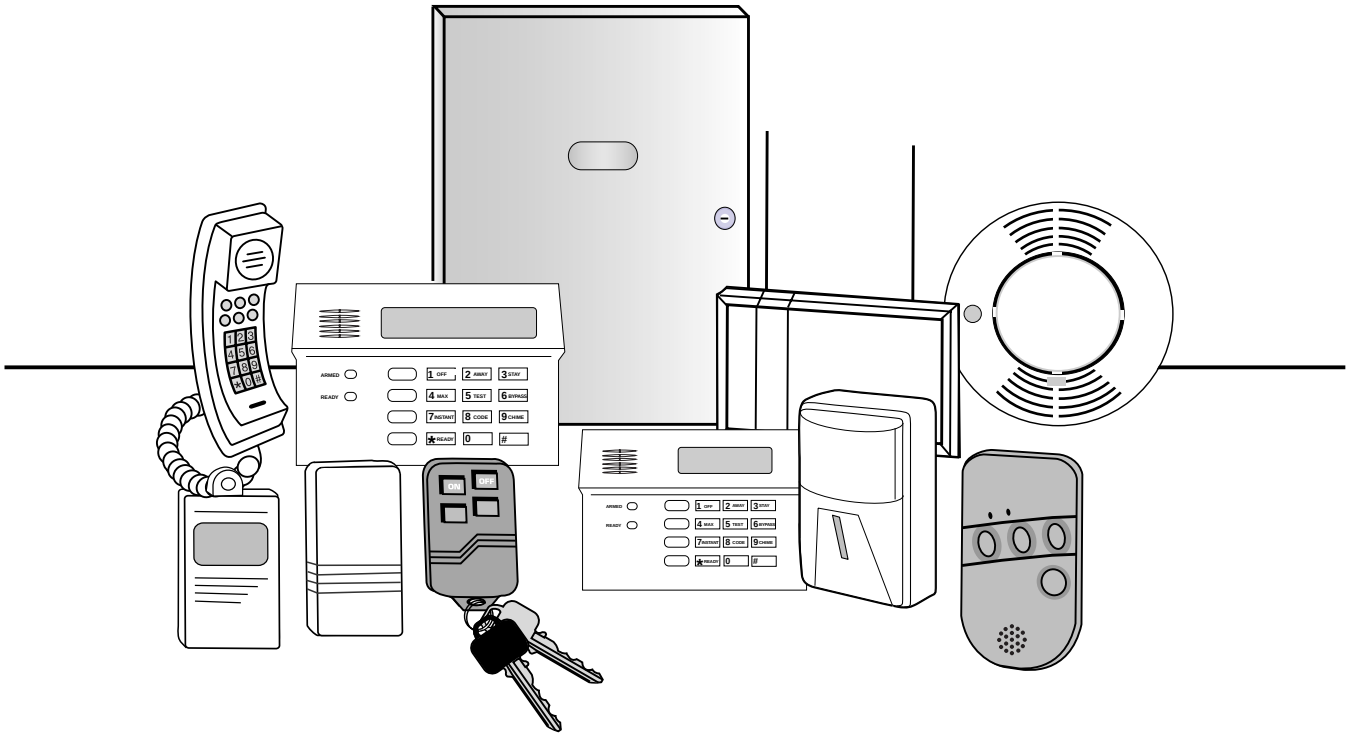
SL150

Security System

Installation and Setup Guide



SecurityLink℠ from Ameritech

N7526–8V1 3/00

RECOMMENDATIONS FOR PROPER PROTECTION

The Following Recommendations for the location of Fire and Burglary Detection Devices Help Provide Proper Coverage for the Protected Premises.

Recommendations for Smoke and Heat Detectors

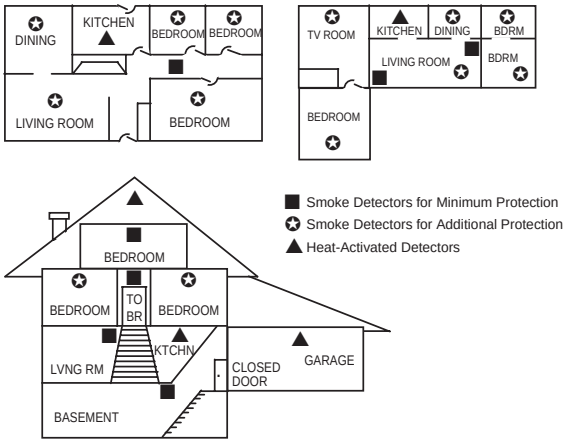
With regard to the number and placement of smoke/heat detectors, we subscribe to the recommendations contained in the National Fire Protection Association's (NFPA) Standard #72 noted below.

> Early warning fire detection is best achieved by the installation of fire detection equipment in all rooms and areas of the household as follows: For minimum protection, a smoke detector should be installed outside of each separate sleeping area and on each additional floor of a multi-floor family living unit, including basements. The installation of **smoke detectors** in kitchens, attics (finished or unfinished), or in garages is not normally recommended.
>
> For additional protection, the NFPA recommends that you install **heat** or **smoke detectors** in the living room, dining room, bedroom(s), kitchen, hallway(s), attic, furnace room, utility and storage rooms, basements, and attached garages.

In addition, we recommend the following:

- Install a smoke detector inside every bedroom where a smoker sleeps.
- Install a smoke detector inside every bedroom where someone sleeps with the door partly or completely closed. Smoke could be blocked by the closed door. Also, an alarm in the hallway outside may not wake up the sleeper if the door is closed.
- Install a smoke detector inside bedrooms where electrical appliances (such as portable heaters, air conditioners, or humidifiers) are used.
- Install a smoke detector at both ends of a hallway if the hallway is more than 40 feet (12 meters) long.
- Install smoke detectors in any room where an alarm control is located, or in any room where alarm control connections to an AC source or phone lines are made. If detectors are not so located, a fire within the room could prevent the control from reporting a fire or an intrusion.

THIS CONTROL COMPLIES WITH NFPA REQUIREMENTS FOR TEMPORAL PULSE SOUNDING OF FIRE NOTIFICATION APPLIANCES.



Recommendations for Proper Intrusion Protection

For proper intrusion coverage, sensors should be located at every possible point of entry to a home or commercial premises. This includes skylights and upper windows in a multi-level building.

In addition, we recommend that radio backup be used in a security system so that alarm signals can still be sent to the alarm monitoring station in the event that the telephone lines are out of order (alarm signals are normally sent over the phone lines, if connected to an alarm monitoring station).

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Conventions Used In This Manual

Before you begin using this manual, it is important that you understand the meaning of the following symbols:

UL A UL note includes specific information that must be followed if you are installing this system for a UL Listed application.

A checked note includes information you should be aware of before continuing with the installation, and which, if not observed, could result in operational difficulties.

This symbol warns of conditions that could seriously affect the operation of the system, or cause damage to the system. Please read each warning carefully. This symbol also denotes warnings about physical harm to the user.

Enter Zone Num. (00 = Quit)

You may program many system options by responding to alpha keypad display prompts. These prompts are shown in a double-line box.

✳00 When programming the system, data fields are indicated by a "star" (✳) followed by the data field number.

PRODUCT MODEL NUMBERS: Unless noted otherwise, references to specific model numbers represent Ademco products.

Introduction

In This Section

- General Description
- Features

General Description

The SL150 is a security system control that supports up to 38 zones, including eight basic hardwired zones (1 through 8) and a maximum of 30 expansion zones. These expansion zones may include up to eight hardwired zones, or up to 30 wireless zones if hardwired zones are not used. Three separate keypad-activated zones are also provided.

Features

Basic Hardwired Zones

Provides 8 basic hardwired zones having the following characteristics:

- EOLR supervision supporting N.O. or N.C. sensors
- Programmable response time (10, 350, or 700 milliseconds)
- Up to sixteen 2-wire smoke detectors on zone 1
- 4-wire smoke or heat detectors on zones 2 through 7 (as many as can be powered from AUX power on the control)
- Up to fifty 2-wire latching type glassbreak detectors on zone 8 with auto reset

Optional Expansion Zones (up to 30 total, wired and wireless)

Wired Expansion:

Supports up to 8 additional wired zones using a 4219 expansion module or 4229 expansion/relay module. These zones have the following characteristics:

- EOLR supervision supporting N.O. or N.C. sensors
- 300–500 msec normal response with an option for fast (10–15 msec) response on loop A (first expansion zone)

Wireless Expansion:

Supports up to 30 wireless zones (less if using wired expansion zones).

- Requires the use of a 5881(5882 in Canada) type RF Receiver*, as follows:

Model 5881L/5882L	Up to 8 zones
Model 5881M/5882M	Up to 16 zones
Model 5881H/5882H	Up to 30 zones

* Requires the use of 5800 series wireless transmitters

Remote Keypads

Up to 8 of any of the following keypads may be used in the installation:

Fixed-Word Keypads: SL6150 (Part No. 6150PL3), SL6150RF (Part No. 6150RFPL3)

Alpha Keypad: SL6160 (Part No. 6160PL3)

For programming from a keypad, an SL6160 2-line Alpha keypad must be connected, but need not remain in the system after programming has been completed.

Security Codes

- One Installer code for entire system (user 1)
- One Master code for entire system (user 2)
- 12 Secondary User codes (users 3–14)
- One Babysitter code (user 15).
- One Duress Code (user 16).

Baby-sitter Code: A special code that can only be used to disarm the system if that particular code (or the installer code) was used to arm it. Generally assigned to a babysitter or cleaner.

Duress Code: An emergency code that, when entered by *any* user, will send a silent duress message to the Central Station. **Note:** A report code must be programmed otherwise it will be reported as user 16 only.

Keypad Panic Keys

- Up to 3 programmable panic key pairs provided
- Designated as zones 95, 96, 99
- Activated by wired and wireless keypads
- Distinguished by subscriber ID number.

Zone Monitor Features

- The control will sense a high resistance or short in the loops on hardwired zones 2–8 if present, and will display a trouble (CHECK) message (rather than an alarm) for the affected zone when the system is in the disarmed mode. The system cannot be armed as long as this condition is present.
- Also sends a Trouble message to the Central Station when the system is in the disarmed mode.

Exit Error False Alarm Prevention Feature

- Enables the system to determine the difference between an actual alarm and an alarm caused by leaving an entry/exit or interior zone open after the Exit Delay expires. If not disarmed in time, an alarm will sound and an Exit Error report will be sent to the Central Station.
  An exit alarm condition will also occur if an entry/exit or interior zone re-opens within 2 minutes after the end of an Exit Delay.

Exit Restart Feature

- The system contains an Exit Restart feature which allows the user to restart the exit delay at any time when arming in the STAY or INSTANT modes by simply pressing the [✶] key. This is useful if the user wishes to open the entry/exit door to let someone in after arming the system, and avoids having to disarm the system and then re-arm it again. This feature allows only one restart of the exit delay time for each arming session. This feature will be enabled when an “8” or greater value is entered in field ✶91.

Optional Output Relays and Powerline Carrier Devices (X10 type)

- Maximum of 4 Output Devices
- Up to 4 relays using one 4204 Relay Module
- Up to 2 relays using one 4229 Zone Expansion/Relay Module
- Up to 8 Powerline Carrier devices (you must subtract the number of relay outputs actually used by the 4204 or 4229 modules, if used)
- Actions programmable to respond to zone activity or manual keypad entries.

Powerline Carrier devices require the use of the optional 4300 Transformer Module instead of the supplied 1321 AC Transformer.

Optional Phone Module

- Supports the Ademco 4285/4286 VIP Module (refer to ***Section 8*** for further information).
- Provides access to the system via on-premises or off-premises phones for arming, disarming, etc., plus control of relay outputs and Powerline Carrier devices.

Paging Feature

If programmed, the paging feature allows certain system conditions to be reported to two pagers, if desired. Up to 16 digits may be programmed to be sent as a user-determined message to each pager. A system-generated 7-digit code following the programmed message indicates the type of condition that has occurred, as well as the user number or zone number of the occurrence.

Audio Alarm Verification (AAV) Option

- Provides a programmable Audio Alarm Verification (AAV) option, which can be used in conjunction with an output relay to permit voice dialog between an operator at the Central Station and a person at the premises.
- Requires the use of optional AAV unit, such as Eagle Model 1250.

UL The AAV option may not be used in UL installations.

Optional Long Range Radio

Allows all messages that have been programmed to go to the primary telephone number to be reported additionally to an ECP radio.

Built-in Telephone Line Monitoring Option

You can monitor telephone line voltage to supervise the phone line connection. You must connect the panel to a proper earth ground or you will get a false line cut indication if this feature is enabled.

The loss of the line can optionally cause a local display, or a display and trouble sound.

Event Logging

Keeps a record of up to 48 selected events in a history log. All control and readout from the log is done via ADEMCO COMPASS software **only**.

Macro (Speed Key) Programming

The “C” key on an Alpha keypad can be programmed to perform a series of commands consisting of up to 16 keystrokes. Pressing the “C” key will then perform a series of automatically initiated commands (called macros). Typical speed key functions could include arming sequences that first involve bypassing certain zones, relay activation sequences, etc.

Up to two (2) macros can be programmed for the system. User codes are then assigned to one of the macro sequences when they are entered into the system. Pressing the “C” key will intiate the macro, but then the system will prompt for the entry of a user code to determine which macro to perform.

Single-Key Paging

When pressed, the D key on an alpha keypad will send a code message to a pager which will display “**Page in progress**” on the keypad until the the page is completed. The code displayed on the pager is always **999–9999,** and can signify ANY message that the user and recipient have previously decided upon, such as “return to the office at once”, “call home immediately”, etc. Single-key paging using a wireless key fob, can also be used, but sends a code which displays **999–9998** on the pager.

Dynamic Signaling Feature

This control features Dynamic Signaling Delay and Dynamic Signaling Priority message reporting when Long Range Radio is used. This feature, which is programmed in data fields ✶54 and ✶55, is designed to reduce the number of redundant reports sent to the central station. Field ✶29, OUTPUT TO LONG RANGE RADIO, must be enabled for this feature to function.

Alarm Output

- Provides a 12VDC, 2 amp output that can drive the compatible sounders listed in ***Section 9: External Sounders*** (assuming a fully charged battery is connected).
- Steady output for burglary/panic, or temporal pulse output (3 pulses – pause – 3 pulses – pause – 3 pulses . . .) for fire.
- Uses current-limiting circuitry for protection.

Auxiliary Power Output

- Provides 12VDC, 600mA maximum (500mA max for UL installations). Uses current-limiting circuitry for protection.
- Interrupts for smoke detector reset if 4-wire smoke detectors are used.

Programming

Programmed options are stored in electrically erasable, nonvolatile EEPROM memory (information can be reprogrammed at any time and will not be lost in the event of a power loss).

The system can be uploaded, downloaded, or controlled via an IBM-compatible computer, ADEMCO *COMPASS*® software, and a modem specified by ADEMCO.

Keypad programming consists of:

- Data field programming
- Interactive (menu) mode programming

To program from a keypad, you must connect an SL6160 (2-line alpha keypad), but it need not stay in the system.

Communication Formats Supported

- Ademco Low Speed (Standard or Expanded)
- Sescoa/Radionics (Standard or Expanded)
- Ademco Express
- Ademco Contact ID.

Zone Descriptors

You can assign alpha descriptors to all zones (only when using alpha keypads and/or the 4285/4286 VIP Module).

AC Power Supply

Uses 1321, 110VAC plug-in transformer with 16.5VAC 25VA output, unless Powerline Carrier devices (for example, X10 type) are used, in which case a 4300 Transformer Module must be used.

Backup Battery

Rechargeable (Sealed Lead Acid) 12VDC, 4AH minimum. The actual battery size needed can be determined by using the formula found in Section 12, FINAL POWER-UP (see “Calculating the Battery Size Needed”).

Installing the Control

In This Section

- *Mounting the Cabinet*
- *Installing the Lock*
- *Mounting the Control's Circuit Board Alone in the Cabinet*
- *Mounting the Control and RF Receiver Circuit Boards Together*
- *Standard Phone Line Connections*
- *Wiring the AC Transformer*
- *Installing the Backup Battery*
- *Earth Ground Connections*

Mounting the Cabinet

Using fasteners or anchors (not supplied) to mount the control cabinet to a sturdy wall in a clean, dry area that is not readily accessible to the general public. Four mounting holes are provided at the back of the cabinet.

If an RF receiver is being used and you intend to mount its PC board within the cabinet, note the following:

- Do not mount the cabinet on or near metal objects. This will decrease RF range and/or block RF transmissions from wireless transmitters.
- Do not locate the cabinet in an area of high RF interference (revealed by frequent or prolonged lighting of the LED in the receiver after it is operational (random flicker is OK).

Installing the Lock (if used)

Use an Ademco No. N6277 Cam Lock and No. N6277–1 Push-On Clip (Retainer Clip).
NOTE: The cabinet can be closed and secured without a lock by using 2 screws in the cover's edge.

To install the lock, perform the following steps:

1. Remove the cabinet door. It is easily removed for servicing and is easily re-installed.
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.

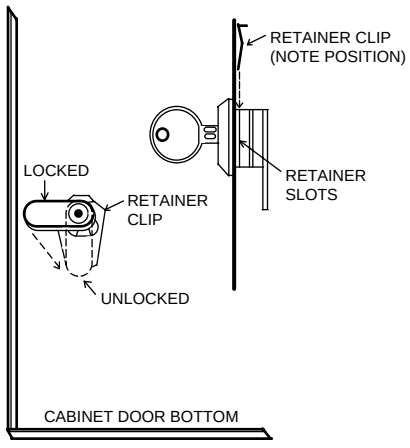


Figure 1. Installing the Cabinet Lock

Before installing the cabinet's contents, remove the metal cabinet knockouts required for wiring entry. Do not attempt to remove the knockouts after the circuit board has been installed.

Mounting the Control's Circuit Board Alone in the Cabinet

To mount the circuit board alone in the cabinet, follow these steps:

1. Hang two short natural-colored mounting clips (provided) on the raised cabinet tabs (see Detail B in Figure 2).
2. Insert the top of the circuit board into the slots at the top of the cabinet. Make sure that the board rests on the correct row (see Detail A).
3. Swing the base of the board into the mounting clips and secure the board to the cabinet with the accompanying screws (see Detail B).

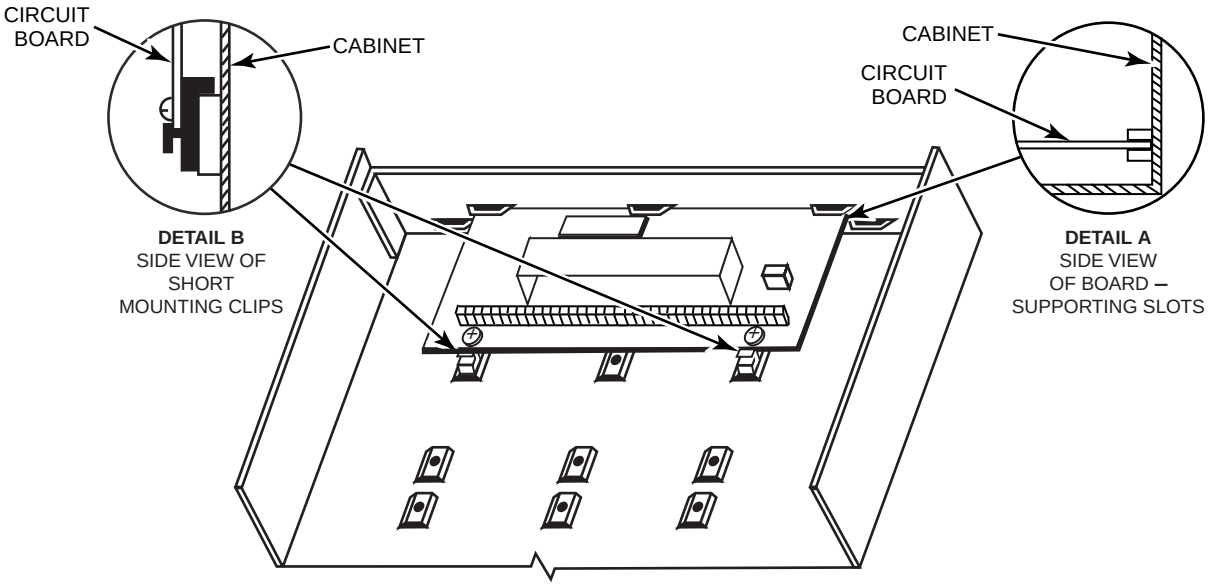


Figure 2. Mounting the PC Board

Mounting Control and RF Receiver Circuit Boards Together in the Cabinet

To mount the control and RF receiver boards together in the cabinet, do the following:

1. Hang two short (black) mounting clips (provided with receiver) on the raised cabinet tabs, as shown in Detail B in *Figure 3*.
2. Insert the top of the receiver board (removed from its own case as described in its instructions) into the s***l***ots at the top of the cabinet, as shown in Detail A in *Figure 3*. Make sure that the board rests on the correct row of tabs, as shown.
3. Hang two short (black) mounting clips (provided with receiver) on the raised cabinet tabs, as shown in Detail B in *Figure 3*.
4. Insert the top of the receiver board (removed from its own case as described in its instructions) into the s***l***ots at the top of the cabinet, as shown in Detail A in *Figure 3*. Make sure that the board rests on the correct row of tabs, as shown.

5. Swing the base of the board into the mounting clips and secure it to the cabinet with the accompanying screws (see Detail B).
6. Insert the top of the control's board into the slot in the clips and position two long (red) clips at the lower edge of the board (see Detail C).
7. Swing this board into place and secure it with two additional screws.
8. Insert grounding lugs (supplied with the receiver) through the top of the cabinet into the left-hand terminals of the antenna blocks (at the upper edge of the receiver board). Secure the grounding lugs to the cabinet top with the screws provided, as shown in Detail D.
9. Insert the receiver's antennas through the top of the cabinet, into the blocks' right-hand terminals, and tighten the screws.
10. Refer to ***Section 6: Wireless Expansion (5800 System)*** for receiver setup and wiring instructions.

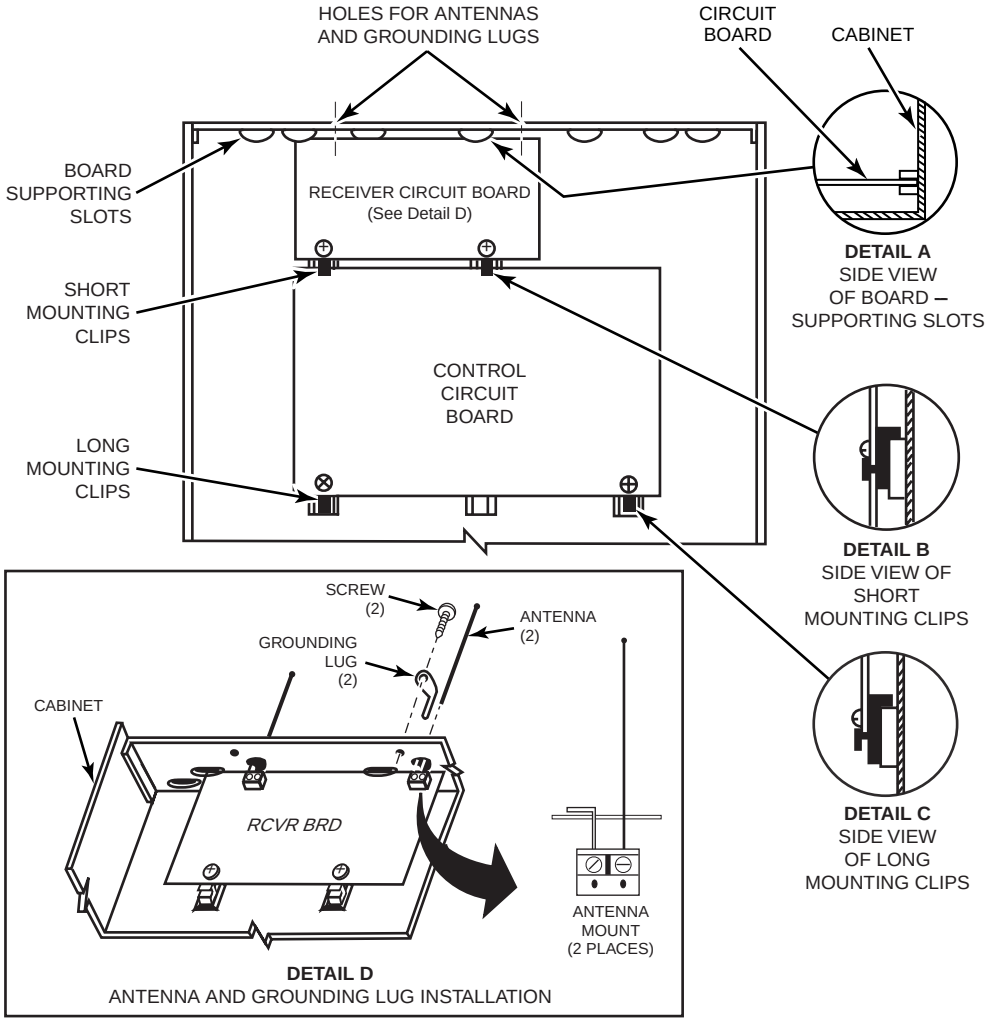


Figure 3. Mounting the PC Board and RF Receiver Together in the Cabinet

Standard Phone Line Connections

The wiring connections shown here are not applicable if the4285/4286 VIP Module is used. Refer to ***Section 8: 4285/4286 VIP Module*** for information regarding phone line connections, which are different than those shown here.

Incoming phone line and handset wiring is connected to the main terminal block (via an RJ31X jack) as follows and shown in *Figure 4*:

Term. 21: Local Handset (TIP – Brown*)
Term. 22: Local Handset (RING – Gray*)
Term. 23: Incoming Phone Line (TIP – Green*)
Term. 24: Incoming Phone Line (RING – Red*)
* Colors of wires in Direct Connect Cord.

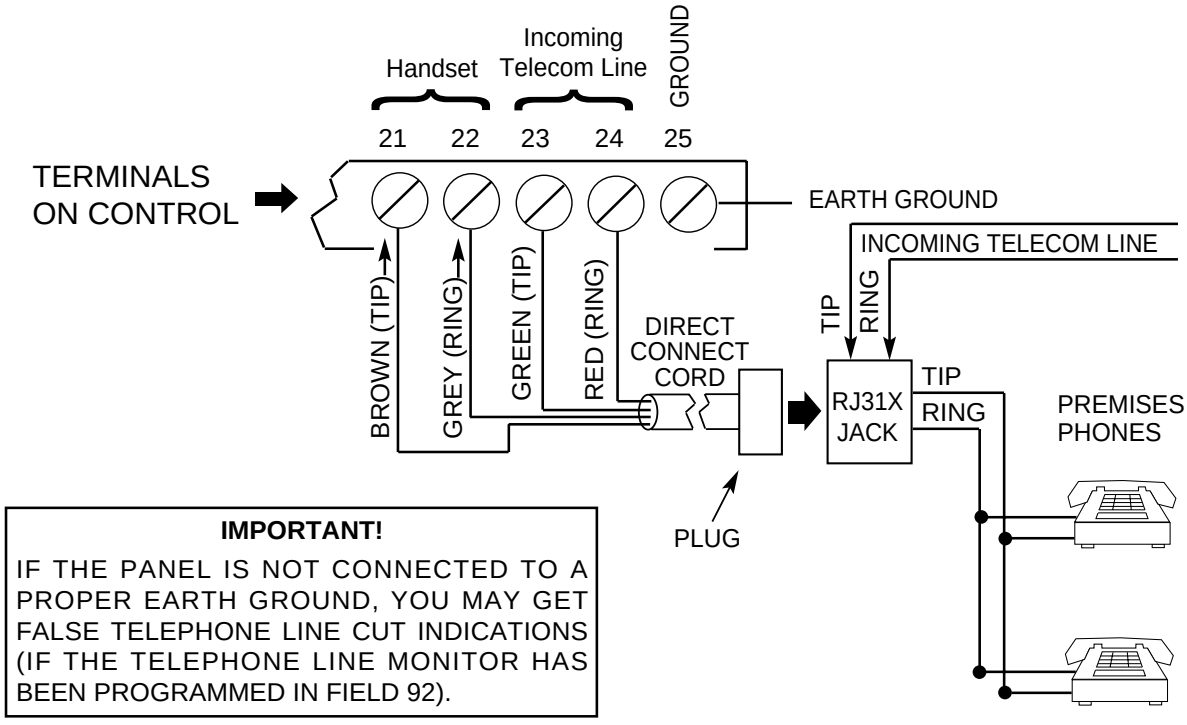


Figure 4. Telephone Line Connections

Wiring the AC Transformer

1321 Transformer

Wire the 1321 Transformer to terminals 1 and 2 on the control board. See wiring table below to determine wire gauge.

