format. The next prompt is "ENTER OFF." Enter the off time in 24hr format. The on and/or off times are only used by the system if they are enabled in "Remote Control Options 1." Both times must be programmed even if only one time is being used. If both on and off times are the same value, the unit will never turn off.

Control Channel Options 1:

Enable seconds: If the "automatic turn off" feature is being used, this option determines if the time "on units" should be treated as minutes or seconds.

Restart delay activation: When a zone is used to trigger a remote channel, this option determines if the countdown restarts each time the zone is activated. If a light is dependant on a motion detector, this option would be enabled to keep the light from turning off then on again each time motion is detected.

8 Automatic turn off: This option is used to turn a channel off after the time "on units" time expires. The "enable seconds" option determines if the units are treated as seconds or minutes.

Enable Dim: The option enables the dim command to be used from Remote Control Mode. If the X-10 receiving device does not support dimming the command will be ignored.

On/Off Time of Day: Used to automatically turn a channel on or off based on time of day. Location 9992 is used to set the on and off times.

Control Channel Options 2:

Day of week operation: Add the value for each day automatic on/off should occur. For every day of the week use 127, for only weekdays use 62.

Control Channel Options 3:

Activate Chain Channel: All Channels can be programmed to control an X-10 device or trigger a group of activations (see Automation Overview).

Sunrise/Sunset Options: Each channel can be programmed to turn on or off at sunrise or sunset. Enter the total for the appropriate options in the Control Channel Options 3 location for the channel. **Note:** A light sensing device must be attached to the system either as a zone input or as an X-10 input (X-10 Sundowner) for the sunrise/sunset option to function.

Control Channel Options 4:

Flash: Enabling the flash option will flash a selected relay and/or X-10 output. Use this option with caution, due to the speed of X-10 do not flash several X-10 devices at one time. Test all uses of X-10 flash before finishing an install to ensure desirable results.
Note: When using flash with filters unexpected results my occur. Filters "freeze" all channels when a filter condition occurs. The drawback of this feature is as follows:
> A channel is programmed for: "disable when disarm"
> The panel is armed to AWAY and a user activates the channel from Remote Control
> The device continues to flash until the panel is disarmed
> The device stops flashing and freezes in its current state (off or on)
> The panel is rearmed and the device begins flashing again
This side effect will make it undesirable to use flash with filters in most instances.

Preset Dim: When the channel is **automatically** (does not apply to user activations from local or remote phone) activated, the X-10 device will turn on to full bright and lower to the selected dim level. Legal values are 001 (full on) - 006 (very dim). This option is not available if chain channel is selected.

All House Code On / Off: This option will turn an entire house code on and off. The house code of the unit in the "CHU / chain" location determines the house code. This option is not available if dimming or chain channel options are selected.

8

Disable: light (sunrise): Prevents the processing of ALL On/Off signals by a control channel when a sunrise/sunset zone shows "light."

Disable: dark (sunset): Prevents the processing of ALL On/Off signals by a control channel when a sunrise/sunset zone shows "dark."

Disable: HOME or Night: Prevents the processing of ALL On/Off signals by a control channel when the panel is armed to HOME or Night. This filter is not available if Split Arming is enabled.

Disable: AWAY: Prevents the processing of ALL On/Off signals by a control channel when the panel is armed to AWAY. This filter is not available if Split Arming is enabled.

Disable: Disarmed: Prevents the processing of ALL On/Off signals by a control channel when the panel is disarmed. This filter is not available if Split Arming is enabled.

System Triggers

Any Alarm Activation: Activates the specified channel during all alarm activations. The channel is restored after disarm and at alarm cutoff and reset.

Burglary: Activates the specified channel during all burglary activations. The channel is restored after disarm and at alarm cutoff and reset.

Fire: Activates the specified channel during all fire activations. The channel is restored after disarm and at alarm cutoff and reset.

Panic: Activates the specified channel during all panic activations. The channel is restored after disarm and at alarm cutoff and reset.

Silent Panic: Activates the specified channel during all silent panic activations. The channel is restored after disarm and at alarm cutoff and reset.

Pre-Alarm: Activates the specified channel during pre-alarm. The channel is restored after disarm or an activation.

Extended Monitor: Activates the specified channel during an extended monitor activation. The channel is restored when the extended monitor expires.

Remote Phone Access: Activates the specified channel when remote phone access is active. The channel is restored when the remote phone access ends.