Use caution when wiring the transformer to the control panel to guard against blowing the fuse inside the transformer (the fuse is nonreplaceable).

4300 Transformer

If you are going to use a 4300 Transformer Interface (required if Powerline Carrier devices will be used), connect the 4300 Transformer's terminals as follows:

1. Connect terminals 1, 3 (AC), and 2 (Ground) to control board terminals 1, 2, and 25, respectively (see *Figure 5*). See table below to determine wire gauge to use.

WIRING TABLE	
Distance of Transformer From the Control Panel	**Wire Gauge to Use**
Up to 50 feet	# 20
50-100 feet	# 18
100-250 feet	# 16

Wiring to the AC transformer must not exceed 250 feet using 16-gauge wire. The voltage reading between terminals 1 and 2 of the control must not fall below 16.5VAC, or an **AC LOSS** message will be displayed.

Do not plug the transformer into the AC outlet until you are instructed to do so later in the manual.

2. Wire the other three terminals (Sync, Data, Com) on the 4300 Transformer. Wires from these terminals must be connected to a 9-pin connector on the control board (using a 4142TR Cable supplied with the 4300 Transformer), as shown in *Figure 5*. These particular wires can be 24-gauge or larger, and can be run along with the AC and ground wires to the control panel.

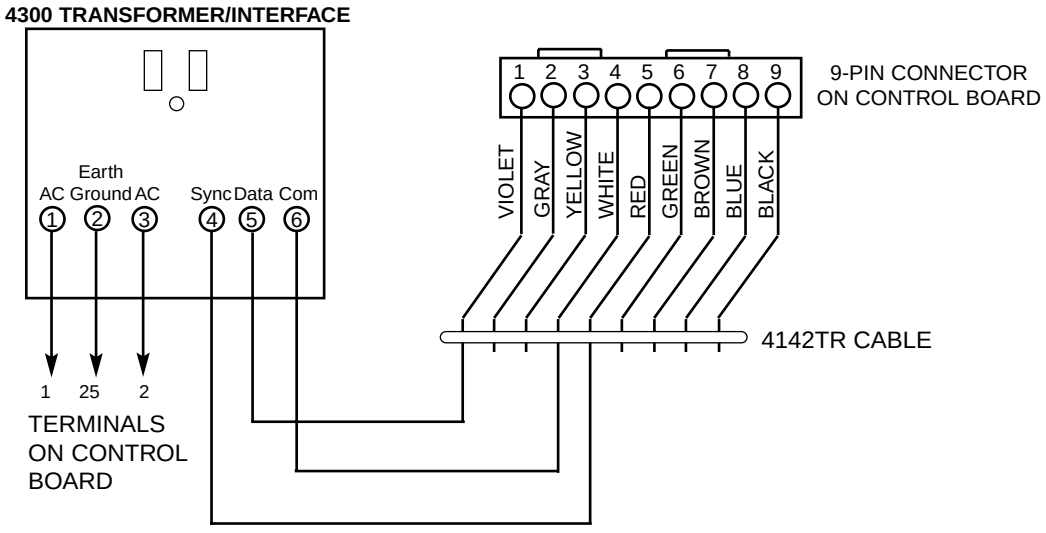


Figure 5. Connections of 4300 Transformer to the Control Board

Installing the Backup Battery

If necessary, refer to *Section 12: Final Power-Up* for information regarding battery size to use.

Do not attach the connector cable to the battery terminals until you are instructed to do so later in the manual.

Install the backup battery as follows:

1. Place the 12-volt backup battery in the control cabinet.
2. Attach red and black wires on the battery connector cable as follows:
   a. Red to the positive (+) battery terminal **on the control board** (see *Figure 24. SL150 Summary of Connections* for location, if necessary).
   b. Black to the negative (–) battery terminal **on the control board.**

UL Use a 4AH battery or larger for UL installations.

Earth Ground Connections

The designated earth ground terminal (25) must be terminated in a good earth ground for the lightning transient protective devices in this product to be effective. The following are examples of good earth grounds available at most installations:

Metal Cold Water Pipe:

Use a noncorrosive metal strap (copper is recommended) firmly secured to the pipe to which the ground lead is electrically connected and secured.

AC Power Outlet Ground:

Available from 3-prong, 120VAC, power outlets only. To test the integrity of the ground terminal, use a 3-wire circuit tester with neon lamp indicators, such as the UL Listed Ideal Model 61-035, or equivalent, available at most electrical supply stores.

Installing Remote Keypads

In This Section

- *Keypads That May Be Used*
- *Wiring to the Keypads*
- *Mounting the Keypads*
- *Supplementary Power for Additional Keypads*
- *Preliminary Checkout Procedure*

Keypads That May Be Used

Up to 8 keypads may be used in the system, independent of auxiliary power considerations (you may need to use an auxiliary power supply if the 600mA aux. output is exceeded).

The following keypad models may be used:

Fixed-Word Keypads: Models SL6150 (Part No. 6150PL3), SL6150RF (Part No. 6150RFPL3)

Alpha Keypad: Model SL6160 (Part No. 6160PL3)

Note: When ordering keypads, order by part number, not model number.

If you are going to use a 4285 or 4286 VIP Module, you MUST use an addressable keypad (SL6150, SL 6150RF, or SL 6160) set to the non-addressable mode (address 31).

Wiring to the Keypads

To wire keypads to the control, perform the following steps:

1. Determine wire gauge by referring to the Wiring Run Chart below.

   For devices (keypads, RF receivers, zone expander, etc.) connected to a single 4-wire run, determine the current drawn by all units connected to the single wire run, then refer to the Wiring Run Chart below to determine the maximum wire length that can be safely used for each wire size. Current draw for all devices can be found in *Section 26: Specifications & Accessories*.

   Note: Refer to Table 1. AUXILIARY DEVICE CURRENT DRAW WORKSHEET in *Section 12: Final Power-Up* to obtain the current draw for all keypads.

Maximum wire lengths for any device that is home run to the control can also be determined from the Wiring Run Chart, based on the current draw of that device alone.

Wiring Run Chart for Devices* Drawing Aux Power from the Control (12V+ & 12V–)					
Wire Size	TOTAL CURRENT DRAWN BY ALL DEVICES CONNECTED TO A SINGLE WIRE RUN				
	50mA or less	100mA	300mA	500mA	600mA
#22	500 ft (152m)	250 ft (76m)	80 ft (24m)	50 ft (15m)	42 ft (13m)
#20	750 ft (228.6m)	380 ft (116m)	130 ft (39.6m)	80 ft (24m)	67 ft (20.4m)
#18	1300 ft (396m)	650 ft (198m)	220 ft (67m)	130 ft (39.6m)	115 ft (35m)
#16	1500 ft (457m)	1000 ft (305m)	330 ft (100.5m)	200 ft (70m)	170 ft (52m)

* Includes Keypads, RF Receivers, Zone Expander/Relay Units, or 4285/4286 VIP Module.

The length of all wire runs must not exceed 1500 feet (457m) when unshielded quad conductor cable is used (750 feet if shielded cable is used). This restriction is due to the capacitive effect on the data lines when quad cable is used.

2. Run field wiring from the control to the keypads (using standard 4-conductor twisted wire cable of the wire gauge determined in step 1).
3. Connect remote keypads to terminals 4, 5, 6, and 7 on the control board, as shown in *Figure 6*.

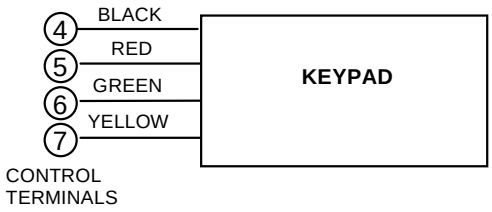


Figure 6. Keypad Connections to the Control Board

Mounting the Keypads

To mount the keypads, perform the following steps:

1. Make sure all keypads are set to the non-addressable mode (address 31), which is the factory default setting. Refer to the instructions provided with the keypad for address setting procedure.
2. Mount the keypads at a height that is convenient for the user. Refer to the instructions provided with the keypad for mounting procedure.

   You can either surface mount or flush mount keypads (using an appropriate Trim Ring Kit: 6139TRK). Refer to the mounting instructions and template included with the keypad and/or trim ring kit for specific information.

Supplementary Power for Additional Keypads

The control provides 600mA (500mA max for UL) for powering keypads (up to 8) and other devices from the auxiliary power output. The backup battery will supply power to these keypads in the event that AC power is lost.

When the control's auxiliary power load for all devices exceeds 600 mA (500mA max for UL), you can power additional keypads from a regulated 12VDC Power Supply (e.g., 487-12 supplies 12V, 250mA; 488-12 supplies 12V, 500mA). Use a UL Listed, battery-backed supply for UL installations.

The 487–12/488–12 power supplies contain a backup battery that can power these keypads in the event of AC power loss to the main supply.

Keypads powered from supplies that do not have a backup battery **will not function** when AC power is lost. Therefore, be sure to power at least one keypad from the control's auxiliary power output.

Connect the additional keypads as shown in *Figure 7*, using the keypad wire colors shown. Be sure to observe the current ratings for the power supply used.

Make connections directly to the screw terminals as shown in Figure 7. Make no connection to the keypad blue wire (if present).

Be sure to connect the negative (–) terminal on the Power Supply unit to terminal 4 (AUX **–**) on the control.

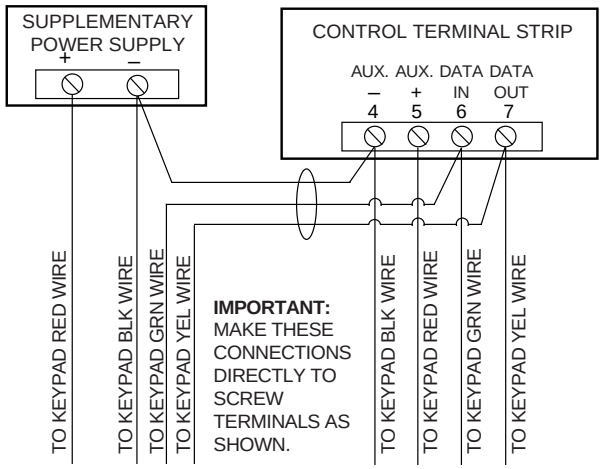


Figure 7. Using a Supplementary Power Supply for Keypads

Preliminary Checkout Procedure

To verify that the system is working before connecting field wiring from zones and devices, do the following:

1. Temporarily connect a 2000-ohm end-of-line resistor across each of the basic hardwired zones 1–8, as shown in the SL150 Summary of Connections diagram.

   Without actual zone wiring or EOL resistors connected, the keypads will not display the "Ready" message.

2. Power up the system temporarily by plugging the AC transformer (previously wired to the control) into a 120VAC outlet.

   Busy – Standby (on alpha keypads) or **dI** (on fixed-word keypads) will be displayed

3. Wait approximately 1 minute. At that time, the green READY LED should light, and the words **READY ENTER CODE** (on fixed-word keypads), or **SYSTEM READY** (on alpha keypads) should be displayed.

   To bypass the 1-minute delay, press **#** plus **0**.

If the "Ready" message does not appear on any of the keypads in the system, or a "Not Ready" message is displayed, check the keypad wiring connections, and make sure each of the 8 basic hardwired zones has a 2000 ohm resistor connected across its terminals.

When a **READY** message is displayed on the keypad(s), the system is functioning properly.

Do not remove the EOL resistors until you are ready to make connections to the hardwired zones, to allow for testing later in the manual.

If an **OC** or **OPEN-CIRCUIT** message is displayed on the keypad, data from the control is not reaching the keypad. Check the wiring.

Basic Hardwired Zones 1–8

In This Section

- *Installing the Hardwired Zones*
- *Keyswitch Installation*
- *Programming Hardwired Zones*
- *Checkout Procedure for Hardwired Zones*

Installing the Hardwired Zones

Common Characteristics of Zones 1–8

- EOLR-supervised zones support both open-circuit and closed-circuit devices.
- As many 4-wire smoke detectors as can be powered from Aux Power on the control (zones 2–7).
- Programmable for 10, 350, or 700mSec response.
- 350mSec (default) should be used for most standard contacts. For vibration-type contacts, 10mSec is more suitable.

Wiring Burglary and Panic Devices to Zones 1–8

To wire burglary and panic devices to zones 1-8, perform the following steps, referring to *Figure 24. SL150 Summary of Connections* at the back of this manual.

1. Connect sensors/contacts to the hardwired zone terminals (8 through 20).
2. Connect closed-circuit devices in series in the high (+) side loop. The EOL resistor must be connected in **series** with the devices, following the last device.
3. Connect open-circuit devices in parallel across the loop. The 2000-ohm EOLR must be connected **across** the loop wires at the last device.

If the EOLR is not at the end of the loop, the zone will not be properly supervised, and the system may not respond to an open-circuit on the zone.

High-Resistance/Short Supervision on Hardwired Zones 2–8

Special supervision in the control panel senses high resistance or a short on hardwired loops 2–8, causing a display of “CHECK” along with the number of the affected zone when the system is in the disarmed state. The system cannot be armed when this condition is present. If the system is armed when a high-resistance or short condition occurs, no display will take place until the system is disarmed.

Wiring 2-Wire Smoke Detectors to Zone 1

1. Connect 2-wire smoke detectors across zone 1 terminals 8 (+) and 9 (–). Observe proper polarity when connecting the detectors.

2. If an EOL resistor is presently connected across zone 1 terminals, remove it. **The EOL resistor must be connected across the loop wires at the last detector**

UL In UL installations, only zone 1 may be used as a fire zone. In addition, an Ademco Model 610–7 must be used as the end-of-line resistor at the last detector.

The alarm current provided by zone 1 will support only one smoke detector in the alarmed state.

COMPATIBLE 2-WIRE SMOKE DETECTORS

Detector Type	System Sensor Model No.
Photoelectric w/heat sensor, direct wire	2300TB
Photoelectric, direct wire	2400
Photoelectric w/heat sensor, direct wire	2400TH
Photoelectric	2451 w/B401B base
Photoelectric w/heat sensor	2451TH w/B401B base
Ionization, direct wire	1400
Ionization	1451 w/B401B base
Photoelectric duct detector	2451 w/DH400 base
Ionization duct detector	1451D w/DH400 base H
Low-profile, photoelectric, w/135°F thermal	2100T
Low-profile, ionization type, direct wire	1100

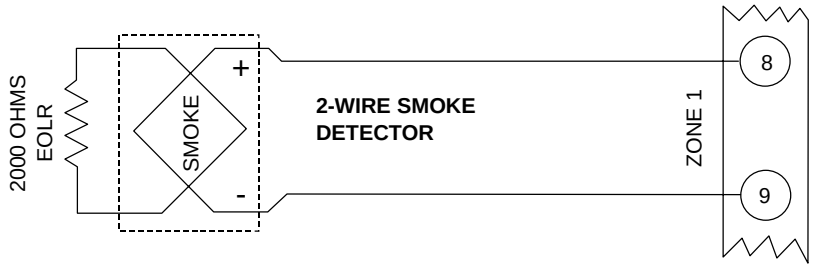


Figure 8. 2-Wire Smoke Detector Connected to Zone 1

Wiring 4-Wire Smoke/Combustion Detectors on Zones 2-7

UL 4-wire smoke detectors may not be used in UL installations.

The system will support as many 4-wire detectors as can be powered from Auxiliary Power on the control on zones 2–7. Refer to the detector's instructions for complete details regarding its proper installation and operation.

1. Connect 12-volt power for the detectors from Auxiliary Power terminals 4 and 5 (which will interrupt power for fire alarm reset). Observe proper polarity when connecting detectors.
2. Connect detectors (including heat detectors, if used) across terminals of the zone selected. All detectors must be wired in parallel.

Remove 2000 ohm EOL resistor if connected across the selected zone terminals. You must connect the EOL resistor across the loop wires at the last detector.

To supervise power, we recommend the use of a System Sensor No. A77-716B Supervisory Module.

Compatible 4-Wire Smoke/Combustion Detectors	
System Sensor 1412	4-wire ionization products of combustion detector
System Sensor 2412	4-wire photoelectric smoke detector
System Sensor 2412TH	4-wire photoelectric smoke detector w/135° F (57° C) heat detector
System Sensor A77-716B	EOL relay module (supervisory module for wired 4-wire fire zone).
System Sensor 2112/24T	Low-profile 4-wire photoelectric smoke detector w/135° F (57° C) heat detector

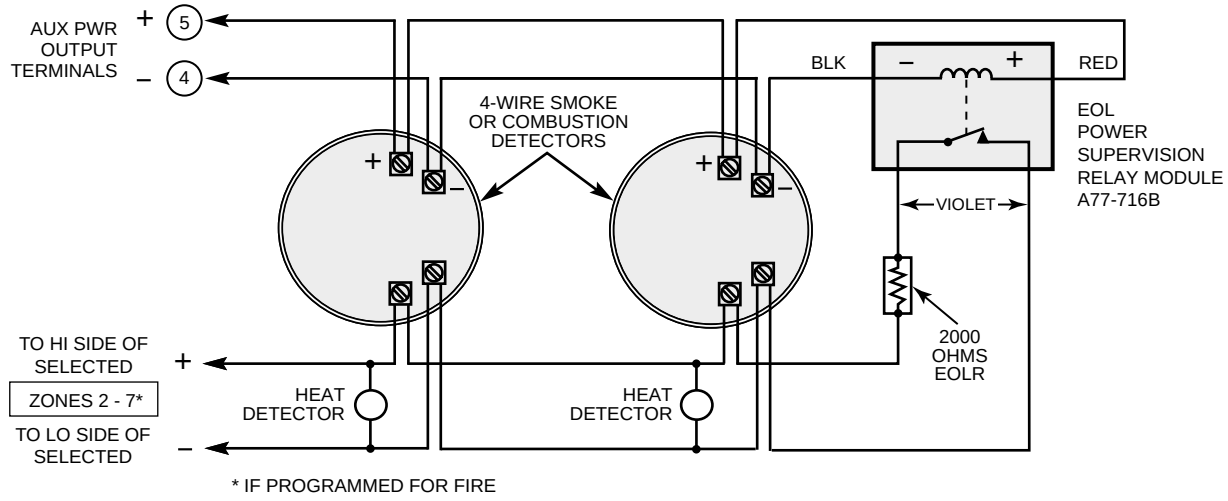


Figure 9. 4-Wire Smoke Detector Connections (Zones 2–7)

Verifying Smoke Detector Operation

The control panel will "verify" any alarm by resetting the smoke detectors after the first alarm trigger, and then waiting 90 seconds for a second alarm trigger. If the smoke detector or thermostat does not trigger again, the control will disregard the first trigger, and no alarm signal will occur. This feature eliminates false alarms due to electrical or physical transients.

Turning Off Fire Alarm Sounding

You can turn off fire alarm sounding by pressing the OFF key on any keypad or other arming/disarming device. To clear the "memory of alarm" and to reset the detector's alarm, enter the security code plus OFF again.

Wiring 2-Wire Latching Glass Break Detectors On Zone 8

Use zone 8 for connection of compatible 2-wire latching-type glass break detectors.

After an alarm, the first code + OFF turns off the siren and disarms the system; the second code + OFF clears the memory of alarm and resets the glassbreak detector.

1. Connect all detectors in parallel across zone 8 (terminals 19 and 20).

Remove 2000 ohm EOL resistor if connected across the selected zone terminals. You must connect the EOL resistor across the loop wires at the last detector.

Compatible GlassBreak Detectors

Use detectors that meet the following ratings:

Standby Voltage:	5VDC–13.8VDC
Standby Resistance:	Greater than 20k ohms (equivalent resistance of all detectors in parallel)
Alarm Resistance:	Less than 1.1k ohms (see note below)
Alarm Current:	2 mA–10 mA
Reset Time:	Less than 6 seconds

The IEI 735L series detectors have been tested and found to be compatible with these ratings. You can use up to fifty IEI 735L detectors, connected in parallel.

You should note that only one detector in the alarmed state can be supported by the alarm current provided by zone 8.

You can use detectors which exceed 1.1k ohms in alarm, provided they maintain a voltage drop in alarm of less than 3.8 volts.

Do not use other N.O. or N.C. contacts when using glass break detectors on zone 8. Other contacts may prevent proper glassbreak detector operation.

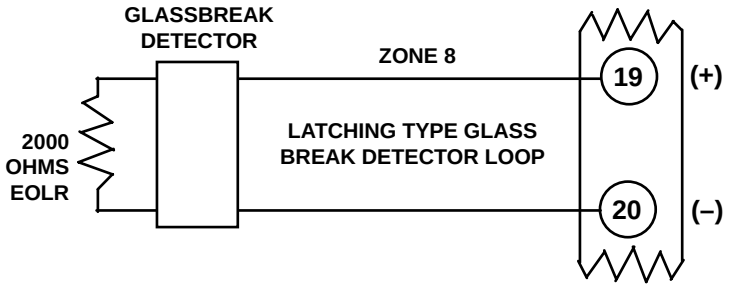


Figure 10. Glassbreak Detector Connections to Zone 8.

Remote Keyswitch (Zone 7)

An optional remote 4146 keyswitch for remote arming and disarming of the system can be installed in this system. Included here are instructions for connecting the keyswitch, the necessary programming required, plus a description of how the keyswitch operates in the system.

The remote 4146 keyswitch (with red and green LEDs to indicate status) is connected to zone 7.

Remote Keyswitch Connections

1. Connect the 4146 keyswitch's normally open momentary switch to zone 7 terminals (18 and 19). Remove the 2000 ohm EOL resistor if connected across zone 7 terminals.

When zone 7 is used for keyswitch usage, zone 7 is no longer available for use as a protective zone.

2. Connect the Red and Green LEDs to pins 7, 8, and 9 on the 9-pin connector, using a 4142TR cable as shown in the diagrams on the next page. Note that Figure 11 shows wiring when using a 4300 Interface Transformer, and that Figure 12 shows wiring when not using the 4300 transformer.
3. Connect a 2000 ohm EOL resistor across the momentary switch.
4. You can wire an optional closed-circuit tamper switch (model 112) in series with the zone. If the switchplate is then removed from the wall, the tamper will open, disabling keyswitch operation until the system is next disarmed from the keypad.

   If the tamper (or zone 7 loop wires) is opened when the system is armed, an alarm will occur.

If you are using more than one keyswitch, connect the EOLR at the last switch. The momentary arming switches must all be across the loop and the tamper switches in series with it. The LEDs will not be as bright since they will be sharing drive current in this case.

The 4146 keyswitch can be used with only the Red and Green LEDs connected (omitting the lock switch and tamper switch) to simply provide an arming/ready status indicator panel (see "LED Indications" table under **Keyswitch Operation** at the end of this section). When so used, no connections are made to zone 7, which may then be used as a hardwired protection zone, **provided you do not enable field ⋆30**.

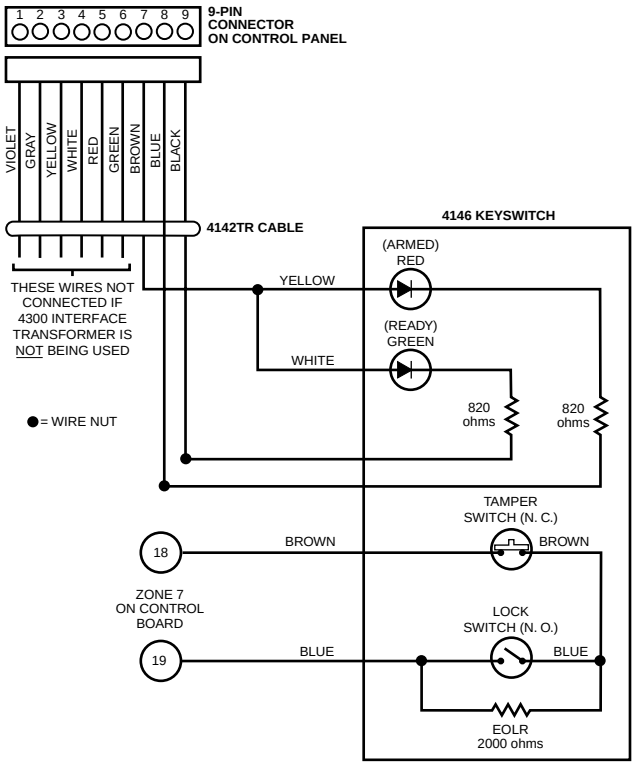


Figure 11. Keyswitch Wiring Without the 4300 Transformer

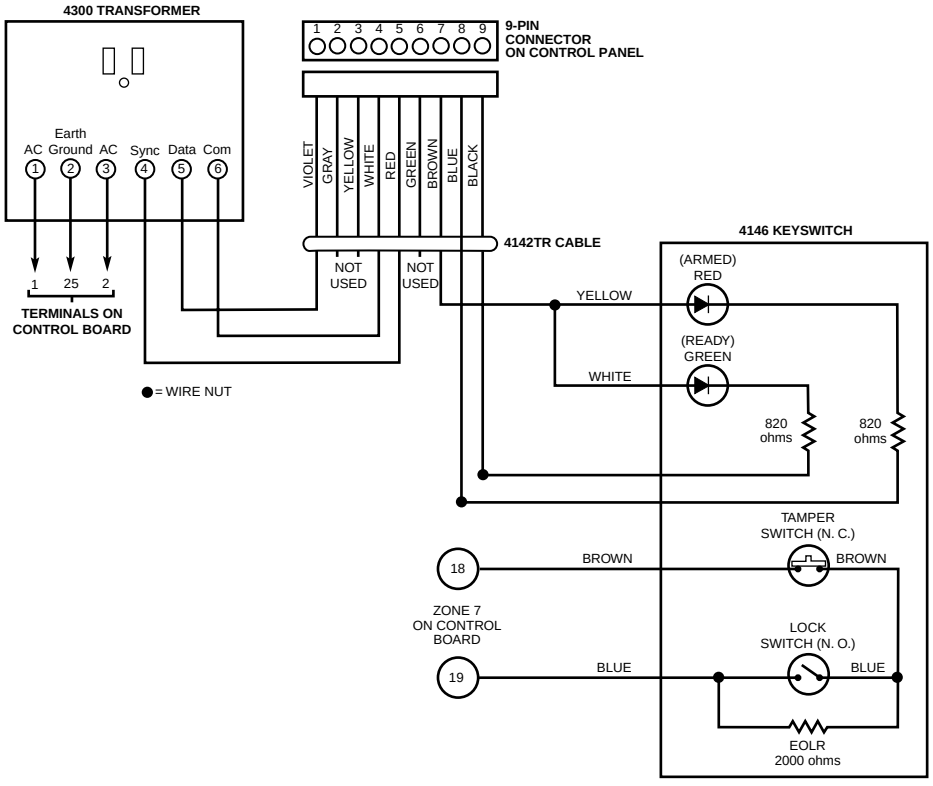


Figure 12 . Keyswitch Wiring With the 4300 Transformer

Programming For The Remote Keyswitch

1. Using a 2-line Alpha keypad, enter the programming mode by entering:

   Installer code + 8 + 0 + 0 keys.

If RF zones, wired expansion, or a keyswitch will be used, data fields ✶22 RF SYSTEM, ✶25 WIRED ZONE EXPANSION and ✶30 KEYSWITCH ENABLE must be programmed as required prior to continuing.

Note: If keyswitch is enabled, in menu mode ✶56 the Zone Type (ZT) for zone 7 will show "77", and will not be accessible for programming.

2. **Press ✶56.**
   Note that this is an interactive programming mode. You will use it to program zone 7 for alarm report codes and to program response time (zone type will automatically show as "77").

```
Enter Zn Num.
(00 = Quit)          01
```
Zone Number ↑

Upon entering ✶56 mode, this prompt will be displayed. Enter zone number "07".

Following this entry, press [✶] to continue.

Typical summary display

```
Zn  ZT   RC    In     RT
07  77   00   HW:     1
```

A summary display will appear, showing the present status of zone 7's programming.

Zn = zone number;
ZT = zone type;
RC = report code for that zone;
In = input type of zone;
RT = response time for that zone.

Values displayed are the factory defaults for zone 7 or, if this is not a new installation, they are the currently programmed values.

↓ Zone Number

```
07 Zone Type
                     77
```
Zone Type ↑

To program zone 07, press [✶].

Zone type will be automatically displayed as "77", and no entry is required.

Press [✶] to continue.

```
07  Report Code
1st   03  2nd 12   3C
```

The report code consists of 2 hexadecimal digits, each in turn consisting of 2 numerical digits. For example, for a report code of "3C", enter [0][3] for "3" and [1][2] for "C". If necessary, refer to the *SYSTEM COMMUNICATION* section for complete information on report codes.

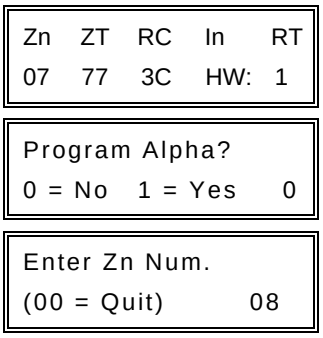
Enter the desired numbers and then press [✶] to continue.

```
07  Response Time
                     1
```

If keyswitch is enabled (in programming mode, field ✶30), the response is preset to 350ms. Therefore no entry is required.

Press [✶] to continue.

Typical summary display



A summary display will appear, showing the data for zone 07 that was just programmed. If it is programmed satisfactorily, press [✶] to continue.

The next request is to enter an Alpha descriptor for zone 7. Since this is a keyswitch zone, no descriptor is required. Enter "0".

Since "0" (no) was entered above, the system will display a prompt for entry of the number for the next zone.

Press [**0**] [**0**] plus [✶] to exit ✶56 mode.

Exit the programming mode by keying ✶**99**.

Keyswitch Operation

To arm AWAY, turn key and release within a 1/2 second. To arm STAY, turn and hold key for longer than 2 seconds. To disarm, turn key and immediately release.

LED Indications

Green	Red	Meaning
OFF	OFF	Disarmed & Not Ready
ON	OFF	System Ready
OFF	On Steady	Armed Away
OFF	Slow Flash	Armed Stay
OFF	Rapid Flash	Alarm Memory

Programming Basic Hardwired Zones

Each zone must be programmed into the system using the ✶56 Zone Programming mode, which assigns characteristics that define the way the system responds to faults on that zone. Refer to ***Section 14: Zone Response Type Definitions*** and ***Section 16: Zone Programming*** for specific instructions on programming hardwired zones.

Checkout Procedure for Hardwired Zones

After installation and programming of all hardwired devices is completed, the security system should be checked, as follows.

1. Make certain that all devices and sensors connected to the hardwired zones are not in a faulted state. Doors and windows with contacts should be closed, PIRs should be covered (use a cloth to mask them temporarily, if necessary).

2. Plug in the AC transformer if you have not already done so.

With all hardwired zones intact, the Alpha keypad connected to the system should display:

If the following is displayed,

press ✶ to display the faulted zone(s). Restore any faulted zone(s) as necessary (also make sure that you have connected a 2000 ohm EOL resistor across the terminals of unused zones).

When the **SYSTEM READY** message is displayed, you can proceed to the next step.

3. Fault and then restore every contact or sensor on each zone individually to ensure that it is being monitored by the system. Each time a zone is faulted, the keypad should display the number of the faulted zone. When each zone is restored, the **SYSTEM READY** message should appear again.

You will need to observe the keypad as each zone is faulted and restored.

When you get the proper displays on the keypad(s), the hardwired zones in the system are functioning properly.

Wired Zone Expansion

In This Section

- *Installing Zone Expansion Units*
- *Connections and Setup*
- *Programming Wired Expansion Zones*
- *Checkout Procedure for Wired Expansion Zones*

Installing Zone Expansion Units

You can add 8 wired EOLR zones to the basic control's 8 zones, for a total of 16 wired zones, by using a 4219 Wired Expansion Unit or 4229 Wired Expansion/Relay Unit.

Location
- You can mount an expansion unit within the control cabinet if space permits. Otherwise, mount the unit outside the cabinet.

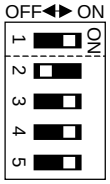
Supervision
- Units are supervised against removal. Keypads will display **CHECK** and **ZONE 09** if a zone expander is disconnected.
- Units have tamper protection for security when mounted outside of the cabinet.

Zone Information
- Assign zone numbers 10–17 for the eight wired expansion loops (designated A to H in ***Figure 13*** and ***Figure 14***). You can program these zones individually (in ✶56 Interactive Mode). Expansion zones must also be programmed as input type 2 (AW) when prompted.

Connections and Setup

To add an expansion module, perform the following steps:

1. Connect the 4219 or 4229 module to the control's keypad terminals (see ***Figure 14. Wiring Connections - 4219 Expansion Module*** *or* ***Figure 15. Wiring Connections - 4229 Expansion/Relay Module*****).**
2. Set the 4219 or 4229's DIP switch for device address “1” (switch 2 in the OFF position and switches 3, 4, 5 in the ON position). Switch 1 determines expansion zone A's response time (ON = normal response, OFF = fast response). For location of the DIP switch in both the 4219 and 4229 units, see figures that follow on next page.



For additional information, see instructions supplied with the 4219 and 4229.

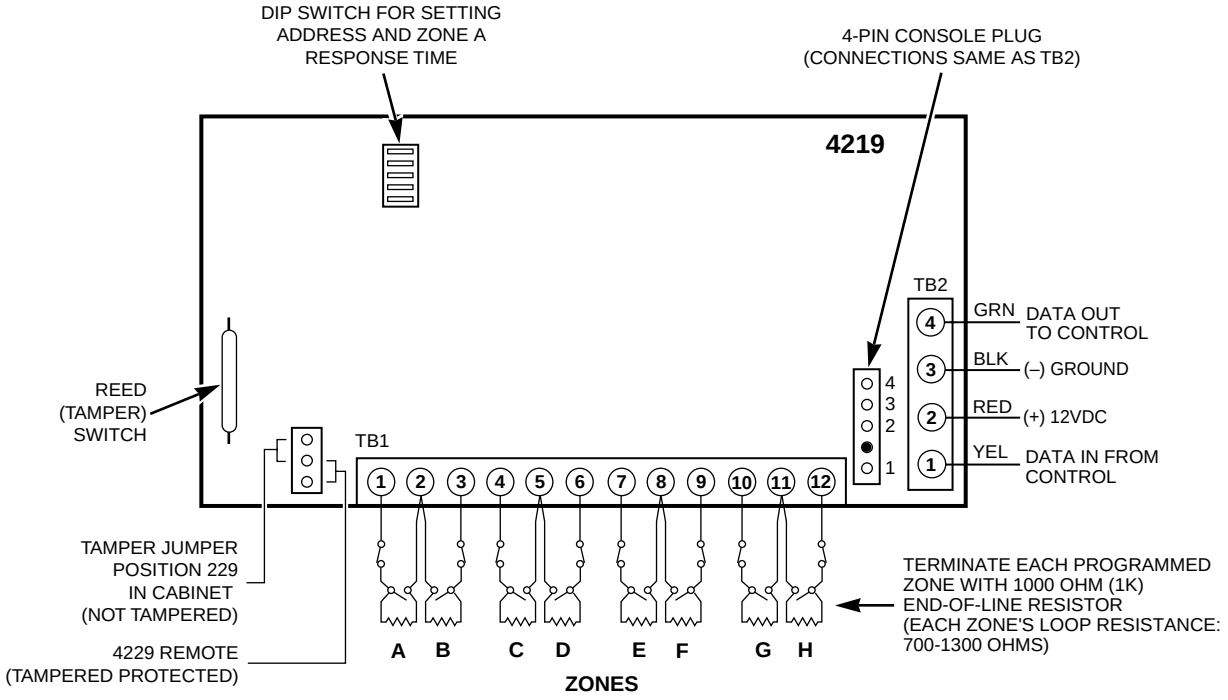


Figure 13. Wiring Connections - 4219 Expansion Module

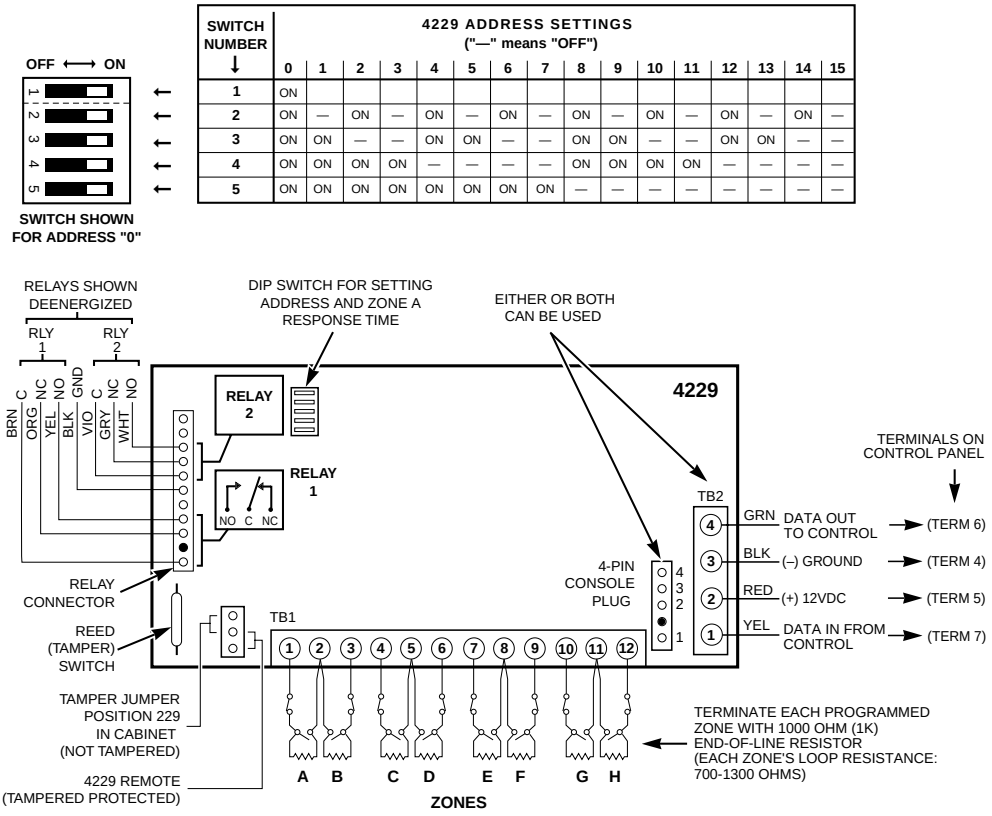


Figure 14. Wiring Connections - 4229 Expansion/Relay Module

Programming Wired Expansion Zones

Each zone must be programmed into the system using either the ✶56 Zone Programming mode or the ✶58 Expert Programming mode, either of which assigns characteristics that define the way the system responds to faults on that zone. Refer to ***Section 14: Zone Response Type Definitions*** and ***Section 16: Zone Programming*** for specific instructions on programming wired expansion zones.

Checkout Procedure for Wired Expansion Zones

Whenever it becomes necessary to disconnect power in order to add a module or keypad, always disconnect the battery first, then the AC transformer. After installation has been completed, connect the AC transformer first, then the battery.

After you have completed installation and programming of all devices, all expansion zones in the security system should be checked as follows:

1. Make certain that all devices and sensors connected to the wired expansion zones are not in a faulted state. Doors and windows with contacts should be closed, PIRs should be covered (use a cloth to mask them temporarily, if necessary).
2. Plug in the AC transformer. With all zones intact (including hardwired zones), the alpha keypad connected to the system should display:

   ```
   ✶ ✶ SYSTEM READY ✶ ✶
   ```

   If the following is displayed,

   ```
   NOT READY  Press ✶
   to show faults
   ```

   press ✶ to display the faulted zone(s). Restore any faulted zone(s) as necessary (also make sure that you have connected a 1000 ohm EOL resistor across the terminals of unused expansion zones on the 4219 or 4229 Module).

   When the **SYSTEM READY** message is displayed, you can proceed to the next step.
3. Fault and restore every contact or sensor in each expansion zone individually to ensure that it is being monitored by the system. Each time a zone is faulted, the keypad should display the number of the faulted zone. When each zone is restored, the **SYSTEM READY** message should appear again.

   You will need to observe the keypad in each zone, as each zone is faulted and restored.

   When the proper displays appear on the keypad(s), the wired expansion zones in the system are functioning properly.
4. Unplug the AC transformer.

A **CHECK 09** message on the display signifies one of two problems:

- Data from the control is not reaching the zone expander module. Check the wiring and DIP switch settings.
  or
- The tamper jumper is on in the Expansion Module and the Expansion Module cover is off.

Wireless Expansion *(5800 System)*

In This Section

- *About Wireless Expansion*
- *Installing the 5881/5882 Receiver*
- *Installing the 5800TM Module*
- *About Jam Detection and Reporting*
- *5800 Series Transmitters*
- *Installing 5800 Series Transmitters*

About Wireless Expansion

In addition to its basic wired zones, the SL150 control supports up to 30 wireless zones using an appropriate 5881 (5882 in Canada) type RF receiver. The actual number of zones supported depends on whether you are using a wired zone expander module.

For example: If you are using only four of the wired expansion loops, a 5881H (5882H in Canada) RF receiver could add 26 RF zones to the system, using any unused zone *numbers* 10–39, for a combined total of 30 wired and wireless expansion zones.

The receiver can detect signals from wireless transmitters within a nominal range of 200 feet.

RF Receiver	No. of Zones
5881L/5882L	up to 8
5881M/5882M	up to 16
5881H/5882H	up to 30

Receiver Supervision

The receiver is supervised. The following conditions will cause a Trouble report to be generated and **CHECK** and **ZONE 09** messages to be displayed:

- If communication between the panel and the receiver is interrupted.

  or

- If valid RF signals from at least one supervised wireless transmitter are not received within 12 hours.

House Identification

If you are using a 5804BD, 5827, or 5827BD Wireless Keypad with the system, you must program a House ID Code (01–31) in field ✶24 to establish proper communication, and the keypad must be set to the same ID.

House ID “00” disables all wireless keypads.

Installing the 5881/5882 Receiver

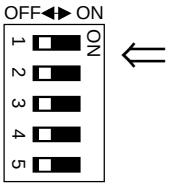
RF System Installation Advisories

Follow the guidelines below when installing the RF receiver. (Disregard if the receiver is mounted in the control cabinet

- Place the RF receiver in a high, centrally located area for best reception.
- Do not locate the receiver or transmitters on or near metal objects. This will decrease range and/or block transmissions.
- Do not locate the receiver in an area of high RF interference (revealed by frequent or prolonged lighting of the LED in the receiver; random flicker is OK).
- The RF receiver must be at least 10 feet from any remote keypads to avoid interference from the microprocessors in those units.

Installation and Setup of the 5881/5882 Receiver

To install the receiver, take the following steps:



1. Set the receiver's DIP switch for device address 0, as described in its instructions (all switches to the left, the OFF position).
2. Mount the receiver. The RF receiver can detect signals from transmitters within a nominal range of 200 feet. Take this into consideration when determining mounting location.
3. Connect the receiver's wire harness to the control's keypad terminals (4, 5, 6, and 7). Plug the connector at the other end of the harness into the receiver.
4. Refer to the installation instructions provided with the receiver for further installation procedures regarding antenna mounting, etc.

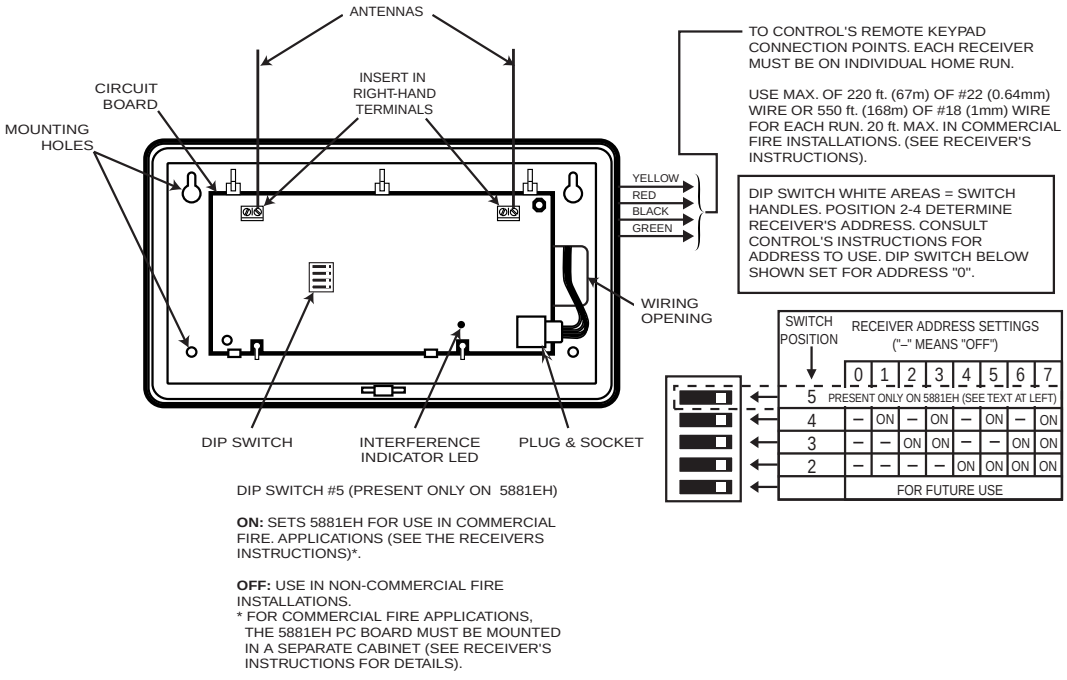


Figure 15. 5881/5882 RF Receiver (cover removed)

Installing the 5800TM Module

Installation of this module is necessary only if you are using one or more 5827BD wireless bi-directional keypads, 5804 or 5804BD transmitters (wireless keys).

Mounting the 5800TM Module

The 5800TM must be located next to the RF receiver (between one and two feet from the receiver's antennas). The 5800TM must not be installed within the control cabinet. Mount the unit using its accompanying mounting bracket.

Wiring the 5800TM Module

Connect the 5800TM to the control panel's keypad connection terminals, using the supplied connector with flying leads, as follows:

Wire	Terminal on Control
BLACK (Ground)	Terminal 4
RED (+12VDC)	Terminal 5
GREEN (Data to Control)	Terminal 6
YELLOW (Data from Control)	Terminal 7
BLUE: (if present)	Not Used

Do **NOT** cut any of the jumpers on the 5800TM when using it with the SL150.

For additional information, refer to the 5800TM's instructions.

Jam Detection and Reporting

When field ✶22, option 4 (see Data Field Descriptions) is selected, a 5800 series receiver detecting an RF jam condition will send an RF Receiver Jam Detect report (Contact ID 344) to the Central Station. At the same time, a **Rcvr Jam** message will toggle with the present system message on the keypad.

The default for field ✶22 is "0" (disabled.

Normal use of a 5827 wireless keypad may cause a false RF jam message to be displayed in systems that have been programmed for RF Jam detection.

About 5800 Series Transmitters

Enrolling Serial and Zone Numbers

5800 series transmitters have built-in serial numbers that you must "enroll" into the system using either the ✶56 (Zone Programming) or ✶58 (Expert Programming) interactive mode, as outlined in Section 16. Alternatively, the programming can be done from the central station via the downloader.

Note: 5800 Series transmitters (except 5827, described separately) do not have DIP switches.

Some transmitters can support more than one "zone" (referred to as loops or inputs). On the 5816, for example, the wire connection terminal block is loop 1, the reed contact is loop 2. Each loop must be assigned a different zone number.

UL

The 5816 and 5817 transmitters do not have EOL supervision of their loop wiring. Therefore, for UL Household Burglary installations, the loop wiring may not exceed 3 feet.

For button transmitters (RF "keys"), such as the 5801, 5804, and 5804BD, you must assign a unique zone number to each individual button used on the transmitter. Each button on the transmitter also has a pre-designated loop or input number, which is automatically displayed on the keypad.

Programming an RF House ID

Programming an RF House ID (01–31) in field ✶24 **is necessary only if you are using 5827,** or **5804BD**. An RF House ID is not necessary for other 5800 Series Transmitters, and the entry should be left at 00 (default) in those cases.

The 5827 reports low-battery status as zone 00.

Transmitter Supervision

Except for some transmitters that may be carried off-premises 5802, 5802CP, 5804, 5804BD, 5827, and 5827BD), each transmitter is supervised by a check-in signal that is sent to the receiver at 70–90 minute intervals. If at least one check-in is not received from each supervised transmitter within a 12-hour period, the "missing" transmitter number(s) and the message **CHECK** will be displayed.

The supervision for a particular transmitter in the system that may also be carried off the premises (5801, 5802MN) may be turned off by enrolling it as a "UR" (unsupervised RF) type, as described later.

5800 Series Transmitters have built-in tamper protection and will annunciate as a "check" condition if covers are removed.

Transmitter Input Types

All of the transmitters described have one or more unique factory-assigned input (loop) ID codes. Each of the inputs requires its own programming zone (e.g., a 5804's four inputs require four programming zones). See *Appendix A*.

Transmitters can be enrolled as one of the following types:

Type	Description
RF (Supervised RF)	Sends periodic check-in signals, as well as fault, restore, and low-battery signals. The transmitter must remain within the receiver's range.
UR (Unsupervised RF)	Sends all the signals that the "RF" type does, but the control does not supervise the check-in signals. The transmitter may therefore be carried off-premises.
BR (Unsupervised Button RF)	Sends only fault signals. It will not send a low-battery signal until it is activated. The transmitter may be carried off-premises.

Transmitter Battery Life

Do not install batteries in wireless transmitters until you are ready to enroll the transmitters during system programming. After enrolling, batteries need not be removed.

Batteries in the wireless transmitters may last from 4 to 7 years, depending on the environment, usage, and the specific wireless device being used. Factors such as humidity, extreme temperatures, as well as large temperature variations may all reduce the actual battery life in a given installation. The wireless system can identify a true low-battery situation, thus allowing the dealer or user of the system time to arrange a change of battery and maintain protection for that given point within the system.

Some transmitters (e.g., 5802, 5802CP) contain long-life but non-replaceable batteries, and no battery installation is required. At the end of their life, the complete unit must be replaced (and a new serial number enrolled by the control).

Button-type transmitters (such as 5801, 5802, 5802CP) should be periodically tested for battery life.

The 5802MN and 5804 Button Transmitters have replaceable batteries.

Using the Transmitter Sniffer Mode

To use the transmitter Sniffer mode, perform the following steps:

1. Enter **Installer code (4112) + # + 3** on keypad. This initiates a procedure that will verify that all transmitters have been properly programmed.
2. The keypad will display all zone numbers of wireless units programmed into the system. **Fault each transmitter in turn, causing each one to send a signal, rather than let each transmitter send an automatic supervisory signal.**

   As the system receives a signal from each of the transmitters, the zone number of that transmitter will disappear from the display. The transmitters may be checked upon installation, or in an installed system.
3. After all transmitters have been checked, exit the Sniffer mode by keying 4112 **(Installer code) + OFF.**

   NOTE: Sniffer mode does not automatically expire. You must manually exit Sniffer mode by keying **[Installer code] + OFF**) to return to normal operation.

Use of any RF devices other than a wireless keypad while in Sniffer Mode may cause unpredictable results.

5800 Series Transmitters Table

Also refer to *Appendix A* for transmitter input loops/button locations.

Model	Description	Input Type and Special Notes
5801	**Wireless Panic Transmitter**	Enroll as "3" for RF (supervised), or "4" for UR (unsupervised). Unit has 4 pushbuttons, each with a unique input (loop) code. Each pushbutton must be assigned to a zone. **Note:** Input loop (button) No. 4 must always be used.
5802 **5802CP**	**Pendant Belt Clip (Personal Emergency) Transmitters**	Enroll as "5" for BR (button-type transmitter).
5802MN	**Miniature Personal Emergency Trans.**	Enroll as "3" for RF (supervised), or "4" for UR (unsupervised). Single pushbutton-type transmitter.
5804 **5804BD**	**Wireless Key Transmitter**	Enroll as "5" for BR (button-type transmitter). Has 4 pushbuttons, each with a unique input (loop) code. Each pushbutton must be assigned to a zone. **Note:** All buttons must be assigned the same input type.
5806 **5807** **5808**	**Wireless Photoelectric Smoke Detectors**	Enroll as "3" for RF (supervised). At the "INPUT S/N" prompt, fault the detector as follows: 1. On many detectors, you must press a special test switch (not test button) to fault the detector (see detector's instructions). **Note:** With some detectors, you must short two contacts to fault the detector. Disengage the detector's cover and swing it open. These contacts are on the PC board near a blue jumper (see detector's instructions). Momentarily short these contacts with a small screwdriver. Two keypad beeps will occur when the detector is faulted the first time. 2. Wait 6 to 8 seconds, then press and release the test switch (or momentarily short the contacts) again. 3 beeps will sound if the control has accepted the input code, and the enrolled input (loop) number will be displayed.
5816 **5816MN**	**Door/Window Transmitter**	Enroll as "3" for RF (supervised). Has two unique input (loop) zones: one for a wired closed-circuit contact loop, and the other for a built-in reed switch (used in conjunction with a magnet). Either or both may be used.
5817	**Multi-Point Universal Transmitter**	Enroll as "3" for RF (supervised). Has three unique input (loop) codes: one for a DIP switch-set "Primary" contact loop, and the others for two "Auxiliary" closed-circuit contact loops. The "Primary" loop may be set for: • Repeating or Single Transmission • Normally Open or Normally Closed-circuit • Slow or Fast Response • 3-Minute or No Transmission Inhibit **DIP Switches:** Set all DIP switches to the OFF position when enrolling the serial number. **Note:** All loops must be assigned the same input type.
5818	**Recessed Magnetic Contact Transmitter**	Enroll as "3" for RF (supervised).
5819	**Shock Processor Transmitter**	Enroll as "3" for RF (supervised). Has three unique input (loop) zones: one for a wired closed-circuit contact loop, one for use with inertia-type shock detectors (mounted externally), and one for a built-in reed switch (used in conjunction with a magnet).
5849 **5850**	**Glassbreak Detector/Transmitter**	Enroll as "3" for RF (supervised).
5890	**PIR Detector/ Transmitter**	Enroll as "3" for RF (supervised). **The cover must be on the unit when enrolling the serial number.**

† When "enrolling" a transmitter's ID code(s), any PIR in the vicinity that is not being enrolled should be covered with a cloth, tissue, etc. to prevent activation.

Installing 5800 Series Transmitters

The following should be performed after the transmitters have been enrolled into the system. To be sure reception of the transmitter's signal at the proposed mounting location is adequate, perform a Go/No Go Test.

Go/No Go Test Mode

The Go/No Go Tests will verify adequate RF signal strength from the proposed transmitter location. They allow you to reorient or relocate transmitters, if necessary, before mounting the transmitters permanently.

This mode is similar to the Transmitter Test mode, except that the wireless receiver gain is reduced. This will enable you to make sure that the RF signal from each transmitter is received with sufficient signal amplitude when the system is in the normal operating mode.

1. With at least one 2-line alpha keypad connected to the system, enter **4112 (Installer code) + # + 4** on the keypad.
2. After you have placed transmitters in their desired locations and have run the approximate length of wire from the sensors to the transmitter's screw terminals (if used), fault each transmitter. Do not conduct this test with your hand wrapped around the transmitter, as this will cause inaccurate results.

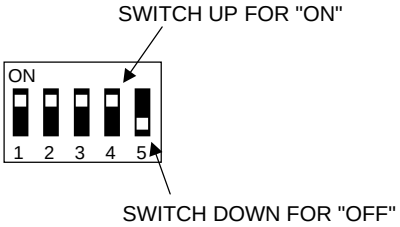
   Note: On button-type transmitters whose buttons have been set to Arm AWAY, Arm STAY, or Disarm, pressing a button will take the system out of the Go/No Go Test mode and cause that action.

   a. The keypad will beep three times to indicate signal reception and display the appropriate zone number.

   b. If the keypad does not beep, reorient or move the transmitter to another location. Usually a few inches in either direction are all that is required.
3. If each transmitter produces the proper keypad response when it is faulted, you can then permanently mount each of the transmitters according to the instructions provided with them.
4. Exit the Go/No Go test mode by entering **4112 (Installer code)** + **OFF.**

Setting DIP Switches on the 5827 Transmitter(s)

You must set a 5827 transmitter to the programmed House ID, using its DIP switches.