Emergency: Activates the specified channel during all emergency activations. The channel is restored after disarm and at alarm cutoff and reset.

Arm to HOME: Activates the specified channel when the panel is armed to home. The channel is restored after disarm. This trigger is not available if Split Arming is enabled.

Arm to AWAY: Activates the specified channel when the panel is armed to away. The channel is restored after disarm or a change to a different arming state. This trigger is not available if Split Arming is enabled.

Arm to Night: Activates the specified channel when the panel is armed to night. The channel is restored after disarm or a change to a different arming state. This trigger is not available if Split Arming is enabled.

Arm to HOME or AWAY: Activates the specified channel when the panel is armed to home or away. The channel is restored after disarm. This trigger is not available if Split Arming is enabled.

8

Disarm: Active when the panel is disarmed. The channel is restored when the panel is armed. This trigger is not available if Split Arming is enabled.

Access Code entered: Channel is activated when an access code is entered. There is not an event that restores the channel , it is recommended to only use this trigger with channels programmed to automatically turn off.

Alert: Activates the specified channel during all alarm activations. The channel is restored after the alert status is cleared from the keypad.

Loss of Phone Line: Activates the specified channel when a loss of phone line is detected. The channel is restored when the phone line is restored.

Duress Disarm: Activates the specified channel when a duress disarm occurs. There is not an event that restores the channel, it is recommended to only use this trigger with channels programmed to automatically turn off.

Duress when not armed: Activates the specified channel when a duress occurs when the system is not armed. There is not an event that restores the channel, it is recommended to only use this trigger with channels programmed to automatically turn off.

Power loss: Activates the specified channel when power loss occurs. The channel is restored when power is restored.

Two-Way Voice: Activates the specified channel when two-way voice is active. The channel is restored when two-way voice ends.

Smoke reset: Activates the specified channel when smoke reset occurs. The channel is restored when smoke reset ends.

Speech Activation: Activates the specified channel when the system is speaking. The channel is restored when the system stops speaking.

76

Ring Detect:	Activates the specified channel when the phone rings. The channel is restored when the phone stops ringing.
House Phone Off Hook:	Activates the specified channel when a house phone is off hook. The channel is restored when the phone is hung up.
Communicator Fail:	Activates the specified channel when the panel in unable to communicate with a central station receiver. The channel is restored after the next valid transmission.
Trigger Options:	Each trigger can send an on/off command during activation or restore. The trigger descriptions (above) specify activation and restore conditions. Enter the total of the appropriate options in the option location for each used trigger.

X-10 Options:

X-10 Transmissions:	Some installations are noisy and have difficulty with X-10 transmissions. This option allows transmissions to be made multiple times to ensure reception.
Delay X-10 transmission:	Delay between multiple X-10 transmissions.
Echo Mode:	This is a helpful feature for ensuring X-10 operation. Enabling this option will cause the panel to speak the 3 digit unit assignments for all received X-10 transmissions followed by the unit command. When transmissions made by the panel is included, the system only speaks if it "hears" its own transmissions on the power line. This feature helps determine when noise is causing transmissions to be lost.
50 Hz:	Allows X-10 operation in foreign countries that use 50Hz power.

8

Output Control Assignment:

Channel:	"Button" style devices can be used to operate control channels. This location determines which Control Channel should be activated. Legal values are 1-16.
Channel On / Off/ Toggle:	When an Output Channel is activated it can be used to always turn a channel on, always turn a channel off, or toggle the control channel each time the "button device" is activated.
Suppress speech:	The panel will confirm all control channel activations in full speech each time a "button" activation occurs. This option eliminates the confirmation speech.

Control Channel Locations:

On units:	Amount of time when "automatic off" is used.
CHU / Chain:	The "Activate Chain Channel" option in remote control channel options 3 determines if the value in this location is used as an X-10 unit assignment or a chain channel assignment.
	X-10 unit assignment: Legal values 000 - 255 (000) disabled.
	Chain channel assignment: Legal values are 000 - 008 (000) disabled.
Aux output number:	Determines the auxiliary output that is controlled by the remote control channel. Legal values:

001 - 007:	Low current output pins
008:	System relay
009 - 064:	EXP8 assignments
000:	Disabled

Preset Dim Level: Value representing the preset dim to be set with an on-command. See preset dim for further information.