SHOWN SET FOR HOUSE ID# 30

HOUSE ID	DIP SWITCH POSITION				
	1	2	3	4	5
1	-	-	-	-	UP
2	-	-	-	UP	-
3	-	-	-	UP	UP
4	-	-	UP	-	-
5	-	-	UP	-	UP
6	-	-	UP	UP	-
7	-	-	UP	UP	UP
8	-	UP	-	-	-
9	-	UP	-	-	UP
10	-	UP	-	UP	-
11	-	UP	-	UP	UP
12	-	UP	UP	-	-
13	-	UP	UP	-	UP
14	-	UP	UP	UP	-
15	-	UP	UP	UP	UP
16	UP	-	-	-	-

HOUSE ID	DIP SWITCH POSITION				
	1	2	3	4	5
17	UP	-	-	-	UP
18	UP	-	-	UP	-
19	UP	-	-	UP	UP
20	UP	-	UP	-	-
21	UP	-	UP	-	UP
22	UP	-	UP	UP	-
23	UP	-	UP	UP	UP
24	UP	UP	-	-	-
25	UP	UP	-	-	UP
26	UP	UP	-	UP	-
27	UP	UP	-	UP	UP
28	UP	UP	UP	-	-
29	UP	UP	UP	-	UP
30	UP	UP	UP	UP	-
31	UP	UP	UP	UP	UP

Relay Outputs & Powerline Carrier Devices

In This Section

- *About Relays and Powerline Carrier Devices*
- *4204 and 4229 Relay Modules*
- *Powerline Carrier Devices*
- *Programming Relay Outputs*

About Relays and Powerline Carrier Devices

Relays and Powerline Carrier devices (such as X10 brand devices) are programmable switches that can be used to perform many different functions. They can be used to turn lights on and off, control sounders, or indicate status. In this system, you must program each device as to how to act (ACTION), when to activate (START), and when to deactivate (STOP). Each of these is described in the programming procedure for ✶80 and ✶81 Interactive Modes in ***Section 13: Mechanics of Programming***.

The control supports a total of 8 output devices in the following configurations:

- One 4204 Relay Module (4 relays) and 4 Powerline Carrier devices
- One 4229 Zone/Relay Module (2 relays) and 6 Powerline Carrier devices
- Up to 8 Powerline Carrier devices (minus the number of output relays used).

A 4204 Relay Module cannot be used if a 4219 or 4229 is already being used, and vice versa.

The 4204 and 4229 modules provide Form C (normally open and normally closed) contacts. Powerline Carrier devices are controlled by signals sent through the electrical wiring at the premises via a 4300 Transformer. Therefore, if you are using Powerline Carrier devices, a 4300 Transformer must be used in place of the regular system transformer.

Once a device is programmed into the system, the user sees no difference between a Powerline Carrier device and a relay output device.

In ✶80 and ✶81 Interactive modes, a series of keypad prompts will request entries for programming of the relay outputs and/or Powerline Carrier devices used in the system. Refer also to Output Relays/Powerline Carrier Devices Worksheet for ✶80 and ✶81 Interactive Modes in the separate Programming Guide.

4204 and 4229 Relay Modules

Setting up the 4204 or 4229

The 4204 (*Figure 16*) or 4229 (*Figure 17*) relay module can be mounted either remotely or in the control panel. The following steps should be performed to properly set up the 4204 or 4229:

1. Connect the 4204/4229 to the control's remote keypad terminals (4 – 7), using the connector supplied with the 4204 and 4229. Use standard 4-conductor twisted cable for long wiring runs.
2. Set the 4204/4229's DIP switch for a device address of 1 (switch 2 in the OFF position and switches 3, 4, and 5 in the ON position). Switch 1 determines the unit's cover tamper response (ON = disabled, OFF = enabled).

3. Connect the desired field wiring to the unit's relay contact terminals.

Supervision

4204 and 4229 modules are supervised against removal. **CHECK** and **ZONE 09** will be displayed if a module is disconnected from the control's terminals (4, 5, 6, and 7). **CHECK** and **ZONE 09** will also be displayed if the module cover is removed and the tamper jumper is installed.

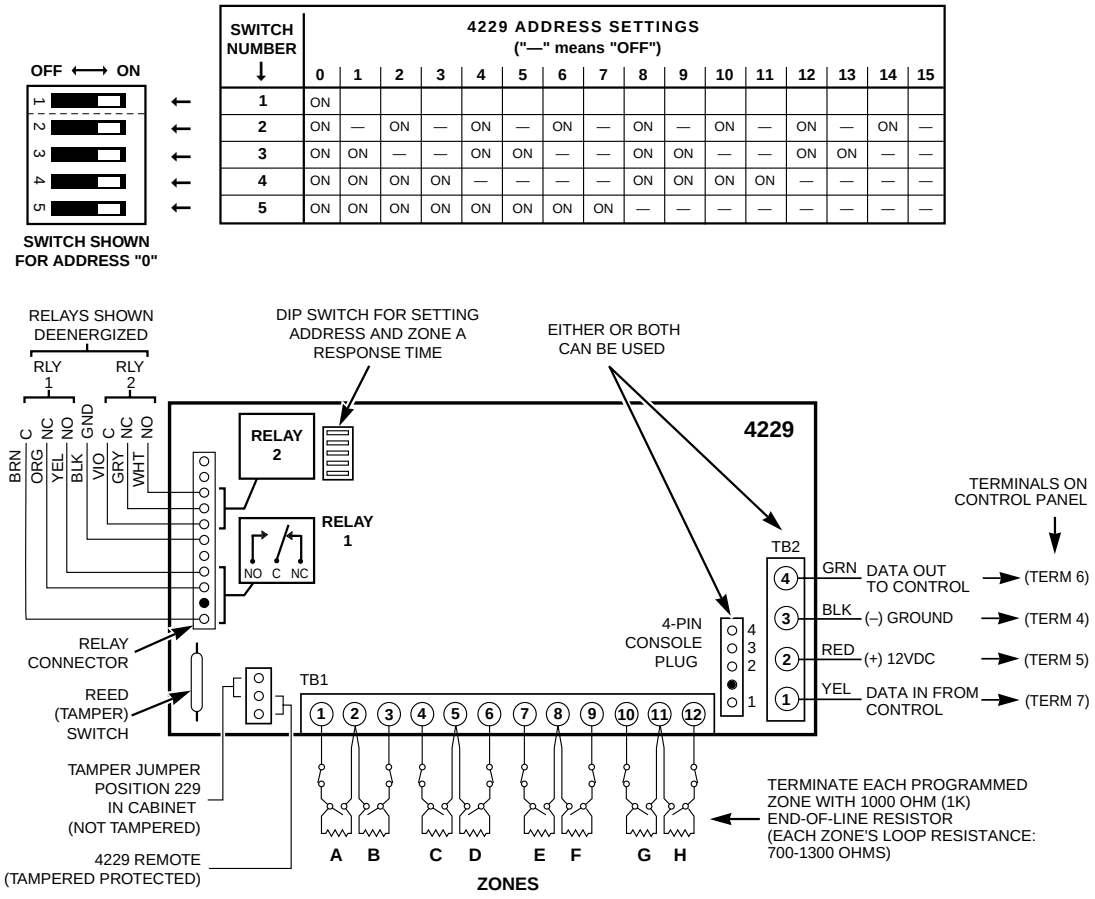


Figure 16. 4229 Connections to Control Panel

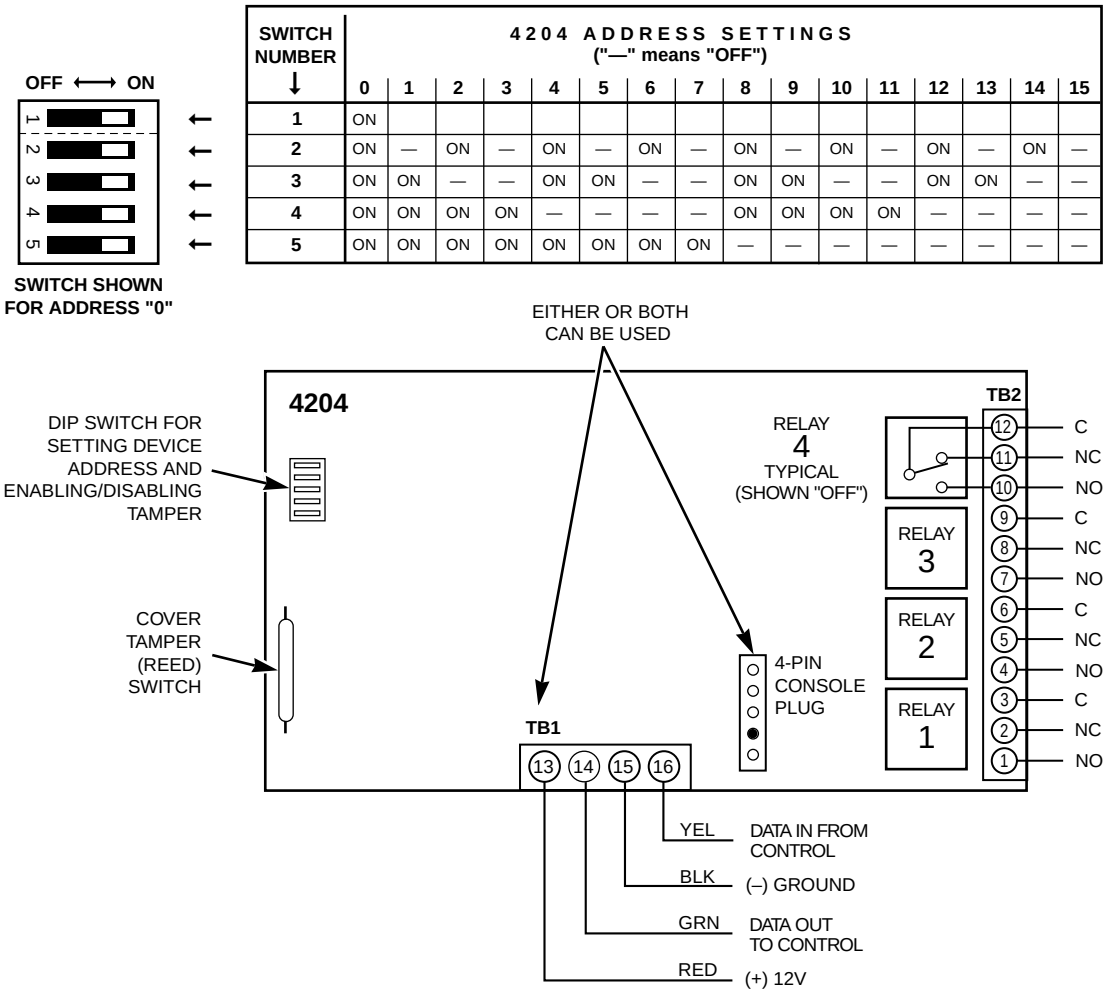


Figure 17. 4204 Connections to Control Panel

Powerline Carrier Devices

UL

Powerline Carrier devices and the 4300 Transformer are not UL Listed for fire or burglary functions, and are intended for home automation.

When using Powerline Carrier devices, you must use a 4300 Transformer **instead** of the 1321 Transformer.

The 4300 Transformer provides AC power to the control panel, and also supplies signals from the control panel through the premises AC wiring to the Powerline Carrier devices (which are plugged into AC outlets). You can then make devices plugged into Powerline Carrier devices perform various functions in response to commands you enter at the security system keypads.

Wiring Connections

To wire the Powerline Carrier Device to the control panel, perform the following steps:

1. Splice one end of a 3-conductor cable to the wire ends of the 4142TR Cable supplied with the 4300 Transformer.
2. Connect the 4142TR Cable Plug to the 9-pin connector on the control (see *Figure 24. Summary of Connections* diagram for location of the 9-pin connector).
3. Connect the other end of the 3-conductor cable to the 4300 Transformer, as indicated in the table below and in the diagram that follows.

4300 TRANSFORMER WIRE CONNECTIONS	
4300 Terminal	**To Terminal on Control**
1 (AC)	1 (16.5V AC in)
2 (Ground)	25 Earth Ground terminal
3 (AC)	2 (16.5V AC in)

4300 Terminal	**4142TR Cable Wire**
4 (Sync)	RED (Pin 5 of 9-pin connector)
5 (Data)	VIOLET (Pin 1 of 9-pin connector)
6 (Com)	WHITE (Pin 4 of 9-pin connector)

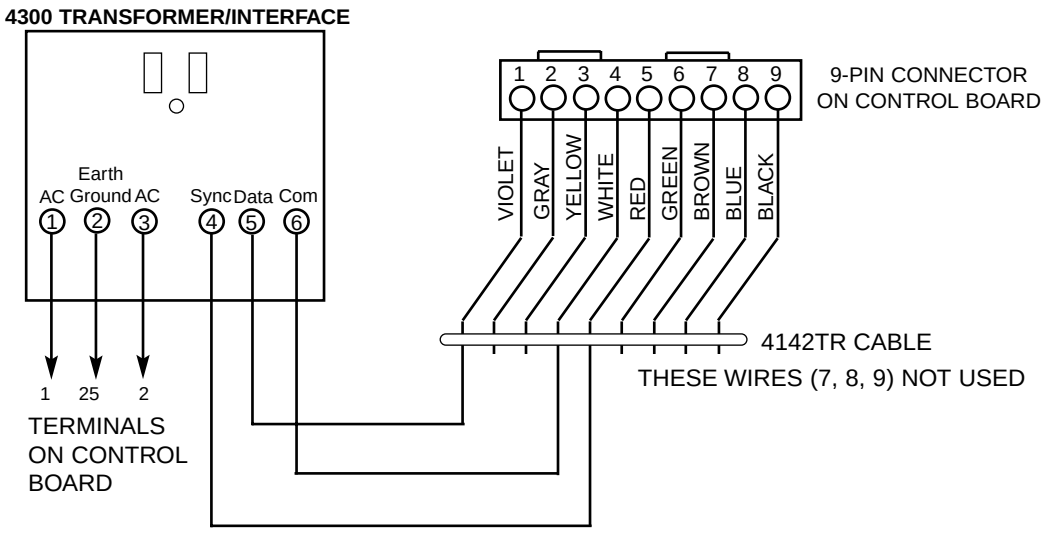


Figure 18. 4300 Transformer Wiring Connections

Programming Relay Outputs

In the SL150, each device must be programmed as to how to act (ACTION), when to activate (START), and when to deactivate (STOP). Refer to the programming procedures for ⋆80 and ⋆81 interactive modes that are provided in ***Section 13: Mechanics of Programming, Section 17: Output Device Programming,*** and ***Section 18: Zone Lists*** for specific programming details.

4285 & 4286 VIP Module

In This Section

- *About the 4285 & 4286 VIP Module*
- *Installing the Phone Module*
- *Programming the 4285/4286 VIP Module*
- *Checking 4285/4286 VIP Module Operation*

About the 4285 & 4286 VIP Module

The 4285 or 4286 VIP Module is an add-on accessory for the SL150 that permits access to the security system via a TouchTone phone (either on-premises or by a call-in when away). The 4286 VIP Module has the additional capability of controlling thermostat(s) and providing external speaker output.

The phone module can announce many of the same words that would normally be displayed on an alpha keypad under the same system conditions.

- Only one phone module can be used in this security system.
- When you use the 4285 **or** 4286 VIP Module, you must use addressable keypads in the system, but set to the non-addressable mode (address 31),

When properly connected, the 4285/4286 VIP Module will enable the user to do the following via a TouchTone telephone:

- Receive synthesized voice messages over the phone regarding the status of the security system.
- Arm and disarm the security system and perform most other commands using the telephone keypad, with voice annunciation over the phone confirming any command that is entered.

The phone used for phone access must have touch-tone capability, though touch-tone service is not necessary. (If premises uses pulse dialing, switchable phones must be set for touch-tone temporarily before attempting phone access.)

A ***Phone Access User's Guide*** for phone access to the security system is provided with the phone module for the user of the system.

Installing the Phone Module

Mounting the 4285 or 4286 VIP Module

The phone module may be mounted in the control cabinet if space is available or, if this is not possible, on the side of the cabinet or adjacent to it.

When mounting the module outside the cabinet, use the screw holes at its rear, which will permit it to be mounted horizontally or vertically. (you may use double-sided adhesive tape if you prefer.) Wires can be brought out from the side or back (a round knockout is also available on the back).

Stick the phone module's connections label (supplied separately) to the inside of the phone module's cover, if the cover is used. If you have installed the module within the cabinet, stick the label to the inside of the control cabinet's door.

If you are also using an Audio Alarm Verification (AAV) unit, refer to *Section 11: Audio Alarm Verification (AAV) Unit* for the wiring connections required when you are using both a phone module and an AAV unit. If you are not using an AAV unit, follow the wiring connections instructions in this section for the phone module.

Wiring the Voice Interactive Phone (VIP) Module

The 4285 or 4286 VIP Module is wired between the control panel and the premises handset(s). It listens for touch-tones on the phone line and reports them to the control panel. During on-premises phone access, it powers the premise phones; during off-premises phone access, it seizes the line from the premises phones and any answering machines.

NOTE: The phone lines must be in service for the phone module to function, even when accessing the system from an on-premises phone.

1. Wire the 12V (+), 12V (–), data in, and data out points from the phone module to the control (see *Figure 19*).

Terminal On Control
12V – AUX (terminal 4)
12V + AUX (terminal 5)
DATA IN (terminal 6)
DATA OUT (terminal 7)

2. Insert the keyed connector at the other end of the connector cable into the mating header on the phone module (see Figure 19 for location of the header).
3. Connect terminals 1 through 5 on the phone module as shown in the Wiring Table below and in the 4285/4286 wiring diagram that follows.

- Use an RJ31X jack with a direct-connect cord and make all connections exactly as shown. If the leads on the direct-connect cord are too short to reach their assigned terminals, splice additional wires to them, as required.
- If no Touch-Tones are produced following access to the security system **from on-premises** (this problem may arise in rare cases), it may be necessary to reverse the wires connected to terminals 3 and 4 on the phone module **and** the wires connected to terminals 21 and 22 on the control panel. The wiring diagram shows the wiring connections that will provide proper operation in most cases.

4285/4286 WIRING TABLE

4285 Terminal	Connects to:
1. Phone In (Tip)	Terminal 21 on control panel.
2. Phone In (Ring)	Terminal 22 on control panel.
3. Phone Out (Tip)	BROWN lead from direct-connect cord.
4. Phone Out (Ring)	GRAY lead from direct-connect cord.
5. Ground	Earth ground terminal 25 on control panel.
6. Output High	Not used (4285). Spkr Hi on 4286.
7. Output Rtn	Not used (4285). Spkr Hi on 4286.

Caller ID Units

If the telephone system on the premises includes a Caller ID unit, connect the unit **directly to the Handset terminals (21** and **22) on the control,** as shown in *Figure 19. 4285/4286 VIP Module Wiring Connections* that follows.

4285/4286 VIP MODULE WIRING NOTES:

- Wire the phone module exactly as shown, using a direct-connect cord and RJ31X jack.
- If touch-tones are not heard when pressing keys following phone access to the security system via an on-premises phone, try reversing the pair of wires connected to terminals 3 and 4 on either phone module **and** the pair of wires connected to terminals 21 and 22 on the control.
- If an error signal (fast busy signal) is heard when trying to access the system via the phone, check for correct line seizure wiring, as described in note 4.
- Connection to the incoming telco line via an RJ31X jack and direct-connect cord, as shown in this diagram, is essential, even if the system is not connected to a Central Station. **The 4285 or 4286 will not function if this is not done.**

  The house phone lines (gray and brown wires) must be wired to the phone module terminals, not to the control terminals. Otherwise, an error signal (fast busy signal) will occur when trying to access the system from an on-premises phone.
- If the telephone system on the premises includes a Caller ID unit, connect the unit **directly** to the Handset terminals (21 and 22) on the control, as shown below.

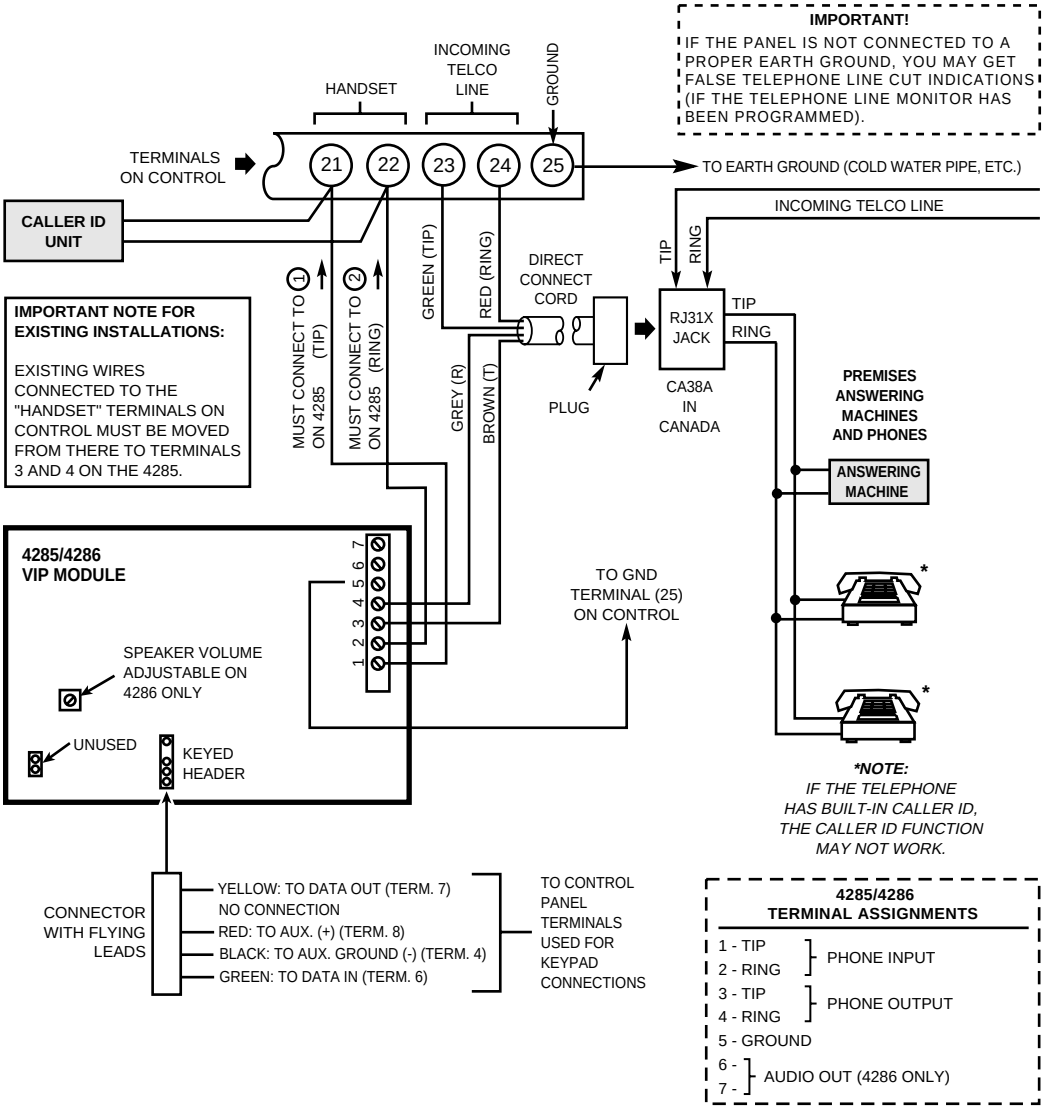


Figure 19. 4285/4286 VIP Module Wiring Connections

Programming the 4285/4286 VIP Module

You must program the system for use with the 4285 or 4286 VIP Module. This includes assigning a phone code and selecting words from the alpha vocabulary. Refer to the programming sections for specific programming details.

Checking 4285/4286 VIP Module Operation

To Check Operation From an On-Premises Phone:

1. Pick up the phone and enter the programmed 2-digit phone code. Annunciation of a system status report should automatically start. See the User's Guide accompanying the phone module for detailed information regarding the nature of the status report, if necessary.
2. During any pause in the status report, or immediately following it, key the following via the keypad on the phone:

   4112 (Installer code) + 1 (OFF).

   You should hear a beep on the phone and from a wired keypad. You should also hear the words, "**System Ready**" or "**Not Ready, press star to show faults**"* indicating that the command was entered successfully.

   * This voice message would indicate an open zone.
3. Hang up the phone.

To Check Operation from an Off-Premises Phone:

1. Have someone dial the premises phone number, using a TouchTone phone.
   - If the phone system does not include an answering machine, 2 long tones will be heard in the caller's phone, followed by a voice prompt "**Hello, Enter Phone Code Now.**" The caller should enter the programmed 2-digit phone code.
   - If the premises phone system includes an answering machine, the 2-digit phone code should be entered during a pause at the beginning of, or during, the outgoing answering machine message. When the 2-digit phone code is entered, the caller will hear a voice prompt asking for entry of the 4-digit system code ("**Enter System Code Now**").
2. The caller should then enter the installer code (4112). As a safety feature, there is a 3-try limit in which to enter each code (phone code and system code), after which the call-in will be aborted. Also, if no keys are pressed for a period of 20 seconds, the call-in is aborted.

   Annunciation of a system status report will start if both codes were entered correctly.
3. During any pause in the status report, or immediately following it, the caller should key the following via the keypad on the phone:

   4112 (Installer code) + 1 (OFF).

   The caller should hear a beep from the phone and a wired keypad on the premises. The caller should also hear the words "**System Ready**" or "**Not Ready, press star to show faults**"* * on the phone, indicating that the command was entered successfully.

   * This voice message would indicate an open zone.
4. At this point, the caller can hang up the phone.
5. Verify with the caller that there was successful access to the system and that the appropriate annunciations were heard over the phone.
6. If the phone module functioned satisfactorily, unplug the AC transformer from the AC outlet.

External Sounders

In This Section

- *Compatible Sounders*
- *NFPA Requirements*
- *Sounder Connections and Power*
- *Sounder Supervision*
- *Testing the Sounder*

Compatible Sounders

The following table lists external sounders that are compatible with the SL150:

Model	Description
Ademco AB-12M 10 Motorized Bell & Box	Motor bell & box. UL Grade A. 100 mA current draw.
Ademco 1011BE12M 10" Motorized Bell & Box	Motor bell & box. UL Listed. 100 mA current draw.
Ademco 702 Outdoor Siren	Self-contained 6–12 volt siren (driver built-in) and weatherproof for outdoor use. Can be wired for either a steady or warble sound.
Ademco 719 2-Channel Siren	Two-channel, self-contained 6-12 volt siren (driver built-in). 109dB @ 10 feet. 550mA current draw.
Ademco 747 Indoor Siren	Self-contained 12-volt siren (driver built-in) for indoor wall mount. 747F available for flush mounting.
Ademco 747UL Indoor Siren	Self-contained siren (driver built-in) for indoor wall mount. UL Listed.
Ademco 744 Siren Driver	6 jumper-selected sound outputs. Rated at 119dB with use of an 8-ohm 30-watt speaker.
Ademco 745X3 Voice Siren Driver	Voice siren driver with English, Spanish, and French voice messages. Separate messages for fire and burglary. Use with 8-ohm speaker. UL Listed.
Ademco 705–820, 5-inch Round Speaker	15-watt, 8-ohm speaker.
Ademco 713 Speaker	40-watt, 8-ohm, indoor/outdoor speaker.
System Sensor PA400B (beige)/PA400R (red) Indoor Piezo Sounder	Indoor piezo sounder (red or beige) rated at 90dB @ 10 feet.

- For UL installations, use only UL Listed sounding devices mounted indoors.

NFPA Requirements

The SL150 complies with NFPA requirements for temporal pulse sounding of fire notification appliances.

Temporal pulse sounding for a fire alarm consists of the following:
3 pulses – pause – 3 pulses – pause – 3 pulses . . .

Sounder Connections and Power

The SL150 provides a 12VDC output, which can power external alarm sounders (bells or sirens; see table of compatible sounders on previous page). This output will activate a sounder when an alarm occurs.

Make connections to alarm output terminals 3 (+) and 4 (–). See "Wiring without Bell Supervision" in *Figure 20* below.

UL

The total current drawn from the alarm output and the auxiliary power output, combined, cannot exceed 600mA. In addition, the sounding device must be a UL Listed audible signal appliance rated to operate in a 10.2-13.8VDC range. Example: Wheelock Signals Inc. siren model 34T-12 (provides 85dBA for NFPA 74 and Standard 985).

Non-UL Installations

The total current drawn from this output cannot exceed 2 amps. A battery must be installed because the battery supplies this current.

Going beyond the limits indicated (2 amps) will overload the power supply, or may cause the electronic circuit protecting the sounder output to trip.

Sounder Supervision

The SL150 can provide sounder (Bell) supervision To activate Bell supervision:

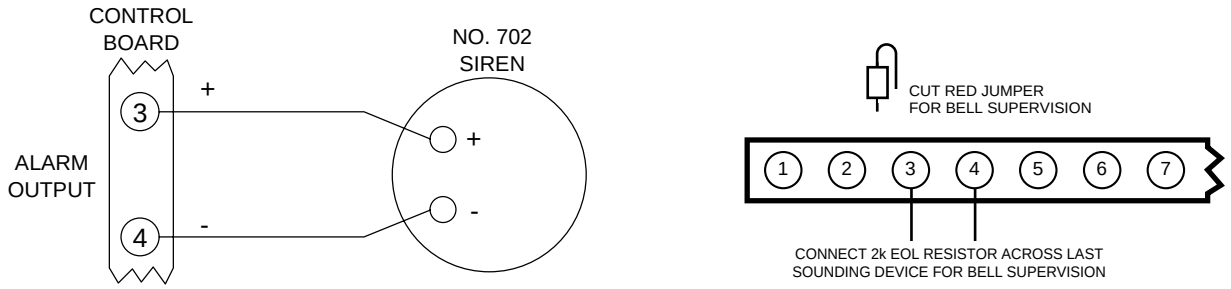
1. Cut the red Bell Supervision Jumper located above terminals 2 and 3 on the control board. See "Wiring with Bell Supervision" in *Figure 20*.
2. Connect a 2k ohm resistor across the terminals of the **last** sounding device.

Testing the Sounder

After you install the sounder, test the security system carefully, as follows:

1. Connect the battery wires from the control board to the battery, observing correct polarity.
2. Enter the Installer code (4112) and press the TEST [5] key on the keypad.

   The external sounder should sound for 1 second if the sounder is working and proper connections have been made. Note that if the backup battery is discharged, the sounder will not turn on.
3. To turn off the Test mode, enter the Installer code (4112) and press the OFF [1] key.
4. Disconnect the battery wires from the battery terminals.
5. Unplug the AC transformer from the AC outlet.



Wiring without Bell Supervision ***Wiring with Bell Supervision***

Figure 20. Sounder Wiring

Long Range Radio

In This Section

- *About Long Range Radio*
- *Dynamic Signaling Feature*
- *Wiring Connections*

About Long Range Radio

Check availability of Models 7720PLUS or 7820 Long Range Radios.

If output to Long Range Radio is selected, all messages that are programmed to go to the primary telephone line receiver will also be sent to the 7720PLUS or 7820 Long Range Radio. These messages will be in Contact ID format (not affected by entry in field ✶48).

UL For UL installations, Long Range Radio must be disabled (✶29 = 0).

The data line is supervised, as well as certain functions in the radio. If communication is lost or a trouble develops, an attempt will be made to send a message via both radio and telephone to the Central Station.

For complete information, see the manual that accompanies the radio.

Wiring Connections

Connect the data in/data out terminals and voltage input terminals of the No. 7720PLUS or 7820 Long Range Radio to the control's keypad connection points, terminals 4, 5, 6, and 7, as shown below.

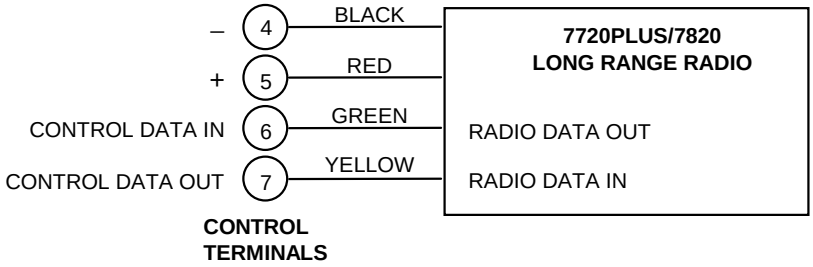


Figure 21. Long Range Radio Connections

Dynamic Signaling Feature

This control panel features **Dynamic Signaling Delay and Dynamic Signaling Priority** message reporting when Long Range Radio is used. This feature, which is programmed in data fields ✶54 and ✶55, is designed to reduce the number of redundant reports sent to the central station.

This feature offers you the following options:

- **Dynamic Signaling Delay**

  You can select the time the panel should wait for acknowledgment from the first reporting destination before it attempts to send a message to the second destination. Delays can be selected from 0 to 225 seconds, in 15-second increments. This choice is made in field ✶54. *This delay is per message.*

- **Dynamic Signaling Priority**

  You can select the initial reporting destination for messages, Primary Dialer or Long Range Radio. This choice is made in field ✶55.

The chart below will provide a concise explanation of how the Dynamic Signaling feature functions.

If Priority (✶55) is . .	And message is . . .	Then . . .
Primary Phone No. ("0" entered)	Acknowledged before delay expires	Message is removed from queue and no message is sent to LRR.
	Not acknowledged before delay expires	Message is sent to both the Primary Phone No. and LRR.
Long Range Radio ("1" entered)	Acknowledged before delay expires	Message is removed from queue and no message is sent to primary dialer.
	Not acknowledged before delay expires	Message is sent to both the Primary Phone No. and LRR.

Dynamic Signaling Fields:

✶54 Dynamic Signaling Delay – ***Single digit entry***

0–15 times a 15-second delay. e.g., 1 = 15 seconds, 2 = 30 seconds, etc.

Default is "0" (no delay). You must enter "0" for UL installations.

Note: If "0" is entered in this field, the control panel will send redundant reports to both Primary Dialer and LRR.

✶55 Dynamic Signaling Priority – ***Single digit entry***

0 = Primary dialer first; 1 = Long Range Radio (LRR) first.

Default is "0" (primary dialer)

You must enable field ✶29, OUTPUT TO LONG RANGE RADIO, if this feature is to function.

Audio Alarm Verification (AAV) Unit

In This Section

- *About Audio Alarm Verification*
- *Wiring Connections*

About Audio Alarm Verification

An Audio Alarm Verification (AAV) module, such as the Eagle 1250, is an add-on accessory that permits voice dialog between an operator at a central station and a person at the alarm installation, for the purpose of alarm verification.

To enable the AAV feature, enter option "4" in field ⋆91, OPTION SELECTION

UL The AAV option cannot be used in UL installations.

After all messages have been sent during a reporting session to the primary phone number, the control will trigger the AAV if at least one of the messages was an alarm report. The control will send a "LISTEN-IN TO FOLLOW" message (Contact ID event code 606), which signals the 685 receiver at the central station to hold the phone connection for 1 minute.

Once the digital message is "kissed off," the control will give up the phone line to the AAV module, without breaking connection with the central station. At this time, all sirens and all continuous keypad sounds in all partitions will be shut off.

You must connect a 4204 or4229 relay module when using an AAV unit. Do not use relay output number 1 for any other function.

Wiring Connections

The method used to trigger AAV is via the use of a 4204 or 4229 Relay Module, as shown in the AAV connection diagrams that follow (one diagram for connections when a 4285/4286 Phone Module is used, the other when the 4285/4286 is not used).

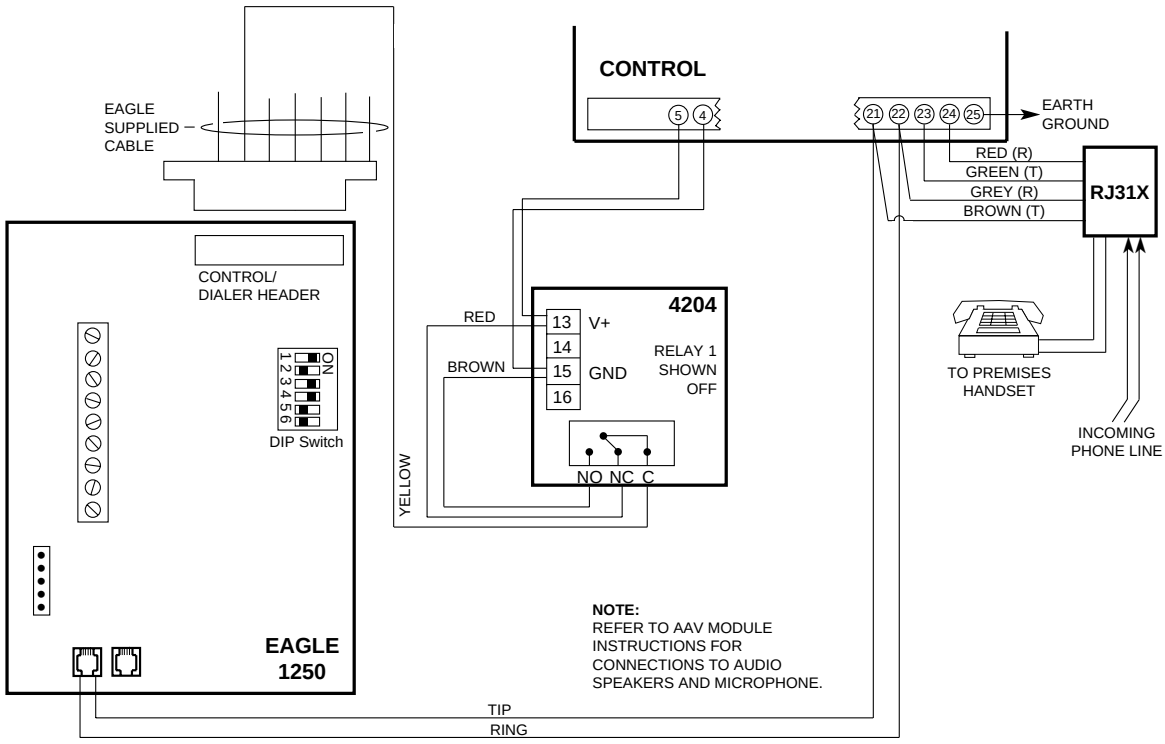


Figure 22. Connection of AAV Unit When Not Using a 4285/4286 VIP Module

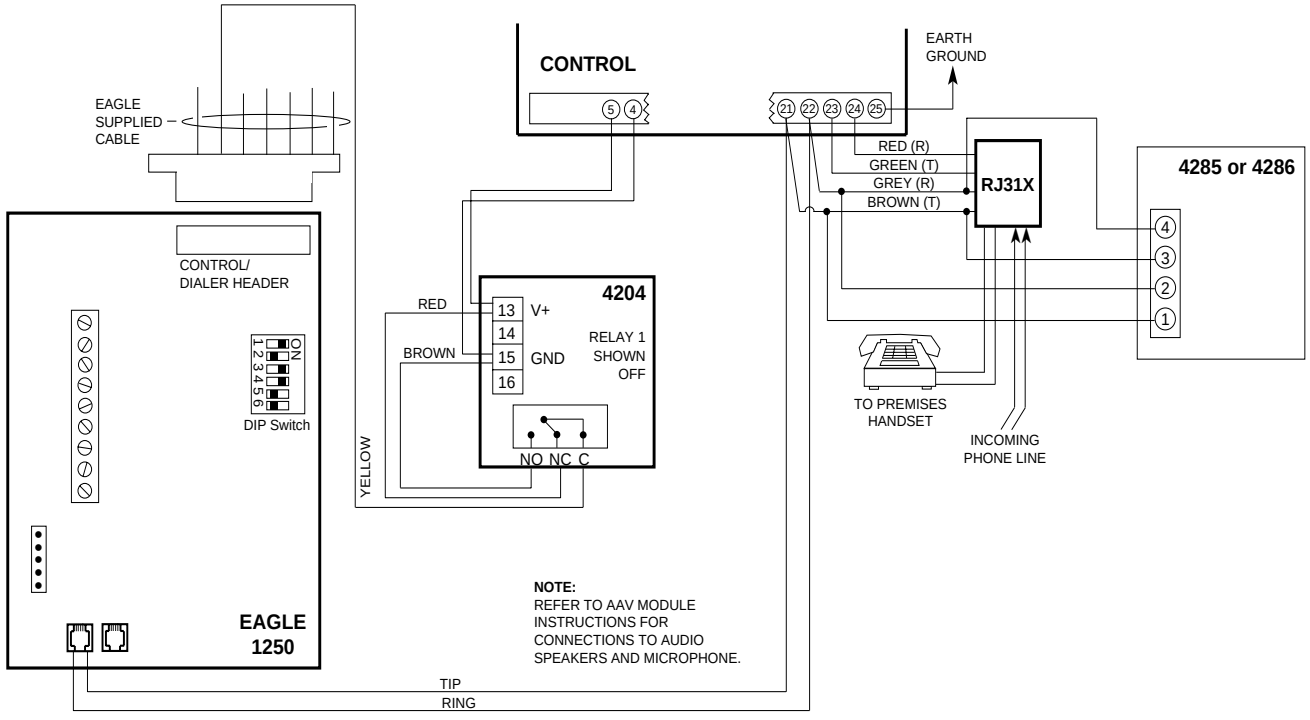


Figure 23. Connection of AAV Unit When Also Using a 4285 or 4286 VIP Module

Final Power-Up

In This Section

- *Earth Ground Connections*
- *AC Power-Up*
- *Connecting the Backup Battery*
- *Battery Tests*

Earth Ground Connections

The designated earth ground terminal (25) must be terminated in a good earth ground for the lightning transient protective devices in this product to be effective. It also must be grounded to enable the telephone line fault indicator to work properly. The following are examples of good earth grounds available at most installations:

Metal Cold Water Pipe: Use a noncorrosive metal strap (copper is recommended) firmly secured to the pipe to which the ground lead is electrically connected and secured.

AC Power Outlet Ground: Available from 3-prong, 120VAC power outlets only. To test the integrity of the ground terminal, use a 3-wire circuit tester with neon lamp indicators, such as the UL Listed Ideal Model 61-035, or equivalent, available at most electrical supply stores.

AC Power-Up

To turn on AC power, perform the following steps:

1. Plug the 1321 or 4300 Transformer into a 24-hour, unswitched 120VAC outlet.

   Following power-up, one of the following will be displayed: **AC**, **dI** (disabled); **BUSY STANDBY** (alpha keypads); or **NOT READY** (fixed-word keypads). The green POWER LED (or READY LED on some keypads) should light.

2. After approximately 1 minute, the initial displays will revert to **SYSTEM READY** for alpha keypads, or **READY**...**ENTER CODE** for fixed-word keypads (if there are no faulted zones). This 1-minute delay allows PIRs, etc. to stabilize.

   To bypass this delay, press: **#** + **0**.

Connecting the Backup Battery

In the event of an AC power loss, the control panel is supported by a backup, rechargeable Sealed Lead Acid battery. The minimum battery size recommended is the No. 467 (12V, 4AH) battery. See paragraph titled, ***Calculating the Battery Size Needed*** that follows. The battery is installed in the control cabinet.

The standby battery is automatically tested every 6 hours, beginning 6 hours after exiting Programming mode. In addition, entry into the Test mode will cause a battery test to be initiated.

Calculating the Battery Size Needed (based on total current drawn & standby time wanted)

Determine the total device current draw after filling in the Auxiliary Device Current Draw Worksheet that follows. To this figure add the 100mA that is drawn by the control panel itself. Then, to determine the battery size needed, use the following formula:

Total Current Drawn* x Number of hours standby wanted = Battery Ampere/Hours.

* Convert mA figure to decimal Amps (see example that follows).

Example: If total auxiliary device current drain is 450mA, add 100mA for the control panel, for a total of 550mA (0.55 amps); if 24-hour standby is wanted, the calculation will be:

0.55A x 24 hours = 13.2 Ampere/Hour battery needed.

In this example, two 7 Amp/Hr batteries (connected in parallel) must be used.

Table 1. AUXILIARY DEVICE CURRENT DRAW WORKSHEET

DEVICE	CURRENT	# UNITS	TOTAL CURRENT
SL 6150 Keypad	40mA Standby / 70mA Max		
SL 6160 Keypad	40mA Standby / 150mA Max		
SL 6150RF	50mA Standby / 160mA Max		
5881/5882 RF Receiver	35mA		
4219 Zone Expander	35mA		
4204 Relay Unit	15/180mA‡		
4229 Zone Expander/Relay Unit	35/100mA‡		
4285 Phone Module	160mA		
4286 VIP Phone Module	300mA		
*			
*			
*			
(Current available from Aux. terminals = 600mA max.)**		**TOTAL =**	

* If you are using hardwire devices such as PIRs, refer to the specifications for that particular unit's current draw.

** In UL installations, maximum current draw from the Auxiliary Output and the Alarm Output **combined** must not exceed 600mA (500mA max from Auxiliary Output).

‡ Figures are for relays de-energized (OFF)/relays energized (ON).

Making the Battery Connections

1. Use the battery standby formula (on previous page) to select the appropriate battery for the installation.

Do not connect the battery until all devices have been wired to the control.

2. Attach the red and black wires on the battery connector cable as follows:
   a) Red to the positive (+) battery tab on the control board
   b) Black to the negative (–) battery tab on the control board.

   Refer to *Figure 24. SL150 Summary of Connections* (SOC) diagram for location of the (+) and (–) battery tabs on the control board.
3. Attach the red and black wires at the other end of the battery connector cable as follows:
   a) Red to the positive (+) terminal on the battery
   b) Black to the negative (–) terminal on the battery.

Battery Tests

The battery is periodically tested automatically (approximately every six hours), and if it cannot sustain a load, a **LOW BATTERY** message is displayed and, if so programmed, will be reported to the Central Station. In addition, the connection to the battery is checked every 3 minutes (a CSFM requirement). If there is no battery detected, or a low-battery condition is detected, a **LOW BATTERY** message is displayed and a report is sent to the Central Station.

Mechanics of Programming

In This Section

- *About Programming*
- *Entering Program Mode*
- *Programming a Data Field*
- *Reviewing a Data Field/Erasing an Entry*
- *Interactive Mode Programming*
- *Loading Factory Defaults*
- *Programming System Setup Fields*
- *Exiting the Programming Mode*

About Programming

Characteristics for each installation are stored in nonremovable, electrically erasable, non-volatile EEPROM memory. These must be programmed for the particular installation to establish its specific alarm and reporting features.

If RF zones or wired expansion will be used, the following program fields **must be** programmed before doing any zone programming:

- ✶22 RF SYSTEM
- ✶25 WIRED ZONE EXPANSION

It is possible to program the system at any time, even at the installer's premises prior to the actual installation. Simply apply power temporarily to the control and then program the unit as desired.

You cannot enter the Programming mode unless the security system is disarmed.

There are two programming modes: Data Field Programming and Interactive (Menu) mode programming. Data Field Programming is used for setting various system options. Interactive Programming is used for programming zone information, programming relay outputs, and enrolling transmitter serial numbers.

To program the system, you must use an SL6160 (2-line alpha keypad) connected to the keypad terminals on the control (4, 5, 6, and 7). **Also, the security system must be disarmed.** The alpha keypad need not remain in the system after programming.

Programming can also be performed remotely from the installer's office/home, using an IBM personal computer, a modem, and COMPASS downloading software. See *Section 21: Remote Programming and Control (Downloading)*.

Entering Program Mode

You may use one of the following methods:

a) Press [✶] and [#] keys at the same time within 50 seconds after power is applied to the control; or

b) After power-up, enter **4 1 1 2 (Installer code) + 8 0 0**.

This method is disabled if you exit the Program mode using ✶98 instead of ✶99. See the paragraph titled, ***Exiting the Program Mode***, later in this section.

If a different Installer code is subsequently programmed, use it instead of 4112 to gain access to the Programming mode.

When you enter the Program mode, data field ✶20 will be displayed (this is the first data field in the system). The system will now accept entries for field ✶20.

Programming a Data Field

1. Press [✶] **+ [Field No.]** (for example, ✶22), then make the required entry.
2. When you have completely programmed a data field, the keypad will beep three times and then automatically display the next data field in sequence. To go to a different field, press [✶] plus the desired field number.
3. If the number of digits that you need to enter in a data field is less than the maximum digits available (for example, the phone number field), enter the desired data, then press [✶] and the next data field number to be programmed.
4. If you try to enter a non-existent field, the keypad will display **EE** or **ENTRY ERROR**. Simply re-enter [✶] plus a valid field number.

Reviewing a Data Field/Erasing an Entry

Press [**#] + [Field No.]**. Data will be displayed for that field number. **No changes will be accepted in this mode.**

To delete an entry in a field, press [✶] **+ [Field No.] +** [✶] **(**applies only to fields ✶40 το ✶44, ✶85, ✶86, ✶87, ✶88, and ✶94).

Interactive Mode Programming (✶56, ✶58, ✶80, ✶81, ✶82)

Typical prompt displayed during Interactive mode programming:

```
Enter Zn Num.
(00 = Quit)          01
```

Zone Number ↑

Press [✶] + **[Interactive Mode No.]** (for example, ✶56). The alpha keypad will display the first of a series of prompts requesting entries.

A detailed procedure (with displays of prompts) is provided in later sections of this manual.

Interactive Mode	Used to Program
✶56 Zone Programming	Zone characteristics, report codes, alpha descriptors and serial numbers
✶58 Expert Mode	5800 Series Transmitter serial and loop numbers
✶80 Relay Programming	4229 or 4204 Relay modules, or Powerline Carrier devices
✶81 Zone List Programming	Zone lists for relay/powerline carrier, assignment of chime zones, and Pager 1 and 2 reporting zones
✶82 Alpha Programming	Zone alpha descriptors

Loading Factory Defaults

The control panel is shipped from the factory loaded with its factory defaults. To reload the factory defaults at any time, enter the Programming mode, press ✶97, then exit the Programming mode.

Do not press ✶97 to load defaults if any programming has been done previously—data already programmed into the system will be changed! **This includes the primary and secondary subscriber account numbers (fields ✶43 and ✶44), which will be set to their factory defaults also.**

✶96 resets all the subscriber account numbers and CSID in preparation for an initial download.

Programming System Setup Fields

The following program fields **must be** programmed before doing any zone programming:

✶22 RF SYSTEM [0]

Enter **1** if 5881/5882 RF Receiver is being used; enter **0** if no receiver is being used. Default is **0** (none).

✶25 WIRED ZONE EXPANSION [0]

Use this field to select the type of expansion unit being used, as follows: 0 = none; 1 = 4219; 2 = 4229; 3 = 4204. Default is **0.**

Exiting the Programming Mode

✶99 allows re-entry into the Program mode using **[Installer Code] + 8 0 0**.

✶98 prevents re-entry into the Programming mode using the Installer code.

Zone Response Type Definitions

In This Section

- *Zone Type Definitions*

Zone Type Definitions

You must assign to each zone, a zone type, which defines the way in which the system responds to faults in that zone. Zone types are defined below.

Type 00 Zone Not Used

Program a zone with this zone type if the zone is not used.

Type 01 Entry/Exit Burglary #1

This zone type provides Exit and Entry Delays whenever the zone is faulted if the control panel is armed in the AWAY or STAY mode. When the panel is armed in the INSTANT or MAXIMUM mode, no Entry Delay is provided. Entry Delay #1 is programmable from 0-99 seconds (field ✶35).

Exit Delay begins whenever the control is armed, regardless of the arming mode selected, and is independently programmable from 0-99 seconds (field ✶34).

This zone type is usually assigned to sensors or contacts on doors through which primary entry and exit will take place.

The SL150 will annunciate faster beeps during the last 10 seconds of the exit delay.

Type 02 Entry/exit Burglary #2

This zone type provides a secondary Entry Delay whenever the zone is faulted if the panel is armed in the AWAY or STAY mode. When the panel is armed in the INSTANT or MAXIMUM mode, no Entry Delay is provided. Entry Delay #2 is programmable from 0-99 seconds (field ✶36).

The programmed Exit Delay (field ✶34) begins whenever the control is armed, regardless of the arming mode selected.

This zone type is usually assigned to sensors or contacts on doors through which secondary entry and exit will take place, and where more time might be needed to get to and from the keypad (typically used for a garage, loading dock, or basement door).

The SL150 will annunciate faster beeps during the last 10 seconds of exit delay.

Type 03 Perimeter Burglary

This zone type gives an instant alarm if the zone is faulted when the panel is armed in the AWAY, STAY, INSTANT, or MAXIMUM mode. This zone type is usually assigned to all sensors or contacts on exterior doors and windows.

Type 04 Interior Follower

This zone type gives a delayed alarm (using the programmed entry/exit time) if the entry/exit zone is faulted first. Otherwise this zone type gives an instant alarm. This zone type is active when the panel is armed in the AWAY and MAXIMUM modes. **This zone type is bypassed automatically when the panel is armed in the STAY or INSTANT mode**. This zone type is usually assigned to a zone covering an area such as a foyer, lobby, or hallway through which one must pass upon entry (after faulting the entry/exit zone to reach the keypad to disarm the system).

Because this zone type is designed to provide an instant alarm if the entry/exit zone is not violated first, it will protect an area in the event an intruder hides on the premises before the system is armed, or gains access to the premises through an unprotected area.

Type 05 Trouble by Day/ Alarm by Night

This zone type will give an instant alarm if faulted when armed in the AWAY, STAY, INSTANT or MAXIMUM mode. During the disarmed state (day), the system will provide a latched trouble sounding from the keypad (and a Central Station report, if desired). This zone type is usually assigned to a zone that contains a foil-protected door or window (such as in a store), or to a zone covering a sensitive area such as a stock room, drug supply room, etc. This zone type can also be used on a sensor or contact in an area where immediate notification of an entry is desired.

Type 06 24-hour Silent Alarm

This zone type sends a report to the Central Station but provides no keypad display or sounding. This zone type is usually assigned to a zone containing an emergency button.

Type 07 24-hour Audible Alarm

This zone type sends a report to the Central Station and provides an alarm sound at the keypad, as well as an audible external alarm. This zone type is usually assigned to a zone that has an emergency button.

Type 08 24-hour Auxiliary Alarm

This zone type sends a report to Central Station and provides an alarm sound at the keypad. **(No bell output is provided).** This zone type is usually assigned to a zone containing a button for use in personal emergencies, or to a zone containing monitoring devices such as water or temperature sensors.

Type 09 Supervised Fire (With Verification on Zone 1)

This zone type provides a fire alarm on short circuit and a trouble condition on open-circuit. The bell output will pulse when this zone type is alarmed. This zone type is always active and cannot be bypassed. **This zone type can be assigned to a hardwired zone, any zone in a wired zone Expansion Module, or wireless zones.** When used with zone 1 on the panel, 2-wire smoke detectors can be used.

NOTE: Only hardwired zone 1 can be programmed as a fire zone in UL installations. However, any wireless zone can be used as a fire zone.

Type 10 Interior w/Delay

This zone type gives Entry Delay (using the programmed entry time), if tripped when the panel is armed in the AWAY mode. Entry Delay begins whenever sensors in this zone are violated, regardless of whether or not an Entry/exit Delay zone was tripped first. *No Entry Delay* is provided if tripped when the panel is armed in the MAXIMUM mode. *Exit* Delay is present for *any* arming mode. **This zone type is bypassed when the panel is armed in the STAY or INSTANT mode.**

Type 14 24-Hour CO Monitor

This is a special zone type assigned to any zone with a carbon monoxide detector. The bell output will pulse when this zone type is alarmed. This zone type is always active and cannot be bypassed.

Type 15 24-hour Medical Alarm

This zone type sends a report to the Central Station and provides an alarm sound at the keypad. **(No bell output is provided).** This zone type is usually assigned to a zone containing a button for use in medical emergencies.

Type 20 Arm-STAY

This is a special-purpose zone type, used with 5800 Series Wireless Pushbutton units, which will result in arming the system in the STAY mode when the zone is activated. Pushbutton units send the zone number as a user number to the Central Station when arming or disarming.

Type 21 Arm-AWAY

This is a special-purpose zone type, used with 5800 Series Wireless Pushbutton units, which will result in arming the system in the AWAY mode when the zone is activated. Pushbutton units send the zone number as a user number to the Central Station when arming or disarming.

Type 22 Disarm

This is a special-purpose zone type, used with 5800 Series Wireless Pushbutton units, which will result in disarming the system when the zone is activated.

Type 23 No Alarm Response

This zone type can be used on a zone when an output relay action is desired, but with no accompanying alarm (e.g., lobby door access).