Zone Control Channel Connection

Options: This option value determines if an on or off command is sent to a channel when a zone is opened or closed. Add the desired value for the zone opening to the value for when the zone closes and enter the total in the options field for the zone.

Channel: Every active zone in the system can be used to activate a remote control channel. Enter the remote control channel number in the corresponding zone location. Legal values are 000 - 096 (000-disabled).

Chain Group Assignments:

Channel Activation: Up to 16 channels can be activated when a chain channel is engaged. Enter the channel to be activated in the "activation locations." Legal values are 000 - 056 (000 - disabled). A chain channel **can not** activate a second chain channel.

8

78

Key:

System	Input #	
HWB-416	Group #	Input #
Keypad	Keypad #	
X-10	Input #	
Alarm	Serial #	Loop #
Portable	Serial #	Button 1

Zone	Type	Opt 1	Opt 2	Portable	Serial #	Button 1	Button 2	Button 3	Button 4	User	Word 1
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
32											
33											
34											
35											
36											
37											
38											
39											
40											
41											
42											
43											
44											
45											
46											
47											
48											

System	Input #
HWB-416	Group #
Keypad	Keypad #
X-10	Input #
Alarm	Serial #
Portable	Serial #
	Loop #
	Input #
	Button 1

Zone	Type	Opt 1	Opt 2	Button 1	Button 2	Button 3	Button 4	User	Word 1
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									
62									
63									
64									
65									
66									
67									
68									
69									
70									
71									
72									
73									
74									
75									
76									
77									
78									
79									
80									
81									
82									
83									
84									
85									
86									
87									
88									
89									
90									
91									
92									
93									
94									
95									
96									

FEDERAL COMMUNICATIONS COMMISSION (FCC) PART 15 STATEMENT

This equipment has been tested to FCC requirements and has been found acceptable for use. The FCC requires the following statement for your information:

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause Interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
* If using an indoor antenna, have a quality outdoor antenna installed.
* Reorient the receiving antenna until interference is induced or eliminated.
* Move the receiver away from the security control.
* Move the antenna leads away from any wire runs to the security control
* Plug the security control into a different outlet so that it and the receiver are on different branch circuits.
If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.
The user or installer may find a booklet titled "Interference Handbook" prepared by the Federal
Communications Commission helpful: .This booklet is available from the U.S. Government Printing Office,
Washington, DC 20402.
The user shall not make any changes or modifications to the equipment unless authorized by the Installation
Instructions or Users Manual. Unauthorized changes or modifications could void the user's authority to
operate the equipment.

FEDERAL COMMUNICATIONS COMMISSION (FCC) PART 68 STATEMENT

This equipment complies with Part 68 of the FCC rules. On the front cover of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.
This equipment uses the following jacks:

An RJ31X is used to connect this equipment to the telephone network.

The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call, In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.
If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical the telephone company will notify the customer as soon as possible. Also, you Will be advised of your right to file a complaint, with the FCC if you believe necessary.

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

If trouble is experienced with this equipment, please contact the manufacturer for repair and warranty information. If the trouble is causing harm to the telephone network, the telephone company may request you remove the equipment from the network until the problem is resolved.

There are no user serviceable components in this product, and all necessary repairs must be made by the manufacturer. Other repair methods may invalidate the FCC registration on this product.

This equipment cannot be used on telephone company-provided coin service. Connection to Party Line Service is subject to state tariffs.

This equipment is hearing-aid compatible.

When programming or making test calls to emergency numbers, briefly explain to the dispatcher the reason for the call. Perform such activities in the off-peak hours; such as early morning or late evening.

INSTALLATION LAYOUT

Early warning fire detection is best achieved by the installation of fire detection equipment in the location as follows:
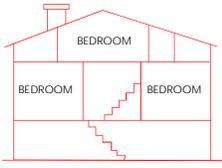
In homes with more than one sleeping area a smoke detector should be provided to protect each area.
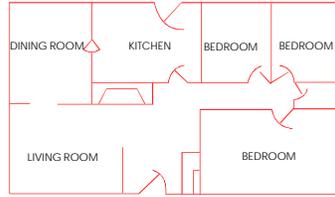
A smoke detector shall be located between the sleeping area and the rest of the house.
- Refer to N.F.P.A. #74 Appendix B-1.1 thru B-10.

Preparation of an evacuation plan Is of prime importance in fire prevention. Establish a household emergency evacuation plan in the event of fire. Refer to the Smoke Detector instructions (or exact mounting, layout and spacing.