Type 24 Silent Burglary

This zone type provides an instant alarm, with **no** audible indication at any keypad or external sounder, if the zone is faulted when the system is armed in the AWAY, STAY, INSTANT, or MAXIMUM mode. This zone type is usually assigned to all sensors or contacts on exterior doors and windows where bells and/or sirens are NOT desired. A report is sent to the Central Station.

Type 64 One-Button Page

This zone type allows sending one-button paging from a wireless key fob. It will send a predefined message that will be different from keypad one-button paging. Paging from a wireless key fob sends “999–9998”.

NOTE: All of the zone types described are available for the wireless portion of the system, if used.

Data Field Descriptions

In This Section

♦ *Descriptions of System Data Fields*

Descriptions of System Data Fields

The blank programming form (in the Programming Guide) should be used to record the data for this installation. Defaults (where applicable) are indicated in the programming form.

The following pages list all data fields in the SL150 in numerical order. If you have performed the programming instructions that were included with the installation of each of the peripheral devices covered in previous sections, this table will simply serve as a reference for all data fields in the system. If you have decided to program all the data fields in the system at one time (and have not perform the programming required yet), you can use this listing to program all the data fields now.

Note: The boxes adjacent to the field descriptions indicate the number of digits that need to be entered; default values (where applicable) are shown in these boxes.

⋆20 INSTALLER CODE

4	1	1	2

The Installer code is used to enter the 4-digit Master security code in the normal operation mode, via the keypad. See paragraph titled “Master Code” in ***Section 23: System Operation*** for procedure.

Enter 4 digits, 0–9.

⋆22 RF SYSTEM

0

0 = no RF receiver used

1 = 5881/5882 RF receiver used

4 = 5881/5882 RF receiver used with RF Jam Detection

UL installations: Must be “4” (5881/5882 receiver with RF Jam Detection)

⋆23 FORCED BYPASS FUNCTION

0

0 = no forced bypass

1 = provide automatic bypass of all open (faulted) zones

All zones bypassed by this function will be displayed after the bypass is initiated. UL installations: Must be “0” (no forced bypass)

⋆24 RF HOUSE ID CODE

0	0

00 = disable all wireless keypad usage

01-31 = House ID

The House ID identifies receivers and wireless keypads.

If a 5827 or 5827BD Wireless Keypad or 5804BD Transmitter is to be used, a House ID code MUST be entered, and the keypad should be set to the same ID.

✶25 WIRED ZONE EXPANSION [0]

0 = no expander module connected
1 = 4219 connected
2 = 4229 connected
3 = 4204 connected

✶26 CHIME BY ZONE [0]

0 = no (chimes on fault of any entry/exit or perimeter zone when chime mode activated)

1 = yes (chimes on fault of specific zones programmed in relay zone list 3 when chime mode activated)

This option allows the installer to define the specific zones intended to chime when faulted while the system is in chime mode.

✶27 POWERLINE CARRIER DEVICE (X10) HOUSE ID [0]

Powerline Carrier devices require a House ID. This field identifies this House ID to the control.

If Powerline Carrier devices are used, they are selected in field ✶ 80.

House ID is entered in following manner:
0 = A, 1 = B, 2 = C, 3 = D, 4 = E, 5 = F, 6 = G, 7 = H, 8 = I, 9 = J,
# + 10 = K, # + 11 = L, # + 12 = M, # + 13 = N, # + 14 = O, # + 15 = P.

✶28 PHONE MODULE ACCESS CODE [0 | 0]

1–9 = first digit of access code

[✶] or [#] = second digit of access code (enter [**#**] **+11** for "✶", or [**#**] **+12** for "#")

The use of a 4285/4286 VIP Module requires a 2-digit code.

Example: If desired access code is 7✶ , **7** is the first entry, and **# + 11** (for ✶) is the second entry.

Note: A "0" in either digit disables the phone module.

✶29 OUTPUT TO LONG RANGE RADIO (No. 7720PLUS/7820) [0]

If output to Long Range Radio (LRR) is selected here, all messages that are programmed to go to the primary telephone line receiver will also be sent to the 7720PLUS or 7820 radio. These messages will always be in Contact ID format (not affected by entry in field ✶48). The data line and certain functions in the radio are supervised. If communication is lost or a trouble develops, an attempt will be made to send a message via both radio and telephone to the Central Station.

NOTE: Normal "Trouble Restore" report (✶71) is sent upon restoration of the condition.

Entry is first digit of "Trouble Dialer" report; enter Trouble code 1–9, A (# + 10), B (# +11), C (# +12), D (# +13), E (# +14), or F (# +15). The second digit of "Trouble Dialer" report is automatically the second digit from field ✶60.

UL installations: Must be 0 (Long Range Radio disabled)

NOTE: The radio should be programmed for device address 3 on the keypad lines.

⋆30 KEYSWITCH ENABLE (ZONE 7) [0]

0 = disable; 1 = enable

A keyswitch can only be used on zone 7. See *Section 4–Basic Hardwired Zones* for installation details.

⋆31 SINGLE ALARM SOUNDING PER ZONE (per armed period) [0]

0 = no limit on alarm sounding per zone
1 = limit alarm sounding to once per arming period for a given zone
UL installations: Must be 0 (no limit)

⋆32 FIRE SOUNDER TIMEOUT [0]

0 = yes; fire sounder timeout after time programmed in field ⋆33
1 = no fire sounder timeout; continue sounding until manually turned off
This control complies with NFPA requirements for temporal pulse sounding of fire notification appliances.
Temporal pulse sounding for a fire alarm consists of the following:
3 pulses – pause – 3 pulses – pause – 3 pulses.

⋆33 ALARM BELL TIMEOUT [1]

0 = no timeout
1 = 4 min; 2 = 8 min; 3 = 12 min; 4 = 16 min
This field determines whether the external sounder will shut off after time allotted, or continue until manually turned off.
UL installations: Must be set for a minimum of 4 min (option 1).

⋆34 EXIT DELAY [9 | 9]

0 –99 seconds
The system will wait the time entered before it sounds an alarm if the exit door is left open after the system has been armed.
UL installations: Must be set for a maximum of 60 seconds.

⋆35 ENTRY DELAY 1 (zone type 01) [6 | 0]

0–99 seconds
The system will wait the time entered before it sounds an alarm upon entering.
UL installations: Must be set for a maximum of 20 seconds.

⋆36 ENTRY DELAY 2 (zone type 02) [9 | 0]

0–99 seconds
The system will wait the time entered before it sounds an alarm upon entering.
UL installations: Must be set for a maximum of 50 seconds

⋆37 AUDIBLE EXIT WARNING [1]

0 = no exit warning sound
1 = provides exit warning sound when armed AWAY.
Warning sound consists of slow continuous beeps until last 10 seconds, when it changes to fast beeps. The warning sound will end at the termination of Exit time.

✶38 CONFIRMATION OF ARMING DING [0]

0 = no ding
1 = confirmation ding after arming system
2 = confirmation ding after arming from RF button type units or RF keypad only (ding occurs when the system receives the RF transmission)

Confirmation of arming is ½-second external sounder "ding" when closing report is sent, or at the end of Exit Delay.

✶39 POWER UP IN PREVIOUS STATE [1]

0 = always power up in a disarmed state
1 = assume the system status prior to power down

When the system powers up armed, an alarm will occur 1 minute after arming if a zone is faulted.

Note: If the previous state was armed AWAY or STAY, the system will not respond to sensor changes for 1 minute, which allows time for sensors such as PIRs to stabilize. This means that if a zone is faulted during that 1-minute period, the system will not detect the fault and would power up into the armed ON AWAY or STAY original state.

UL installations: Must be 1 (power up in previous state)

DIALER PROGRAMMING (✶40–✶50)

✶40 PABX ACCESS CODE (See box at left) [| | | | |]

Enter up to 6 digits if PABX is needed to access an outside line. If fewer than 6 digits need to be entered, exit by pressing [✶] and next field number (e.g., 41). To clear entries from field, press ✶40✶.

Fields ✶40, ✶41, ✶42: Enter up to the number of digits shown. Do not fill unused spaces. Enter 0–9, [#] + 11 for ✶ [#] + 12 for # [#] + 13 for a pause (2 seconds)

✶41 PRIMARY PHONE NO. (See box at left)

[| | | | | | | | | | | | | | | | | | | |]

Enter up to 20 digits. If you enter fewer than 20 digits, exit by pressing [✶] and next field number (e.g., 42). To clear entries from field, press ✶41✶.

NOTE: Backup reporting (in which 8 calls are made to the secondary phone number if no kissoff is received after 8 attempts to the primary number) is automatic only if there is a secondary phone number (field ✶42).

✶42 SECONDARY PHONE NO. (See box at left)

[| | | | | | | | | | | | | | | | | | | |]

Enter up to 20 digits. If you enter fewer than 20 digits, exit by pressing [✶] and next field number (e.g., 43). To clear entries from field, press ✶42✶. See backup reporting note for field ✶41. If using the pager feature, enter the pager phone number here.

✶43 PRIMARY SUBSCRIBER ACCOUNT NO. See box below. [F | F | F | F]

✶44 SECONDARY SUBSCRIBER ACCOUNT NO. See box below. [F | F | F | F]

For Fields ✶43 and ✶44: Enter digits 0–9; [#] +11 = B; [#] +12 = C; [#] +13 = D; [#] +14 = E; or [#] +15 = F.

If only 3 digits used, exit by pressing [✶] and key next field. To clear entries from field, press ✶43✶ or ✶44✶.

See separate Programming Form for examples of account number entries.

⋆47 PHONE SYSTEM SELECT [3]

If Central Station is NOT on a WATS line: 0 = Pulse dial, 1 = Tone dial
If Central Station IS on a WATS line: 2 = Pulse dial, 3 = Tone dial

⋆48 REPORT FORMAT [7 | 7]

Prim Sec

0 = 3+1, 4+1 Ademco LOW SPEED STANDARD
1 = 3+1, 4+1 RADIONICS STANDARD
2 = 4+2 Ademco LOW SPEED STANDARD
3 = 4+2 RADIONICS STANDARD
6 or undefined = 4+2 Ademco EXPRESS
7 = Ademco CONTACT ID REPORTING
8 = 3+1. 4+1 Ademco LOW SPEED EXPANDED
9 = 3+1. 4+1 RADIONICS EXPANDED

⋆49 SPLIT/DUAL REPORTING [0]

0 = Disable (Backup report only)

Use options 1 - 5 when reporting to standard telephone receivers:

To	Primary Phone No.	To Secondary Phone No.
1 =	Alarms, Restore, Cancel	Others
2 =	All except Open/Close, Test	Open/Close, Test
3 =	Alarms, Restore, Cancel	All
4 =	All except Open/Close, Test	All
5 =	All reports	All

⋆50 15-SECOND DIALER DELAY (BURG) [1]

0 = No delay; 1 = Yes. Must be "0" for UL installations.

Above options (1 through 5) provide delay of **BURGLARY ALARM** and **FIRE ALARM** reporting (except zone type 24) to the Central Station, which allows time for the subscriber to avoid a false alarm transmission. This delay does not apply to zone type 24 alarms (silent type), which are always sent as soon as they occur.

UL installations: Must be set to 0 (no delay).

⋆51 PERIODIC TEST REPORT [0]

0 = no test report
1 = once every 24 hours
2 = weekly
3 = once every 30 days

Test Report Code entered in field ⋆64 is sent. Reports with Subscriber No.

⋆52 TEST REPORT OFFSET [2]

0 = 24 hours after exiting Program mode or download
1 = 6 hours after exiting Program mode or download
2 = 12 hours after exiting Program mode or download
3 = 18 hours after exiting Program mode or download

This is the time to first report from Programming mode or downloading.

⋆53 SESCOA/RADIONICS SELECT [0]

0 = Radionics (0–9, B–F reporting)
1 = SESCOA (0–9 only reporting)
Select 0 for all other formats.

⋆54 DYNAMIC SIGNALING DELAY (DSD) See chart below [0]

This field enables you to select the time the panel should wait for acknowledgment from the first reporting destination before it attempts to send a message to the second destination. Delays can be selected from 0 to 225 seconds, in 15-second increments. *This delay is per message.*
Also see field ⋆55.

0–15 times a 15-second delay. e.g., 1 = 15 seconds, 2 = 30 seconds, etc.
Default is "0" (no delay). **UL installations:** Must be "0" (no delay).

⋆55 DYNAMIC SIGNALING PRIORITY (DSP) See chart below [0]

This field enables you to select the initial reporting destination for messages, Primary Dialer or Long Range Radio (when used).

0 = Primary dialer first; 1 = Long Range Radio (LRR) first.

Default is "0" (primary dialer)

The following chart will provide a concise explanation of how the Dynamic Signaling feature functions.

If Priority (⋆55) is:	And message is:	Then:
Primary Phone No. ("0" entered)	Acknowledged before delay expires	Message is removed from queue and no message is sent to LRR.
	Not acknowledged before delay expires	Message is sent to both the Primary Phone No. and LRR.
Long Range Radio ("1" entered)	Acknowledged before delay expires	Message is removed from queue and no message is sent to the Primary dialer.
	Not acknowledged before delay expires	Message is sent to both the Primary Phone No. and LRR.
Note: **You must enable field ⋆29, OUTPUT TO LONG RANGE RADIO, if this feature is to function.**		

⋆56 ZONE PROGRAMMING MODE

This is an Interactive Menu mode used for programming zone attributes, report codes, and enrolling transmitters. Refer to ***Section 16: Zone Programming*** for procedure.

⋆58 EXPERT PROGRAMMING MODE

This is an Interactive Menu mode used for fast programming of zone attributes, enrolling transmitters, and duplicating wireless keys. Refer to ***Section 16: Zone Programming*** for procedure.

TO PROGRAM SYSTEM STATUS AND RESTORE REPORT CODES (✶59 –✶76, & ✶89)

Report codes can be programmed using the interactive ✶56 Zone Programming Mode or ✶58 Expert Mode, or codes can be entered in data fields ✶59 - ✶ 76, ✶ 89.

The following is a set of guidelines to be used for programming report codes. The actual report code digits that you enter depend upon the particular installation, and should be in agreement with you and the central station office receiving the signals. Use these guidelines to program this entire section.

With a 3+1 or 4+1 Standard Format: Enter a code in the first box: 1–9, A, B, C, D, E, or F. Enter "#+10" for A (this reports a "0" on some receivers), "#+11" for B, "#+12" for C, "#+13" for D, "#+14" for E, "#+15" for F.

An entry of "0" in the *first* box will disable a report.

An entry of "0" in the second box will result in automatic advance to the next field when programming.

With an Expanded or 4+2 Format: Enter codes in *both* boxes (1st and 2nd digits) for 1–9, or A–F, as described above.

An entry of "0" in the first box will disable a report.

An entry of "0" in the second box will eliminate the expanded message for that report.

With Ademco Contact ID Reporting: Enter a digit in the first box to enable the zone to report. Use a different digit for each zone until you have used up available digits. If the number of zones exceeds the number of available digits, begin with digit 1 again. This is an "enabling" code only and is not the actual code sent to the central station office. Entries in the second boxes will be ignored. For system status (non-alarm) codes, enter a "1" in the first box for all the system conditions you want to send to the central station.

An entry of "0" in the first box will disable the report.

SYSTEM STATUS REPORT CODES (✶59–✶68)

✶59 EXIT ERROR REPORT CODE (See box above) [0]

If the system is armed and an entry/exit or Interior zone is still open after the Exit Delay time has expired, an alarm will sound at the keypad and external sounder (keypad also displays EXIT ALARM). If the system is disarmed before the end of the Entry Delay that immediately follows, the alarm sounding will stop **and no message will be sent to the Central Station**. The keypad will display **CA** (on fixed-word keypads) or **CANCELED ALARM** (on alpha keypads).

If the system is **not** disarmed before the end of the entry delay mentioned above, and an entry/exit or interior zone is still open, an "Exit Alarm" **message will be sent to the Central Station if an Exit Error Report code is selected in this field.** The keypad will display **EA** (on fixed-word keypads) or **EXIT ALARM** (on alpha keypads), and the alarm sounding will continue until the system is disarmed (or timeout occurs).

An Exit alarm condition will also result if a fault occurs in an exit or interior zone within 2 minutes following the end of the exit delay, and an "Exit Alarm" message will be sent to the Central Station.

If Contact ID format has been programmed, the message will contain the zone number and error code 374 ("Trouble–Exit Error") to define the alarm as an Exit Error (rather than E/E or Interior). This message will go to the primary phone number. Under any of these conditions, no "Restore" message will be sent.

If 0 is entered in this field, no special message will be sent, only the regular Alarm and Alarm Restore code for the zone.

⋆60 TROUBLE REPORT CODE (See box on previous page) [1 | 0]

This will be sent if a zone goes into trouble.

⋆61 BYPASS REPORT CODE (See box on previous page) [0 | 0]

This will be sent when a zone is manually bypassed.

⋆62 AC LOSS REPORT CODE [0 | 0]

See box on previous page. Reports with subscriber number. Timing of this report is random with up to a 4-hour delay. If AC restores before the report goes out, there is no "AC Restore" report.

⋆63 LOW BAT REPORT CODE [1 | 0]

This will be sent when a low-battery condition exists in the system's standby battery. See box on previous page. Reports with subscriber number.

⋆64 TEST REPORT CODE [0 | 0]

This is sent periodically to test that the communicator and phone lines are operational (frequency of report is selected in field ⋆51). See box on previous page. Reports with subscriber number.

⋆65 OPEN REPORT CODE [0]

This is sent upon disarming of the system. See box on previous page.

⋆66 ARM AWAY/STAY REPORT CODE [0 | 0]

AWAY STAY

This option allows for independent programming of Away and Stay reports. 2nd digit of report is user number if expanded or 4+2 reporting is selected.

NOTE: Open reports are not sent if the associated Closing report is not enabled.

⋆67 RF XMTR LO BAT REPORT CODE (See box on previous page) [1 | 0]

This is sent in the event that a wireless transmitter low-battery condition exists.

⋆68 CANCEL REPORT CODE (See box on previous page) [1 | 0]

This is sent upon disarming of the system after the alarm condition was reported.

RESTORE REPORT CODES (⋆70–⋆76)

⋆70 ALARM RESTORE REPORT CODE (1st digit) [1]

This is sent when the zone that caused an alarm is restored to its non-faulted condition.

⋆71 TROUBLE RESTORE REPORT CODE [1 | 0]

See box on a previous page. This is sent when a trouble in a zone is restored.

⋆72 BYPASS RESTORE REPORT CODE

0	0

See box on a previous page. This is sent when a zone that has been bypassed is unbypassed.

⋆73 AC RESTORE REPORT CODE

0	0

This is sent when AC power has been restored after an AC power outage. See box on a previous page. Reports with subscriber number.

⋆74 LOW BAT RESTORE REPORT CODE

1	0

This is sent when a system low-battery condition is restored to normal. See box on a previous page. Reports with subscriber number.

⋆75 RF XMTR LOW BATTERY RESTORE CODE

1	0

See box on a previous page. This is sent when a transmitter that previously sent in a "Low Battery" message has sent a message indicating it no longer has a low-battery condition.

⋆76 TEST RESTORE REPORT CODE

0	0

This is sent when the Test mode is exited. See box on a previous page. Reports with subscriber number. A restore code entered here will cause a "Restore" message to be sent when Test mode is exited.

⋆80 OUTPUT DEVICES

Interactive menu mode applicable only if field ⋆25 is programmed for a 4229 or 4204, or if Powerline Carrier devices are being used.

Refer to ***Section 17: Output Device Programming*** for detailed procedure.

⋆81 ZONE LISTS FOR OUTPUT DEVICES

Interactive Menu mode applicable only if ⋆25 is programmed for a 4229 or 4204, or if Powerline Carrier devices are being used.

Refer to ***Section 18: Zone Lists*** for detailed procedure.

⋆82 CUSTOM ALPHA EDITING

Interactive Menu mode used to program zone descriptors. (Also entered from interactive field ⋆56.)

Refer to ***Section 19: Alpha Descriptor Programming*** for ⋆82 procedure.

⋆84 PAGER REPORTS

0	0
Pgr 1	Pgr 2

0 = No reports sent
1 = Open/close for all users
3 = Open/close for users 5-16 and wireless key zones entered in zone list 6/7*
4 = All alarms and troubles
5 = All alarms, troubles, and open/close for all users
7 = All alarms, troubles, and open/close for users 5-16, and wireless key zones entered in zone list 6/7*
12 = Alarms and troubles for zones entered in zone list 6/7*
13 = Alarms and troubles for zones listed in zone list 6/7*, open/close for all users
15 = All alarms and troubles for zones entered in zone list 6, open/close for users 5-16, and wireless key zones entered in zone list 6/7*, users 5-16, and wireless key zones entered in zone list 6/7*

* Zone List 6 for Pager 1, Zone List 7 for Pager 2.

⋆85 PAGER #1 PHONE NO.

Enter up to 20 digits. If you enter fewer than 20 digits, exit by pressing [⋆] and next field number. To clear entries from this field, press ⋆85⋆.

⋆86 PAGER #1 CHARACTERS

Up to 16 characters may be sent as a prefix to the 7-digit system status code sent to pager #1 (if used). Phone number in field ⋆85 must have been entered. If fewer than 16 characters, exit by pressing [⋆] and next field number. To clear entries from this field, press ⋆86⋆.

For example, these optional 16 characters may be composed of the following:

- PIN number (to identify a specific pager to the paging company)
- Subscriber account number
- ⋆ (enter **# + 11** to send ⋆)
- # (enter **# + 12** to send #)
- Pause (enter **# + 13** to allow a 2-second pause)*
- Any special character(s) the end user may decide to transmit

* Note that some paging systems require pause(s) at the beginning of the prefix.

The format for the 7-digit system status code is defined as follows:

Pager Format: XXX-YYYY

where:

XXX = 3-digit event code: 911 = Alarm 101 = Opening (disarm)
811 = Trouble 102 = Closing (arm AWAY)

YYYY = 4-digit user or zone number (depending on type of event).
The first two digits must always be 00, and must be followed by the 2-digit user or zone number.

⋆87 PAGER #2 PHONE NO.

Enter up to 20 digits. If you enter fewer than 20 digits, exit by pressing [⋆] and next field number. To clear entries from this field, press ⋆87⋆.

⋆88 PAGER #2 CHARACTERS

Up to 16 characters may be sent as a prefix to the 7-digit system status code sent to pager #2 (if used). Phone number in field ⋆87 must have been entered. If fewer than 16 characters, exit by pressing [⋆] and next field number. To clear entries from this field, press ⋆88⋆.

The information provided in field ⋆86 for pager #1 also applies here.

⋆89 EVENT LOG 80% FULL REPORT CODE

0 | 0

If an Event Logging selection is made in field ⋆90, a message can be sent to the Central Station receiver when the log is 80% full. If the log becomes full, a new message will overwrite the oldest message in the log.

NOTE: Aside from the selection made by the installer in field ⋆90, all control and readout from the log is accomplished via the downloader.

⋆90 EVENT LOGGING ENABLE

15

0 = no event logging
1 = log Alarm/Alarm Restore
2 = log Trouble/Trouble Restore
4 = log Bypass/Bypass Restore
8 = log Open/Close

Example: To select "log Alarm/Alarm Restore" and "log Open/Close," enter **9** (1 + 8); to select all events, enter **#15**.

The SL150 system can record up to 48 events in a history log. The types of events to be logged are selectable. At any time, the downloader operator can then upload the log and view or print out all or selected categories of the log. The downloader operator can also clear the log.

The display/printout at the Central Station will show the date, time, event, and description of the occurrences. The time is calculated by an internal clock at the Central Station computer. Note that the time for any events that occur prior to a system power-down or an entry into the Programming mode cannot be calculated by the Central Station computer. The time will then appear on the log as "unknown."

NOTE: System messages are logged when any nonzero selection is made.

✶91 OPTION SELECTION

8

0 = not using AAV
2 = Macros (speed key)
4 = an Audio Alarm Verification (AAV) unit is connected to the system
8 = enable Exit Delay restart
12 = both AAV and Exit Delay Restart
14 = enable all
UL installations: Must be 0 (AAV disabled)

✶92 PHONE LINE MONITOR ENABLE

0

0 = not used
1 = local keypad display only when phone line is faulted
2 = local keypad display plus keypad trouble sound when line is faulted; no automatic timeout.
3 = same as "2" above plus Device No. 2 STARTS; if system is armed, external sounder activates; external sounder will be turned off by normal bell timeout, or by entering [Security Code] + OFF.

This feature will not function properly unless the designated earth ground terminal (25) is physically connected to earth ground. If it is not, you may get false line-cut indications.

NOTES:

- Option 3 may be used even if a relay unit or Powerline Carrier device is not connected to the control.
- Device number 2 must either be programmed to be STOPPED in field ✶80 or STOPPED by entry of **[Security Code] + # + 8 + 2**. Field ✶80 should be set to 0 for STOP.
- For automatic restore, set the relay in field ✶80 for a STOP condition with System Operation choice 52 (kissoff).

✶93 NUMBER OF REPORTS PER ARMED PERIOD

0

0 = Reports limited to a total of 10
1 = Unlimited number of reports

This option can be used to limit the number of messages ("Alarm" and "Alarm Restore" reports) sent to the Central Station in an armed period.

UL installations: Must be set to 1 (unlimited reports)

DOWNLOAD INFORMATION (✶94, ✶95)

✶94 DOWNLOAD PHONE NUMBER

Enter up to 20 digits as follows: 0–9; # +11 for ✶; # + 12 for #; # + 13 for a pause. Do **NOT** fill unused spaces. Exit this field by entering [✶]. To clear entries from this field, press ✶94✶.

⋆95 RING DETECTION COUNT FOR DOWNLOADING

15

0–15 = number of rings before control picks up phone line
Refer to the chart below and program this field accordingly.

Phone Module	Answering Machine	Down-loading	Field ⋆95
Yes	No	No	Set for value other than 0 (1–14). This will enable the control panel to answer the phone call. Otherwise, it will not be possible to access the phone module.
Yes	Yes	No	Set for a value higher than the number of rings for which the answering machine is set. Example: If machine is set for 4 rings, use a value of 5 or higher. This is recommended so that the phone module can still be accessed if the answering machine is turned off and does not answer the phone call.
Yes	No	Yes	Set for value other than 0 (1–14).
Yes	Yes	Yes	Enter 15. See note at left.
No	No	No	Enter 0.
No	Yes	No	Enter 0.
No	No	Yes	Enter 1–14.
No	Yes	Yes	Enter 15 to bypass answering machine.

NOTE:
If 15 is entered in field ⋆95 to bypass an answering machine, and a 4285/4286 VIP Module is included in the system, you should note the following:
When calling in from an off-premises phone, the user should make the initial call, allow 1 to 3 rings only, then hang up. The user should then call again. The Phone Module will now seize the line, and 2 long tones will sound, followed by the usual voice prompt for the 2-digit access code. If this procedure is not followed, Phone Module operation will not be possible.

⋆96 INITIALIZE DOWNLOAD ID AND SUBSCRIBER ACCT. NO. FOR DOWNLOADING

Pressing ⋆96 initializes the system for downloading.

⋆97 SET ALL PROGRAM FIELDS TO DEFAULT VALUES

Pressing ⋆97 automatically loads all factory defaults and erases any information previously programmed

⋆98 EXITS PROGRAMMING MODE

P*revents* re-entry by Installer Code + [8] + [0] + [0]. To enter the programming mode if ⋆98 was used to exit, you must first power the system down. Then power up again, and press [⋆] **and** [#] at the same time, within 50 seconds of powering up.

⋆99 EXITS PROGRAMMING MODE

Allows re-entry by: **Installer Code** + **[8]** + **[0]** + [**0**] or by:
Pressing [⋆] **and** [#] at the same time, within 50 seconds of powering the system up.

Zone Programming
(✶56/✶58 Menu Mode)

In This Section

- *About Zone Programming*
- *✶56 Zone Programming Procedures*
- *✶58 Expert Programming Mode Procedures*
- *To Remove a Zone*
- *To Delete a Transmitter Serial Number*
- *To Enter and Duplicate Wireless Keys*

About Zone Programming

✶56 Zone Programming is an Interactive Menu mode that is used to program zones, zone types, report codes, enroll 5800 RF Wireless Transmitter serial numbers, and identify the type of loop input device(s). This mode can also be used to enter alpha descriptors for programmed zones; however, we recommend entering descriptors in menu mode ✶82 (*Section 19: Alpha Descriptor Programming* after all zone programming has been completed). Refer to the zone assignment table for ✶56 on the separate programming form.

The ✶58 Expert Programming Mode, which is a faster method of programming, is designed for those who have had previous experience in programming control panels of this type.

✶56 Zone Programming Procedures

Note: Before proceeding, you must program field ✶22 (RF System) and field ✶25 (Wired Zone Expansion) as required.

In the programming mode, key ✶56.

```
SET TO CONFIRM?
0 = NO  1 = YES      0
```

This display will appear upon entry into ✶56 mode. The default is **0** (No). If **1** (Yes) is entered, you will be prompted to confirm each transmitter after entering the serial and loop numbers (at the **XMIT TO CONFIRM** prompt later in this procedure). **We recommend that you confirm the programming of every transmitter.**

```
Enter Zn Num.
(00 = Quit)          10
```

Zone 10 entered ↑

Zone Number (Zn): Enter the zone number that you wish to program.

Zone 10 has been entered as an example in display at left.

Press [✶] to continue.

```
Zn  ZT  RC   In:  L
10  00  10   RF:  –
```

A summary display appears, showing the status of that zone's programming when using wireless keys.

Note: If hard-wired zones (01-08) are being programmed, the display will appear as follows.

```
Zn  ZT  RC   In:  RT
 1  00  10   HW:  1
```

Refer to Response Time options in the ***Programming Guide***.

Press [✶] to continue.

↓ Zone Number

```
10 Zone Type
Perimeter          03
```

Zone Type ↑

Zone Type (ZT): Enter the Zone Type response (or change it, if necessary).
Each zone must be assigned to a zone type, which defines the way in which the system responds to faults in that zone.
Enter the Zone Type code (or change it, if necessary). Zone types are listed below.
Note: If 00 is entered, **Delete Zone ?** will be displayed.

00 = Not used
01 = Entry/exit #1
02 = Entry/exit #2
03 = Perimeter
04 = Interior Follower
05 = Trouble Day/ Alarm Night
06 = 24-Hr Silent
07 = 24-Hr Audible
08 = 24-Hr Aux
09 = Fire w/Verif.
10 = Interior w/Delay
14 = Carbon Monoxide
15 = Medical
20 = Arm–STAY*
21 = Arm–AWAY*
22 = Disarm*
23 = No Alarm Response*
24 = Silent Burglary
64 = One Button Page

*5800 button-type transmitters only

Default values for hard-wired zones 01 to 08 are:

Zone No. (Zn):	**1**	**2**	**3**	**4**	**5**	6	7	8
Zone Type Default:	09	01	01	03	03	03	04	04

Press [*] to continue.

```
10 Report Code
1st 01   2nd 00    10
```

Report Code (RC): Enter the report code. This consists of 2 hexa-decimal digits, each in turn consisting of 2 numerical digits. For example, for a report code of "10", enter **01** and **00**. Refer to ***Section 22: System Communication*** for more information about report codes and formats.

Press [*] to continue.

Note that report codes are factory-defaulted to 10 for use with CID reporting.

Press [*] to continue.

```
02 Response Time
                   1
```

Response Time (RT): Enter desired response time for hard-wired zones 01-08 (zone 02 is used as an example in display.
0 = 10mSec, 1 = 350mSec, or 2 = 700mSec. Default = 1 for all zones.
Press [*] to continue.

```
10 INPUT TYPE
RF TRANS           3
```

In the example above, "3" has been entered, which would then display "RF TRANS".

Enter Input Device type (In). *Used for Input Type entry.*
2 = AW (Aux wired zone), **3** = RF (supervised RF transmitter,
4 = UR (unsupervised RF transmitter), **5** = Button type RF transmitter (unsupervised).

Note: For the built-in hardwired zones, the Input Device type is automatically displayed as HW and cannot be edited.

Press [*] to continue.

```
10 INPUT S/N:    L
   A022-4064  1
```

Note: The [A] and [B] keys may be used to move the cursor to the right (A) or left (B) within the serial number field, thus allowing you to correct any entry errors that may have been made.

Serial number Entry and Loop Number Entry.

Used only when enrolling wireless transmitters.

a. Transmit two open and close (or close and open) sequences. If using a button-type transmitter, press and release the button twice, but wait about 4 seconds before pressing the button the second time.

OR

b. Manually enter the 7-digit serial number printed on the label of the transmitter, using the Alpha display keypad. Then press the [✶] key – the cursor will move to the "L" position. You can edit the loop number, if necessary. When the loop number is acceptable, press [✶].

c. Press key [C] to copy the serial number previously enrolled (used when programming a transmitter with several input loops).

```
10 INPUT S/N     L
A022-4064        ?
```

Note: If the [C] key is used to copy the previously enrolled serial number, the cursor will move to the Loop column (L) with the previous serial number displayed, and display a highlighted question **?** mark for the loop number.

Enter the loop number and press [✶].

The system will now check for a duplicate serial/loop number combination.

If a duplicate serial/loop number combination is found, the keypad will emit a single long beep, and prompt with a "**?**" again for a different loop entry.

```
10 INPUT S/N     L
   A022-4064  1
```

If the serial/loop number combination is not a duplicate in the system, a display showing the serial number and loop number entry will appear.

Press [✶] to continue.

```
XMIT TO CONFIRM
PRESS ✶ TO SKIP
```

Confirmation Option: *This prompt will only appear if you answered **Yes** at the first prompt in this section.*

The system will enter a confirmation mode so that the operation of the actual programmed input can be confirmed.

Activate the loop input or button that corresponds to this zone.

If Serial or Loop Numbers do not match after activating the transmitter

If the serial number transmitted does not match the serial number entered, a display similar to the one below will appear. If the loop number does not match, it will also be displayed.

```
Entd  A022-4063  1
Rcvd  A022-4064  1
```

If so, activate the loop input or button on the transmitter once again. If a match is not obtained (i.e., summary display does not appear), press the [#] key twice and then enter (or transmit) the correct serial number.

To Delete a Serial Number →

To delete an existing serial number, enter **0** in the loop number field. The serial number will change to **0**'s.

```
10 INPUT S/N:        L
   A000-0000         0
```

If **0** was entered in error, simply re-enter the loop number or press [#], and the serial number will return to the display.

```
Zn ZT  RC In: L
10 03  10  RF: 1s
```

If the serial number transmitted matches the serial number entered, the keypad will beep 3 times and a summary display will appear, showing that zone's programming. Note that an "s" indicates that a transmitter's serial number has been enrolled.

Press [✶] to accept the zone information and display the **PROGRAM ALPHA?** prompt.

```
PROGRAM ALPHA?
0 = NO  1 = YES  0
```

If you want to program descriptors for zones now, enter **1** (Yes) and refer to ***Section 19: Alpha Descriptor Programming*** for available descriptors**.**

```
ENTER ZN NUM.
(00 = QUIT)    11
```

If **0** (No) was entered above, the system will return you to the **ENTER ZN NUM.** prompt for the next zone.

When all zones have been programmed, enter **00** to quit**.**

When you have finished programming all zones, test each zone using the system's TEST mode. **Do not use the Transmitter ID Sniffer Mode for checking wireless transmitting devices**, as it will only check for transmission of one zone on a particular transmitter, NOT the zones assigned to each additional loop.

NOTE: Following the successful enrollment of each wireless device, remove **ONE** of the serial number labels from the device and affix it in the appropriate column on the ENROLLED TRANSMITTERS worksheet in the Programming Form; then enter the other information (zone number, zone type, loop number, etc.) relevant to that device.

✶58 Expert Programming Mode Procedures

Enter the program mode and follow the step-by-step instructions that follow.
Note: Before proceeding, you must program field ✶22 (RF System) and field ✶25 (Wired Zone Expansion) as required.

```
SET TO CONFIRM?
0 = NO   1 = YES  0
```

Press ✶58. This display will appear upon entry into this mode.

The default is **0** (No).

If **1** (Yes) is entered, you will be prompted to confirm each transmitter after entering the serial and loop numbers (at the "XMIT TO CONFIRM" prompt later).

```
Zn  ZT RC  IN:    L
01  09 10  HW:    1
```

A summary screen will appear, showing zone 1's current programming or default values.

```
Zn  ZT RC IN:  L
10  – –  – :  –
```

Enter the first digit of the zone number to be programmed. In the example at the left where zone 10 is to be programmed, the first digit **1** is entered, followed by the 2nd digit **0**. The display will show dashes, as shown at left. If zone 8 was to be programmed, you would press the 0 key, then the 8 key. You must always program zones using two digits.

Use the [D] key to enter wireless keys. When the [D] key is pressed, a special prompt will be displayed which offers a series of default templates for wireless keys. Go to the paragraph on a subsequent page titled **Entering and Duplicating Wireless Keys** for the necessary procedure.

```
Zn  ZT   RC IN:  L
10  00   10 RF:  1
```

A display with that zone's current programming will appear.

Press [✶] to continue.

*If HW (hardwired) or AW (Auxiliary) is entered for Input Device Type, the next screen will be similar to the above, except that HW or AW will be displayed under "IN".

Enter Zone Type (ZN), **Report Code** (RC), and **Input Device Type** (IN)***** sequentially, but not the Loop No. (L).

Use the [A] (Advance) and [B] (Back) keys on the keypad to move the cursor within the screen.

Use the [C] key to copy the previous zones attributes.

Press [✶] if the existing information is acceptable. If not, you can press the [#] key to back up without saving.

If RF, BR, or UR is entered, a prompt for Serial and Loop number will be displayed, as below. ↓

```
10 INPUT S/N:    L
   AXXX-XXXX     1
```

Manually enter the serial number (found on the transmitter label), by typing digits in the "X" locations, using the [A] (advance) or [B] (back) keys as required. You can also perform two open and close sequences; for button-type transmitters that means pressing and releasing the button twice.

```
10 INPUT S/N:    L
   A022-4064     1
```

Note: If you want to copy the previous zone's serial number, press the [C] key.

Press [✶] to advance to the loop number, then enter loop number.

Press [✶] To accept the existing serial and loop number. If necessary, press [#] to back up and re-enter or edit the serial number before pressing [✶] to save.

To Delete a Serial Number —

To delete an existing serial number, enter **0** in the loop number field. The serial number will change to all 0's as shown.

```
10 INPUT S/N:    L
   A000-0000     0
```

If **0** was entered in error, simply re-enter the **loop** number, and the serial number will return to the display.

```
10 XMIT TO CONFIRM
PRESS * TO SKIP
```

The prompt to confirm appears. *This prompt will only appear if the first prompt on page 16-4 was answered "Yes."* To confirm, activate the loop input or button that corresponds to this zone.

The system checks for duplicate. If a duplicate exists, a long error beep will sound.

Press [#] to back up and re-enter the serial and/or loop number.

If Serial or Loop Numbers do not match after activating the transmitter

→

If the serial/loop number combination transmitted does not match the serial and loop number entered, a display similar to the one below will appear. **If the loop number does not match, it will also be displayed.**

```
Entd    A022-4063
Rcvd    A022-4064
```

If so, activate the transmitter's loop input or button one or more times.

If a match is still not obtained (i.e., summary display does not appear), press the [#] key twice and enter the correct loop input or, if correct, press [#] again and then enter the correct serial number.

```
Zn  ZT  RC  In:  L
10  03  10  RF:  1s
```

Note that an "s" indicates that a transmitter's serial number has been enrolled. •

If the serial number transmitted matches the serial number entered, the keypad will beep 3 times and a summary display will appear, showing the programmed information for that zone.

Press [*] go to a blank summary display for entries for the next zone.

NOTE: Following the successful enrollment of each wireless device, remove **ONE** of the serial number labels from the device and affix it in the appropriate column on the ENROLLED TRANSMITTERS worksheet of the Programming Form; then enter the other information (zone number, zone type, loop number, etc.) relevant to that device.

To Remove a Zone

To either temporarily or permanently remove a zone from the system (5800 system):

1. Enter the programming mode:

   Key **[Installer Code]** + **8** + **0** + **0** and press ***56**.

2. The following display will appear:

```
SET TO CONFIRM?
0 = NO 1 = YES  0
```

Press [*] to continue.

3. Enter the zone number and press [*]. A summary display will appear. As an example, zone 20 is shown.

```
20  Zone Type
Not Used      00
```

4. Enter **00**. This sets the zone type to **Not Used**.

   Press [*] to continue.

```
20  Delete Zone?
1 = Yes,  0 = No
```

5. The next prompt will ask whether you want to delete the zone.

   1 (Yes) will permanently remove the zone from the system, while **2** (No) will disable it but retain all data except the original zone type. You can then go back to this zone later and put back an active zone type to re-enable it.

A serial number that has been entered for a 5800 system

will not be deleted if the zone is temporarily disabled by answering "No" to the previous prompt.

If only the physical transmitter is to be removed or changed (that is; its serial number deleted, as when replacing a unit that has a nonremovable battery), it can be done in ✶**56** Zone Programming Mode, as indicated next.

To Delete a Transmitter Serial Number

The abbreviated procedure below can be used to delete a transmitter serial number from a zone, using the ✶**56** Mode (5800 system).

1. In the Programming mode, press ✶**56** to enter Zone Programming mode.
2. Then enter the zone number, and press [✶] repeatedly until the cursor is under the RF Input Loop (L) position. This is the specific input (loop) or button on the transmitter that has been entered for that zone.
3. Enter **0** in the loop number field.

   The serial number will change to all **0**'s. Note that the other programmed values for that zone will not be deleted. This will allow you to reinstate a new transmitter in its place.

   ```
   10 INPUT S/N:      L
      A000-0000       0
   ```

   If **0** was entered in error, simply re-enter the loop number, and the serial number will return to the display.

   Press [✶] to accept.
4. A display for the next zone number will appear. To exit, enter **00**.
5. Press ✶**99** to exit the Programming mode.

To Enter and Duplicate Wireless Keys

If the D key was previously pressed on page 16-4 to enter and duplicate 5804 and/or 5804BD wireless keys, the following screens will appear:

```
TEMPLATE ?
1–6              1
```

1. Enter Template number 1–6 (from next page). 1–3 = 5804 templates; 4–6 = 5804BD templates. See the defaults provided for each template in the chart that follows these procedures.
2. Select from templates. Press [✶] to display template (1 shown selected). **Note**: If necessary, press [#] to back up and re-enter template number.
3. Press [#] if you want to return to zone attributes screen.

```
L  01 02 03 04
T  21 22 23 28
```

4. When [✶] is pressed, the selected template will be displayed. Top line of display represents loop numbers, bottom line represents zone type assigned for each zone.
5. Press [✶] to accept template.

```
ENTER START ZONE
00 = QUIT        36
```

Example of zone ↑ suggested by the system. This indicates that zones 36, 37, 38, and 39 are available.

6. The system will search for the highest zone number available, subtract the number of consecutive zones required for the device (four zones in the case of the 5804 and 5804BD), and display the lowest zone number of the group.

   If you want to start at a different zone, enter the zone desired, and press [✶].

   If that zone number is displayed, the system has the required number of consecutive zones available, beginning with the zone you entered. If not, the system will again display a suggested zone that can be used.

   If the required number of consecutive zones is not available at all, the system will display "00".

7. Press [✶] to accept.

8. Enter the serial number for the wireless key or fault and restore zone to transmit serial number.

```
INPUT S/N        L
AXXX-XXXX        –
```

9. Press [✶] to accept the serial number. The system will check for duplicate.

10. If necessary, press the [#] key to back up without saving, and re-enter the serial number.

    Use the [A] key to move forward within the screen, and the [B] key to move backward.

```
XMIT TO CONFIRM
PRESS ✶ TO SKIP
```

11. If "Yes" was entered at the **SET TO CONFIRM?** prompt previously (see first prompt following entry into the ✶58 Expert Programming Mode on page 16-4), the display on the left will appear. Confirm serial and loop numbers by activating the wireless key.

    If the serial number transmitted does not match the serial number entered, a display similar to the one below will appear. If the loop number does not match, it will also be displayed.

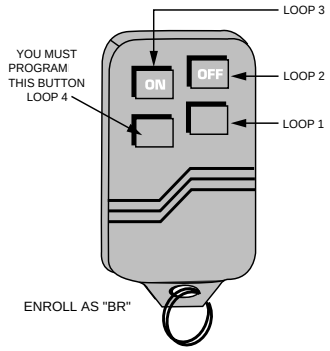
```
Entd A022-4063  1
Rcvd A022-4064  1
```

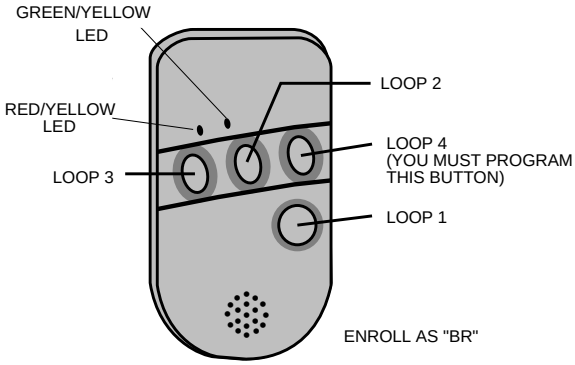
    If so, activate the loop input or button on the transmitter once again. If a match is not obtained (i.e., summary display does not appear), press the [#] key and then enter the correct serial number.

    If the serial number transmitted matches the serial number entered, the keypad will beep 3 times and will return you to step 6 above to enter the starting zone for the next wireless key.

NOTE: Following the successful enrollment of each wireless device, remove **ONE** of the serial number labels from the device and affix it in the appropriate column on the ENROLLED TRANSMITTERS worksheet of the Programming Form; then enter the other information (zone number, zone type, loop number, etc.) relevant to that device.

Wireless Key Predefined Default Templates





5804 Wireless Key Transmitter **5804BD 2-Way Wireless Key Transmitter**

UL NOTE: These transmitters are not designed for use in UL installations

For 5804				For 5804BD			
TEMPLATE 1	**Loop**	**Function**	**Zone Type**	**TEMPLATE 4**	**Loop**	**Function**	**Zone Type**
	1	No Response	23		1	No Response	23
	2	Disarm	22		2	No Response	23
	3	Arm Away	21		3	Arm Away	21
	4	No Response	23		4	Disarm	22
TEMPLATE 2	**Loop**	**Function**	**Zone Type**	**TEMPLATE 5**	**Loop**	**Function**	**Zone Type**
	1	No Response	23		1	No Response	23
	2	Disarm	22		2	Arm Stay	20
	3	Arm Away	21		3	Arm Away	21
	4	Arm Stay	20		4	Disarm	22
TEMPLATE 3	**Loop**	**Function**	**Zone Type**	**TEMPLATE 6**	**Loop**	**Function**	**Zone Type**
	1	24-hour Panic	07		1	24-hour Panic	07
	2	Disarm	22		2	Arm Stay	20
	3	Arm Away	21		3	Arm Away	21
	4	Arm Stay	20		4	Disarm	22

Output Device Programming
(*80 and *81 Menu Mode)

In This Section

- *Programming Options Defined*
- *Programming Output Relays and Powerline Carrier Devices*

Programming Options Defined

The following will help you understand the programming of Output Devices when using *80 and *81 modes. The options used to start and stop these devices are described below, followed by the actual screen prompts and available entries.

Relays and output devices are not recommended for life safety applications.

The letter(s) in parentheses after each function described below, such as (A) after ACTION, are those that appear in the various summary displays of programmed data during programming.

ACTION (A) The ***action*** of the device is how the device will respond when it is activated by the Start programming. There are four different choices of actions:

- ACTIVATE for 2 SECONDS and then reset.
- ACTIVATE and REMAIN ACTIVATED until stopped by some other event.
- PULSE ON and OFF until stopped by some other event.
- NOT USED when the device is not used.

START (STT) The Start programming determines when and under what conditions the device will be activated. The following Start options are available:

Start by Event

1. ***Event*** **(EV)** is the condition (alarm, fault, trouble) that must occur to a zone or group of zones (a zone list) in order to activate the device. These conditions apply **only** when a zone list is used. The different choices for ***event*** are listed below.
   - ALARM — Relay activates upon any alarm in an assigned zone in the zone list.
   - FAULT — Relay activates upon any opening or short in an assigned zone in the zone list.
   - TROUBLE — Relay activates upon any trouble condition in an assigned zone in the zone list.
   - NOT USED — Relay action is not dependent upon one of the above events.

2. Zone List (ZL) is a group of zones to which the ***event*** applies in order to activate a particular device. Note that there are 3 output device-related zone lists that can be programmed in ✶81 Menu mode; when the selected ***event*** (alarm, fault or trouble) occurs in **any** zone in the selected Start zone list (1, 2, or 3), activation of the selected device will Start.

Start by Zone Type or System Operation

1. If a **System Operation**, such as *disarming* or any *fire alarm*, is to activate the device, the appropriate choice would also be entered under the ***ZONE TYPE*** option. ***ZONE TYPE*** is used independently of the "EVENT/ZONE LIST" combination.

   If a ***ZONE TYPE*** is chosen, any zone of that response type going into alarm, trouble, or fault will cause the device to activate as selected in "ACTION." If the same ***ZONE TYPE*** is also chosen for the Stop programming, any zone of that type that restores will deactivate the device.

   If a System Operation is chosen (for example, end of *exit time*), that operation will cause the device to activate as selected in ***action***. The different choices for ***ZONE TYPE*** and **System Operation** are listed in *"Programming Output Relays and Powerline Carrier Devices"* later in this section, and in the Programming Form.

STOP (STP): The Stop programming determines when and under what conditions the device will be deactivated. The following options are available:

Upon Restore of a Zone List

1. Restore Zone List (ZL): If a ***ZONE LIST*** is used as the Stop event, the device will deactivate when **all** the zones in that list restore from a previous fault, trouble, or alarm condition. This will occur regardless of what is programmed to Start the device; therefore, a "RESTORE ZONE LIST" would normally only be used when a ***ZONE LIST*** is used to Start the device.

Upon a Zone Type or System Operation

1. ***Zone Type*/System Operation**: Instead of using a "RESTORE ZONE LIST", a specific zone (response) type or system operation action can be selected to deactivate the device.

   If a specific ***ZONE TYPE*** is chosen, any zone of that response type that restores from a previous alarm, trouble, or fault condition will cause the device to deactivate.

   If a **System Operation** is chosen, that operation will cause the device to deactivate. The different choices for ***ZONE TYPE*** and **System Operation** are listed in *"Programming Output Relays and Powerline Carrier Devices"* later in this section, and in the Programming Form.

During normal system operation, you may start any devices manually by a keypad entry of: **Code + # + 7 + n** or stop them manually by a keypad entry of: **Code + # + 8 + n,** where n = the device number to be controlled.

As a minimum, the ACTION (A) field must be programmed for this manual action to be operative.

If a relay is energized before a 4-wire smoke detector is reset, the relay will be stopped by the interruption of Aux. Power that resets the smoke detector. If this is not desired, supply power to the relay unit from another 12V power source (e.g., the same source that is powering external equipment through the relay contacts).

Programming Output Relays and Powerline Carrier Devices

While in Program mode, press ✶80 to enter Output Device Menu mode. This mode is used to program all output devices used in the system (**Error! Bookmark not defined.**4229 or **Error! Bookmark not defined.**4204 Relay Modules, or Powerline Carrier devices). Refer to the Output Device Table for ✶80 in the separate "Programming Guide" form when programming Output Devices.

NOTE: If you are using Powerline Carrier devices, the House ID of the devices must be entered in data field ✶27.

After you key in ✶80, the following prompts are displayed.

Output Device Displays

Enter Device No. (00 = Quit) 01	Enter the Device Number **01** or **02** for a 4229; or **01**, **02**, **03**, or **04** for a 4204; or **01**–**08** for Powerline Carrier devices; or **00** to end these entries. Press ✶ to continue.
	The ✶ key is used to accept an entry and advance to the next prompt. The # key is used to revert back to the last question to check or change an entry. Press ✶ to go forward again.
02 A EV ZL ZT STT 0 0 0 00	This screen displays a summary of the current Device START programming (for this example, device 02 has been selected). Press ✶ to continue.
02 A EV ZL ZT STP – – 0 00	This screen displays a summary of the current Device STOP programming. Press ✶ to continue.
02 Device Action No Response 0	Enter the desired device action as listed below. Press ✶ to continue. 0 = No response 2 = Close and Stay Closed 1 = Close for 2 seconds 3 = Continuous Pulse on & off (1 sec ON, 1 sec OFF)
02 Start Event Not Used 0	Enter the event to ***start*** the relay: 0 = Not used; 2 = Fault; 1 = Alarm; 3 = Trouble A zone list must be used in conjunction with an event. If a zone type/system operation is to be used instead of an event, enter **0**. Press ✶ to continue.
02 Start: Zn List No List 0	If a zone list will be used to ***start*** the relay action, enter the zone list number (to be programmed in field ✶81): **1**, **2**, or **3**. If not used, enter **0**. Press ✶ to continue.

02 Start: Zn Typ
Not Used 00

If a zone type or system operation will be used to START the device action, enter the appropriate 2-digit code (see table that follows). If not, enter **00**.

Press ✶ to continue.

CHOICES FOR ZONE TYPES

00 = Not Used	05 = Trouble Day/Alarm Night	10 = Interior w/Delay
01 = Entry/exit #1	06 = 24-Hr Silent	14 = Carbon Monoxide
02 = Entry/exit #2	07 = 24-Hr Audible	15 = Medical
03 = Perimeter	08 = 24-Hr Aux	24 = Silent Burglary
04 = Interior Follower	09 = Fire	64 = One-button Page

CHOICES FOR SYSTEM OPERATION

20 = Arming–STAY	36 = At Bell Timeout*	42 = System Battery Low
21 = Arming–AWAY	38 = Chime	43 = Comm Failure
22 = Disarming (Code + OFF)	39 = Any Fire Alarm	52 = Kissoff
31 = End of Exit Time	40 = Bypassing	58 = Duress
32 = Start of Entry Time	41 = AC Power Failure	65 = Any CO Alarm
33 = Any Burglary Alarm		

* Use 0 (Any) at Disarming

02 Start:
0

Enter **0** for any.
Press ✶ to continue.

02 Stop: Zn List
No List 0

If a zone list will be used to Stop, or ***restore***, the device action, enter the zone list number **1**, **2**, or **3** (to be programmed in ✶81 mode). If not used, enter **0**.

Press ✶ to continue.

02 Stop: Zn Typ
Not Used 00

If a zone type or system operation will be used to Stop the device action, enter the appropriate 2-digit code (refer to the "**CHOICES FOR ZONE TYPES**" listed above). If not, enter **00**.
Press the ✶ key to continue.

02 Stop:
0

Enter **0** for any.
Press ✶ to continue.

02 A EV ZL ZT
STT 0 0 0 00

This screen again displays a summary of the current device Start (STT) programming. Press ✶ to continue.

02 A EV ZL ZT
ST – – 0 00

This screen again displays a summary of the current device Stop (STP) programming. Press ✶ to continue.

02 X10 Device ?
0 = No, 1 = Yes 00

Enter **1** if you are using a Powerline Carrier device (X10); if not, enter **0**.

The display then returns again to the first screen so that the next device number to be programmed can be entered. Enter **00** to end device programming.

Example of Output Device Programming

Assume that a lamp is to be turned on via a Powerline Carrier device (X10) when any one of 3 specific zones are faulted, or when any 24-hour auxiliary zone is faulted. Additionally, assume that you want to be able to turn off the lamp **manually** without affecting the

arming status of the system.

To program this, do the following:

1. In ✶80 Interactive mode, choose Output Device 01 and program the Action (A) to be "2" (Close and stay closed). The Event you want to *start* the Device action is a fault, so program **2** in (EV).

   To use Zone List 1 for the 3 specific zones, program **1** in (ZL), and program these 3 zones in ✶81's Zone List 1.

2. The second condition for turning on the indicator is triggering a 24-hour aux. zone (Zone Type 08). Therefore, program (ZT) as **08**.

3. To stop the Device action and turn off the lamp, you do not want to use a restore of any zone, so program a **0** for the Restore of Zone List (ZL).
   A manual entry of **[User Code] + # + 8 + [Device No.]** will be used to turn off. Therefore, you do not need to program a Stop event.

4. Press ✶ to continue.

5. The system will display a summary screen for the Start programming for device 01. Press ✶ to continue.

6. The system will display a summary screen for the Stop programming for device 01. Press ✶ to continue.

7. The system will display the **X10?** prompt. Enter **1** for yes.

8. The **ENTER DEVICE No.** prompt for the next zone will be displayed.

   Press **00** and then [✶] to exit the ✶80 mode.