1 - Evaluate possible escape routes from your home.
2 - Select 2 escape routes from each room.
3 - Rooms on the second floor should have a rope ladder Be sure it will reach the ground.
4 - Draw a sketch of your escape plan so everyone is familiar with it.
5 - Practice your escape plan to assure that everyone knows what to do.
6 - Establish a meeting place outside where your family is to report. Once you have evacuated, the house do not return to a burning house.
7 - Advise the local fire authority that you have installed a fire alarm system.
8 - When the fire alarm signals, LEAVE IMMEDIATELY. Do not stop for belongings.
9 - If a fire occurs, test the door. If hot, use your alternate route. If the door is cool, brace your shoulder against it and open it cautiously. Shut the door to help prevent the fire and smoke from spreading. Crawl through smoke, holding your breath.
10 - Contact the Fire Department from a neighbor's telephone.
11 - Everyone including neighbors should be familiar with the Fire and Burglary signals

SYSTEM TESTING

This control unit was manufactured under rigid quality standards. Maintenance is best performed by your installing company with trained service personnel.

Installing Company: _____
Telephone Number: _____

It is recommended that you test your system once a week using the following procedure:
* Note: If your system Is monitored by a Central Station then contact them prior to performing this test.

1-Arm your security system.
2-Activate the system by opening a protected zone (example, window or door).
3-Confirm that the alarm sounding device (bell or siren) activates.
4-Disarm the system to silence the system and return to normal status.

In order to test the backup battery the following procedure should be performed;

1 - Remove the AC transformer from the AC outlet by removing the restraining screw which secures the transformer to the wall. (Note: the screw is not present in models sold in Canada).
2 - Observe that status light flashes on the keypad.
3 - Activate your alarm system using steps 1-4 listed above.
4- Replace the AC transformer to the AC outlet and secure using the retaining screw (Note: The retaining screw is not present in models sold in Canada).

The National Fire Protection Association publishes a standard for household fire warning equipment. N.F.P.A. #74. Further Information can be obtained by contacting; NEPA Public Affairs Dept., Batterymarch Park. Quincy, MA 02269.

If you have any further questions about the operation of your system, call your installer.

WARNING
THE LIMITATIONS OF THIS ALARM SYSTEM

While this System is an advanced wireless security system, it does not offer guaranteed protection against burglary, fire or other emergency. Any alarm system, whether commercial or residential, is subject to compromise or failure to warn for a variety of reasons. For example:

* Intruders may gain access through unprotected openings or have the technical sophistication to bypass an alarm sensor or disconnect an alarm warning device.

*Intrusion detectors (e.g., passive infrared detectors), smoke detectors, and many other sensing devices will not work without power. Battery-operated devices will not work without batteries, with dead batteries, or if the batteries are not put in properly. Devices powered solely by AC will not work if their AC power supply is cut off for any reason, however briefly.

*Signals sent by wireless transmitters (used in some systems) may he blocked or reflected by metal before they reach the alarm receiver. Even if the signal path has been recently checked during a weekly test, blockage can occur if a metal object is moved into the path.

*A user may not be able to reach a panic or emergency button quickly enough.

*While smoke detectors have played a key role in reducing residential fire deaths in the United States, they may not activate or provide early warning for a variety of reasons in as many as 35% of all fires, according to data published by the Federal Emergency Management Agency. Some of the reasons some detectors used in conjunction with this System may not work are as follows. Smoke detectors may have been improperly installed and positioned. Smoke detectors may not sense fires that start where smoke cannot reach the detectors, such as in chimneys, in walls, or roofs, or on the other side of closed doors. Smoke detectors also may not a sense a fire on another level of a residence or building. A second floor detector, for example, may not sense a first floor or basement fire. Finally, smoke detectors have sensing limitations. No smoke detector can sense every kind of fire every time. In general, detectors may not always warn about fires caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches, or arson. Depending an the nature of the fire, and/or location of the smoke detectors, the detector, even if it operates as anticipated, may not provide sufficient warning to allow all occupants to escape in time to prevent injury or death.

*Passive Infrared Motion Detectors can only detect intrusion within the designed ranges as diagrammed in their installation manual. Passive Infrared Detectors do not provide volumetric area protection. They do create multiple beams of protection, and intrusion can only be detected in unobstructed areas covered by those beams. They cannot detect motion or intrusion that takes place behind walls, ceilings, floors, closed doors, glass partitions, glass doors, or windows. Mechanical tampering, masking, painting or spraying of any material on the mirrors, windows or any part of the optical system can reduce their detection ability. Passive Infrared Detectors sense changes in temperature; however, as the ambient temperature of the protected area approaches the temperature range of 90 to 105F (32 to 4OC), the detection performance can decrease.

*Alarm warning devices such as sirens, bells or horns may not alert people or wake up sleepers if they are located on the other side of closed or partly open doors. If warning devices are located on a different level of the residence from the bedrooms, that they are less likely to waken or alert people inside the bedrooms. Even persons who are awake may not hear the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliance, or by passing traffic. Finally, alarm warning devices, however loud, may not warn hearing-impaired people.

*Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily out of service. Telephone lines are also subject to compromise by sophisticated intruders.

*Even if the system responds to the emergency as intended, however, occupants may have insufficient time to protest themselves from the emergency situation. In the case of a monitored alarm system, authorities may not respond appropriately.

*This equipment, like other electrical devices, is subject to component failure. Even though this equipment is designed to last as long as 20 years, the electronic components could fail at any time.

The most common cause of an alarm system not functioning when an intrusion or fire occurs is inadequate maintenance. This alarm system should be tested weekly to make sure all sensors and transmitters are working properly. The security console (and remote keypad) should be tested as well.

Wireless transmitters (used in some systems) are designed to provide long battery life under normal operating conditions. Longevity of batteries may be as much as 4 to 7 years, depending on the environment, usage, and the specific wireless device being used. External factors such as humidity, high or low temperatures, as well as large swings in temperature, may all reduce the actual battery life in a given installation. This wireless system, however, can identify a true low battery situation, thus allowing time to arrange a change of battery to maintain protection for that given point within the system.

Installing an alarm system may make the owner eligible for a lower insurance rate, but an alarm system is not a substitute for insurance. Homeowner, property owners and renters should continue to act prudently in protecting themselves and continue to insure their lives and property.

We continue to develop new and improved protection devices. Users of alarm systems owe it to themselves and their loved ones to learn about these developments.

ADEMCO LIMITED WARRANTY

Alarm Device Manufacturing Company, a Division Of Pittway Corporation, and its divisions, subsidiaries and affiliates (`Seller'), 165 Eileen Way, Syosset, New York 11791, warrants its products to be in conformance with its own plans and specifications and to be free from defects in materials and workmanship under normal use and service for 18 months from the date stamp control on the product or, for products not having an Ademco date stamp, for 12 months from date of original purchase unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. Seller's obligation shall be limited to repairing or replacing, at its option, free of charge for materials or labor, any product which is proved not in compliance with Seller's specifications or proves defective in materials or workmanship under normal use and service. Seller shall have no obligation under this Limited Warranty or otherwise if the product is altered or improperly repaired or serviced by anyone other than Ademco factory service. For warranty service, return product transportation prepaid, to Ademco Factory Service, 165 Eileen Way, Syosset, New York 11791.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. IN NO CASE SHALL SELLER BE LIABLE TO ANYONE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES FOR BREACH OF THIS OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, OR UPON ANY OTHER BASIS OF LIABILITY WHATSOEVER, EVEN IF THE LOSS OR DAMAGE IS CAUSED BY THE SELLER'S OWN NEGLIGENCE OR FAULT.

Seller does not represent that the products it sells may not be compromised or circumvented; that the products will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the products will in all cases provide adequate warning or protection. Customer understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery, fire or other events occurring without providing an alarm, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result.

CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON CLAIM THE PRODUCT FAILED TO GIVE WARNING. HOWEVER, IF SELLER IS HELD LIABLE, WHETHER DIRECTLY OR INDIRECTLY, FOR ANY LOSS OR DAMAGE ARISING UNDER THIS LIMITED WARRANTY OR OTHERWISE, REGARDLESS OF CAUSE OR ORIGIN, SELLER'S MAXIMUM LIABILITY SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE OF THE PRODUCT, WHICH SHALL BE THE COMPLETE AND EXCLUSIVE REMEDY AGAINST SELLER.

This warranty replaces any previous warranties and is the only warranty made by Seller on this product. No increase or alteration, written or verbal, of the obligations of this Limited Warranty is authorized.