Now use ✶81 Zone List mode to program the 3 specific zones in Zone List 01.

Zone Lists
(*81 Menu Mode)

In This Section

- *About Zone List Menu Mode*
- *Zone List Displays*
- *Pager 1 Reporting - Zone List 06*
- *Pager 2 Reporting - Zone List 07*

About Zone List Menu Mode

Zone List Menu mode is used to program zone lists for output devices (programmed in *80 Menu mode). Refer to the Programming Form worksheet for *81 Mode. To enter Zone List Menu mode, press *81 while in program mode.

Zone List Displays

Zone List No. (00 = Quit) 01	Enter the Zone List Number (**01**, **02**, **03**, **06** or **07**) that you want to program (or **00** to end these entries). Press * to advance. In the following displays, zone list 01 has been selected for programming.
01 Enter Zn Num. (00 = Quit) 00	Enter each zone number to add to the zone list by first entering the zone number, then * (for example, 01*, 02*, etc.). After all zones desired are entered, press **00** to advance. **Important:** Do not include fire zones in zone lists that are used to STOP relay actions.
01 Del Zn List? 0 = No 1 = Yes 0	To delete the zone list, enter **1** (Yes). All zones in the zone list will be deleted automatically and programming will return to the first screen. To save the zone list, enter **0** (No) to advance.
01 Delete Zone? 0 = No 1 = Yes 0	To save the entire zone list, enter **0** (No) and programming will return to the first screen. To delete a zone or zones in a zone list, enter **1** (Yes) to advance.
01 Zn to Delete? (00 = Quit) 00	Enter each zone to be deleted from the list, followed by [*]. After all zones to be deleted are entered, enter **00** to return to the first screen so that another list can be programmed, if desired.

NOTES:

- Any list may include any or all of the system's zone numbers.
- A zone list can be assigned to more than one output relay.

Pager 1 Reporting - Zone List 06

Pager 1 reporting is an option that must be set up using zone list 06, and entering the appropriate zones that will report to Pager 1, independent of the report code enabled.

The chosen zone numbers are to be entered into zone list 06 via field ✶81. If any of the zones in zone list 06 faults in the armed state, the system will send an alarm report to Pager 1.

Pager 2 Reporting - Zone List 07

Pager 2 reporting is an option that must be set up using zone list 07, and entering the appropriate zones that will report to Pager 2, independent of the report code enabled.

The chosen zone numbers are to be entered into zone list 07 via field ✶81. If any of the zones in zone list 07 faults in the armed state, the system will send an alarm report to Pager 2.

Alpha Descriptor Programming

In This Section

- *About Alpha Descriptor Programming*
- *Programming Zone Descriptors*
- *Zone Descriptors*
- *Adding Custom Words*

About Alpha Descriptor Programming

This section provides instructions for programming alpha zone descriptors. This is recommended for systems using alpha keypads, and is necessary if a 4285 or 4286 VIP Module is used.

If you are using a 4285/4286 VIP Module, select from those words in the Alpha Vocabulary List shown in **boldface type**. **The phone module will not provide annunciation of the other words.**

If a 4285/4286 VIP Module is added to an existing SL150 system, the alpha descriptors presently in the system should be reprogrammed, selected from those words shown in **boldface type** in the Alpha Vocabulary List. The phone module will not provide annunciation of any other words.

The Alpha Vocabulary List and Character (ASCII) Chart can be found on a subsequent page in this section

Zone Descriptors

For the alpha keypad used with the SL150, you can program into the system a user-friendly English language description/location of all protection zones, keypad panics, and RF receiver supervision faults. Each description can be composed of a combination of words (up to 3) selected from a vocabulary of 196 words stored in memory (see a following page). In addition, up to 10 installer-defined words can be added to those already in memory. Thus, when an alarm or trouble occurs in a zone, an appropriate description for that zone's location will be displayed at the keypad.

NOTE: Alpha descriptor entry can be done locally at the alpha keypad or remotely using downloading software. The alpha keypad entry procedure is described below.

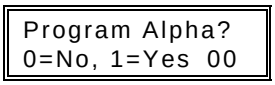
Programming Zone Descriptors (Program Menu Mode ✳82)

You can enter the descriptor when the zone is being defined in field ✳56, but we recommend you do it using ✳82 menu mode.

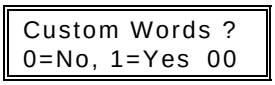
To program zone descriptors, enter the 3-digit reference number for the desired word(s). The 3-digit number for each word is provided in the Alpha Vocabulary List (on a following page).

1. With the system powered up, enter the Programming mode by keying: **Installer code (4 1 1 2) + 8 + 0 + 0**. The following display will appear:

Installer Code 20



2. Press ✶**82.**
   The **Program Alpha?** prompt will appear.

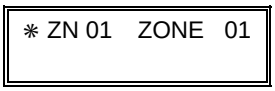


3. Press **1** (Yes).
   The **Custom Words ?** prompt will appear.
4. Press **0** (No).* The system will then automatically display the descriptor for zone 1.

* The procedure for adding custom words to the built-in vocabulary is given in *"Adding Custom Words"* on the next page.

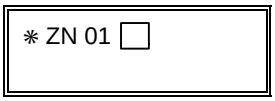
Summary Mode Display

Default Descriptor ↓



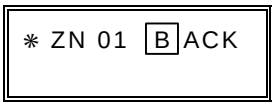
If a descriptor was not entered previously for zone 1, the default descriptor for zone 1 will be displayed.
Note that this is a "summary mode," and that no entries can be made. Entries can be made only when the display contains a flashing cursor, which signifies the "entry mode."

Flashing Cursor (system is ready for entry of word). ↓

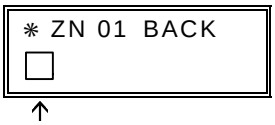


5. To delete or change the default descriptor for zone 1, **press ✶ plus the same zone number (01).** This will clear that descriptor and allow changes to be made at the flashing cursor.
   NOTE: If you do not wish to change the existing descriptor for zone 1, enter ✶ plus the next zone number for which you wish to enter (or check) a descriptor. A summary display for that zone will appear. You must then press ✶ plus the same zone number again to gain access to the entry mode (flashing cursor) for that zone.

Flashing Cursor ↓

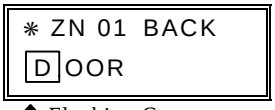


6. Press **#** plus the **3-digit number** for the first word from the Alpha Vocabulary List.
   EXAMPLE: The descriptor that we wish to enter for zone 1 is BACK DOOR. From the list, BACK = 013. Therefore, we enter **# 0 1 3**.
   NOTE: If you accidentally enter the wrong word, simply press **#** plus the correct 3-digit number for the word you want.



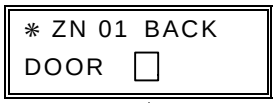
↑ Flashing Cursor if "6" is pressed (system is ready for next word).

7. Press **6** to accept the selected word and continue.
   NOTE: If this is the only word you are using for the descriptor, press **8** instead of **6** to save that word in memory, and then go to step 11.



↑ Flashing Cursor

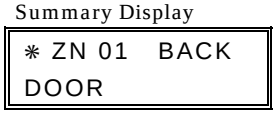
8. Enter the **3-digit number** for the next word. In our example, the word is DOOR, whose number is 057.
   Enter **# 0 5 7**. The display at left will appear:



Flashing Cursor if "6" is pressed (system is ready for next word).

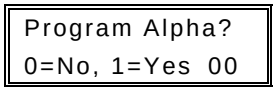
9. Press **6** to accept the selected word.
   NOTE: If these are the only words you are using for the descriptor, press **8** instead of **6** to save them in memory.
10. The two words in our example have now been entered. Note, however, that up to three words may be entered (provided the number of characters will fit on the screen). **Press 8 to save all words in memory.**

Summary Display

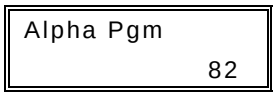


The flashing cursor will disappear, indicating that the word(s) are stored in memory for that zone, as shown in the summary display at the left.

11. To enter a descriptor for the next zone, press ***** plus the desired zone number (e.g., ***02**). The summary display following step 4 previously will appear. Now repeat Steps 6 through 10 for the descriptor for the next zone.
12. To exit the alpha descriptor mode, press ***00** at the summary display.



This prompt will be displayed.



13. Press **0**. This will be displayed.
14. Press ***99** to exit the Programming mode.

Adding Custom Words

You can add up to 10 installer-defined words to the built-in vocabulary. Each of the 10 words can actually consist of a word string of one or more words, but no more than *ten* characters can be used for each word or word string.

When adding Custom Words, the keypad keys perform the following functions:

[4] Moves cursor one space to the left.

[6] Moves cursor one space to the right.

[8] Saves the new word in the system's memory.

1. Perform steps 1, 2, and 3 of *Programming Zone Descriptors* on a previous page.
   Select Custom Word mode (enter **1**) when the prompt **CUSTOM WORD ?** is displayed.
2. Enter the number (**01**–**10**) of the custom word or word string to be created (for example, if you are creating the first custom word or word-string, enter **01**; for the second, enter **02**, etc.). A cursor will now appear at the beginning of the second line.
3. Refer to the Character Chart of letters, numbers, and symbols on a following page.
   Press **#**, followed by the 2-digit entry for the first letter you would like to display (for example, **65** for "A").
   The cursor will then move to the right, in position for the next character.
4. Repeat Step 3 to create the desired word(s). Note that the "4" key can be used to move the cursor to the left, if necessary. Remember no word or word-string can exceed 10 characters.

5. Press **8** to save the custom word(s) and return to the "CUSTOM WORD ?" display.
   Repeat Steps 2–5 for other custom words to be entered. To change a custom word, just overwrite it. If no more are to be entered now, press **0** to return to the Descriptor entry. The custom word(s) will be automatically added to the built-in vocabulary.

If a custom word exists, and you want to replace that word with a shorter one, do the following: after the last character of the new word is entered, press 6 + 00 + 8. This removes all the additional characters of the old custom word.

When zone descriptors are being entered as described in Step 6 of *Programming Zone Descriptors*, the custom word numbers are 245 to 254 for words 1 to 10, respectively.

ALPHA VOCABULARY LIST

(For Entering Zone Descriptors)

000 *(Word Space)*

– A –

- **001 AIR**
- **002 ALARM**

004 ALLEY
005 AMBUSH

- **006 AREA**
- **007 APARTMENT**
- **009 ATTIC**

010 AUDIO

– B –

- **012 BABY**
- **013 BACK**
- **014 BAR**
- **016 BASEMENT**
- **017 BATHROOM**
- **018 BED**
- **019 BEDROOM**

020 BELL

- **021 BLOWER**
- **022 BOILER**

023 BOTTOM
025 BREAK

- **026 BUILDING**

– C –

028 CABINET

- **029 CALL**

030 CAMERA
031 CAR
033 CASH
034 CCTV
035 CEILING
036 CELLAR

- **037 CENTRAL**

038 CIRCUIT

- **040 CLOSED**
- **046 COMPUTER**

047 CONTACT

– D –

- **048 DAUGHTERS**

049 DELAYED

- **050 DEN**

051 DESK

- **052 DETECTOR**
- **053 DINING**

054 DISCRIMINATOR
055 DISPLAY

- **057 DOOR**
- **059 DOWN**
- **060 DOWNSTAIRS**

061 DRAWER

- **062 DRIVEWAY**
- **064 DUCT**

– E –

- **065 EAST**

066 ELECTRIC
067 EMERGENCY
068 ENTRY

- **069 EQUIPMENT**
- **071 EXIT**

072 EXTERIOR

– F –

- **073 FACTORY**

075 FAMILY

- **076 FATHERS**
- **077 FENCE**
- **079 FIRE**
- **080 FLOOR**

081 FLOW
082 FOIL

- **083 FOYER**

084 FREEZER

- **085 FRONT**

– G –

- **089 GARAGE**
- **090 GAS**

091 GATE

- **092 GLASS**

093 GUEST
094 GUN

– H –

- **095 HALL**
- **096 HEAT**

098 HOLDUP
099 HOUSE

– I –

100 INFRARED

- **101 INSIDE**

102 INTERIOR
103 INTRUSION

– J –

104 JEWELRY

– K –

- **105 KITCHEN**

– L –

- **106 LAUNDRY**
- **107 LEFT**

108 LEVEL

- **109 LIBRARY**
- **110 LIGHT**

111 LINE

- **113 LIVING**
- **114 LOADING**

115 LOCK
116 LOOP
117 LOW

- **118 LOWER**

– M –

- **119 MACHINE**

121 MAIDS
122 MAIN

- **123 MASTER**
- **125 MEDICAL**

126 MEDICINE
128 MONEY
129 MONITOR

- **130 MOTHERS**
- **131 MOTION**

132 MOTOR

– N –

- **134 NORTH**

135 NURSERY

– O –

- **136 OFFICE**
- **138 OPEN**

139 OPENING

- **140 OUTSIDE**

142 OVERHEAD

– P –

143 PAINTING

- **144 PANIC**

145 PASSIVE

- **146 PATIO**

147 PERIMETER

- **148 PHONE**

150 POINT
151 POLICE
152 POOL

- **153 POWER**

– R –

155 RADIO

- **156 REAR**

157 RECREATION
159 REFRIGERATION
160 RF

- **161 RIGHT**
- **162 ROOM**

163 ROOF

– S –

164 SAFE
165 SCREEN
166 SENSOR

- **167 SERVICE**
- **168 SHED**

169 SHOCK

- **170 SHOP**

171 SHORT

- **173 SIDE**

174 SKYLIGHT
175 SLIDING

- **176 SMOKE**
- **178 SONS**
- **179 SOUTH**

180 SPRINKLER

- **182 STATION**

184 STORE

- **185 STORAGE**

186 STORY
190 SUPERVISED
191 SUPERVISION
192 SWIMMING
193 SWITCH

– T –

194 TAMPER
196 TELCO
197 TELEPHONE

- **199 TEMPERATURE**

200 THERMOSTAT

- **201 TOOL**

202 TRANSMITTER

– U –

- **205 UP**
- **206 UPPER**
- **207 UPSTAIRS**
- **208 UTILITY**

– V –

209 VALVE
210 VAULT
212 VOLTAGE

– W –

213 WALL
214 WAREHOUSE

- **216 WEST**
- **217 WINDOW**
- **219 WING**

220 WIRELESS

– X –

222 XMITTER

– Y –

223 YARD

– Z –

224 ZONE (No.)

- **225 ZONE**
- **226 0**
- **227 1**
- **228 1ST**
- **229 2**
- **230 2ND**
- **231 3**
- **232 3RD**
- **233 4**
- **234 4TH**
- **235 5**
- **236 5TH**
- **237 6**
- **238 6TH**
- **239 7**
- **240 7TH**
- **241 8**
- **242 8TH**
- **243 9**
- **244 9TH**

245 Custom Word #1 _____

246 Custom Word #2 _____

247 Custom Word #3 _____

248 Custom Word #4 _____

249 Custom Word #5 _____

250 Custom Word #6 _____

251 Custom Word #7 _____

252 Custom Word #8 _____

253 Custom Word #9 _____

254 Custom Word #10 _____

NOTE: Bulleted (•) words in **boldface type** are those that are also available for use by the 4285/4286 VIP Module. If you are using a phone module, and words other than these are selected for alpha descriptors, the phone module will not provide annunciation of those words.

CHARACTER (ASCII) CHART

(For Adding Custom Words)

32	(space)	39	'	46	.	53	5	60	<	67	C	74	J	81	Q	88	X
33	!	40	(	47	/	54	6	61	=	68	D	75	K	82	R	89	Y
34	“	41	)	48	0	55	7	62	>	69	E	76	L	83	S	90	Z
35	#	42	*	49	1	56	8	63	?	70	F	77	M	84	T		
36	$	43	+	50	2	57	9	64	@	71	G	78	N	85	U		
37	%	44	,	51	3	58	:	65	A	72	H	79	O	86	V		
38	&	45	–	52	4	59	;	66	B	73	I	80	P	87	W		

Macros (SpeedKey)

✦ About Macros (SpeedKey)
✦ Macro Key Programming

About Macros

The "C" key on the keypads can be used to activate a series of commands, represented by strings of up to 16 keystrokes. These keystrokes, as a group, are called macros and can be stored in the system's memory for the "C" key.

Up to two (2) macros can be programmed for the system. User codes are then assigned to one of the macro sequences when they are entered into the system. Pressing the "C" key will intiate the macro, but then the system will prompt for the entry of a user code to determine which macro to perform.

Typical Speedkey functions include:

- Arming sequences that first involve bypassing certain zones before arming
- Seldom used but repeatable sequences
- Relay activation sequences.

Macro Key (Speedkey) Programming

To Program a Macro

Up to two macros may be programmed. Each user may be assigned to execute one of the two macros during User Code Programming. ***See Section 23 – System Operation*** under "Secondary User Codes" for instructions on how to assign a user code for macro operation.

To program a macro, enter the 4-digit security code + [#] + [C key] on an Alpha keypad
The following prompt appears:

LEARN WHICH MACRO ?
0 = EXIT 1 OR 2

Enter the macro number you intend to program, 1 or 2.

SPEED LEARN MODE

This will be followed by the SPEED LEARN MODE display, signifying that you can now commence programming.

For example, you may want to program the following series of commands into the "C" key:

Desired Function(s)	Keystrokes Required	Keypad Display
Bypass zones 02 and 19	Press BYPASS [6] key, then 2-digit zone numbers 02 and 19.	**6 0219**
End the command	Press the MACRO (C) key.	**6 0219F**
Turn on relay 1 (e.g., Relay 1 operates the porch light)	Press [#] key, then the [7] key for relay ON, and the [1] key for selecting relay 1.	**6 0219F#71**
End the command	Press the MACRO (C) key.	**6 0219F#71 F**
Arm system in AWAY mode	Press AWAY [2] key.	**6 0219F#71 F2**
End the command	Press the MACRO (C) key.	**60219F#71F2F**

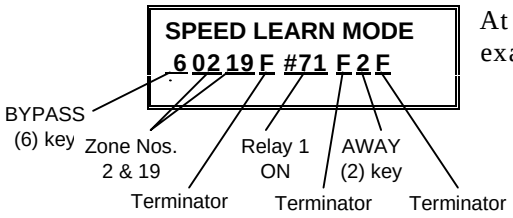
Note: The Macro key is pressed after each individual command being programmed and acts as a terminator. The keypad displays an "F" each time the Macro key (C) is pressed.

You can enter up to 16 keystrokes to program a macro. There are no wordspaces between entries – as indicated previously, each individual command is separated by a terminator (pressing the "C" key).

The keypad display echoes the keys that are pressed (see example on the previous page which shows the progression of the keypad display as each entry is made).

```
SPEED LEARN MODE
60219F#71F2F
```

Following the entry of all commands, the full display at left will appear.



At left is an explanation for each entry that has been made in our example.

With the above entries, the "C" key can now be used to execute the following series of commands:

Bypass zones 2 and 19, turn relay 1 on, and arm the system in the AWAY mode.

To Execute a Macro

To start a speedkey sequence, press the MACRO key (C) key.

The following display will appear:

```
ENTER USER CODE
✶✶✶✶
```

Enter the 4-digit code previously assigned to the macro user (see ***Section 23 – System Operation*** under "Secondary User Codes" for instructions on how to assign a user code to a macro).

The programmed speedkey sequence will begin automatically.

NOTE: There are two macros available per system. Each user may be assigned to execute one of the two macros.

When defining speedkey sequences, do **NOT** use the [#] key to represent Quick Arming. The SL150 system uses the entered code in response to the prompt to initiate commands in a speedkey sequence, so the Quick Arm key is unnecessary. The system interprets the use of the [#] key in a speedkey sequence as its designated function only

Remote Programming and Control (Downloading)

In This Section

- *About Remote Programming*
- *Equipment Required*
- *Initial Download*
- *Remote Programming Commands*
- *Remote Programming Advisory Notes*

About Remote Programming

The system can be remotely programmed from an IBM-compatible personal computer (PC), a compatible modem, and Ademco's COMPASS software (as specified below).

UL For UL installations, downloading may be performed only if a technician is at the site.

The following multiple levels of security protect remote programming of the control against compromise by someone attempting to defeat the system:

1. **Security Code Handshake:** An 8-digit download ID code must be matched between the control and the downloader.
2. **Site-Initiated Remote Programming:** The installer or subscriber initiates the callback from the subscriber premises (by entering **[Installer code] + # + 1**) while disarmed. All parameters can then be downloaded via the phone lines using a personal computer.
3. **Station-Initiated Remote Programming:** The operator calls the site from your office to initiate the download call. The control hangs up and then calls back the PC via the preprogrammed telephone number. The unit can then be uploaded, downloaded, or controlled from your office.
4. **Telco Hand-off**: Allows the installer or subscriber to perform a download session on the call initiated from the site.
5. **Data Encryption:** Data passed between the PC and the control is encrypted for security so that it is very difficult for a foreign device tapped into the phone line to take over communication and substitute system-compromising information.

Equipment Required

The following equipment is required for remote programming and downloading:

At the premises: SL150 and SL6160 keypad

At the installer's office/Stay: An IBM PC-compatible computer and one of the following modems:

– BizComp Intellimodem 1200 w/volume
– BizComp Intellimodem 2400
– Hayes Optima 336 External

Continued on next page –

– Hayes Smartmodem Optima 2400
– Hayes Optima 2400 Fax96
– Hayes Smartmodem 1200 External Modem
– Hayes Smartmodem 1200B Internal Modem (Rev. 1.2 or higher)
– Hayes external Optima 24 Plus FAX96 Modem
– Practical Peripherals PM14400FXSA

COMPASS® Downloader Software (at revision level supporting the SL150)

Appropriate interconnecting cables

Initial Download

For initial downloading, enter **[Installer code] + # + 5**. This sets field *95 to 4 rings, and system to "no call-back" option. The download computer can then call the subscriber, make the connection, and download all programming items.

After the control and the PC have established valid communication, each keypad on the system will become inactive and will display "**CC**" or "**MODEM COMM**." The control, however, will still be scanning its zones and looking for alarms. If an alarm does occur, after communication is broken off, alarms are sounded and the proper dialer reports are sent to the Central Station. The keypads will become active after the download communication is terminated. The detailed operation of the download functions is covered in the installation instructions for the COMPASS Downloader.

Remote Programming Commands

The downloading system can perform many functions when in communication with the control unit. Besides uploading and downloading, the status of the system can be observed and various commands can be initiated, as follows:

- Arm the system in the AWAY mode; disarm the system.
- Bypass a zone.
- Force the system to accept a new program download.
- Shut down communication (dialer) functions (in response to nonpayment of monitoring fees in an owned system).
- Shut down all security system functions (in response to nonpayment for a leased system).
- Inhibit local keypad programming (prevents account takeover).
- Command the system to upload a copy of its resident program to the office.
- Read: arming status, AC power status, lists of faulted zones, bypassed zones, zones currently in alarm, zones currently in trouble, and RF sensors with low-battery conditions.

Note: One of the following messages will be displayed following an upload:

Alpha Keypads	Fixed-word Keypads
Upload failed	dF
Upload completed	dC

Remote Programming Advisory Notes

- Alarm and trouble reporting may be delayed during the time that the system and the downloader are linked to each other following a valid exchange of codes, but the proper message will get through to the Central Station after the link is broken.
- Keypad entries are ignored during the time interval stated above.
- A copy of the program downloaded may be produced from the IBM PC-compatible computer, using the product's internal report generator, when an optional printer is connected (consult your PC manual for proper printer and connections).

System Communication

In This Section

- Panel Communication with Central Station
- Report Code Formats

Panel Communication with Central Station

This system accommodates several formats for reporting alarms and other system conditions to the Central Station. The process of a successful transmission consists of both the method of communication between the control panel and the Central Station receiver; and the actual way the information is sent and displayed at the Central Station.

When the panel calls the Central Station receiver, it waits to hear a "handshake" frequency from the receiver to confirm that the receiver is on-line and ready to receive its message. Once the panel hears the handshake it is programmed to listen for, it sends its message. The panel then waits for a "kissoff" frequency from the receiver acknowledging that the message was received and understood.

If the handshake frequency is not given or is not understood by the panel, the panel will not send its message. Once the handshake frequency is received and understood by the panel, the panel will send its message. If there is an error in the transmission (the receiver does not receive a "valid" message), the kissoff frequency will not be given by the Central Station receiver.

The panel will make a total of eight attempts to the primary telephone number and eight attempts to the secondary telephone number (if programmed) to get a valid message through. If the panel is not successful after its numerous attempts, the keypad will display **COMM. FAILURE** (on alpha keypads) or **FC** (on fixed-word keypads).

Report Code Formats

The following chart indicates the characteristics of the various reporting formats that the this control panel supports:

FORMAT TIME	HANDSHAKE	TRANSMITS DATA	KISSOFF	TRANSMIT
Low Speed 3+1 4+1 4+2	1400Hz	1900Hz (10PPS)	1400Hz	Under 15 secs. (Standard report)
Sescoa/Rad 3+1 4+1 4+2	2300Hz	1900Hz (20PPS)	2300Hz	Under 10 secs. (Standard report)
Express 4+2	1400–2300Hz	DTMF (10 cps)	1400Hz	Under 3 secs.
Contact ID	1400–2300Hz	DTMF (10 cps)	1400Hz	Under 3 secs.

The following describes each format in greater detail.

3+1 and 4+1 Standard Formats	Comprise a 3- (or 4-) digit subscriber number and a single digit report code (e.g. Alarm, Trouble, Restore, Open, Close, etc).
3+1 and 4+1 Expanded Formats	Comprise a 3- (or 4-) digit subscriber number, and a two-digit report code. The first digit is displayed on the first line, followed by a second line where the first digit is repeated 3 (or 4) times and followed by the second digit. This is the "expanded" digit.
4+2 Format	Comprises a 4-digit subscriber number and 2-digit report code.
Ademco Contact ID Format	Comprises a 4-digit subscriber number, 1-digit event qualifier ("new" or "restore"), 3-digit event code, and 3-digit zone number, user number, or system status number (see the following page).

Report	3+1/4+1 Standard	3+1/4+1 Expanded	4+2
Alarm	SSS(S) A	SSS(S) A AAA(A) Z	SSSS AZ
Trouble	SSS(S) T	SSS(S) T TTT(T) t	SSSS Tt
Bypass	SSS(S) B	SSS(S) B BBB(B) b	SSSS Bb
AC Loss	SSS(S) E	SSS(S) E EEE(E) A_C	SSSS EA_C
Low Batt	SSS(S) L	SSS(S) L LLL(L) L_B	SSSS LL_B
Open	SSS(S) O	SSS(S) O OOO(O) U	SSSS OU
Close	SSS(S) C	SSS(S) C CCC(C) U	SSSS CU
Test	SSS(S) G	SSS(S) G GGG(G)g	SSSS Gg
Restore Alarm	SSS(S) R	SSS(S) R RRR(R) Z	SSSS RZ
AC Restore	SSS(S) R_A	SSS(S) R_A $R_AR_AR_A(R_A)A_c$	SSSSR_A A_c
LoBat Res.	SSS(S) R_L	SSS(S) R_L $R_LR_LR_L(R_L)L_B$	SSSS R_LL_B
Trouble Res.	SSS(S) R_T	SSS(S) R_T $R_TR_TR_T$ (R_T)t	SSSS R_Tt
Bypass Res.	SSS(S) R_B	SSS(S) R_B $R_BR_BR_B$ (R_B)b	SSSS R_Bb

Where:

SSS or SSSS = Subscriber ID
A = Alarm Code–1st digit
Z = Typically Zone Number*–2nd digit
Tt = Trouble Code (1st & 2nd digits)
Bb = Bypass Code (1st & 2nd digits)
EA_C = AC Loss Code (1st & 2nd digits)
LL_B = Low Battery Code(1st & 2nd digits)
O = Open Code–1st Digit
C = Close Code–1st Digit
U = User Number (in hex)
Gg = Test Code (1st & 2nd digits)
R = Restore Code (Alarm)
R_Tt = Restore Code (Trbl)1st & 2nd digits
R_Bb = Restore Code (Byps)1st & 2nd digits
R_AA_C = Restore Code (AC)1st & 2nd digits
R_LL_B = Restore Code (Bat)1st & 2nd digits

*Zone numbers for: [✱] & [#], or [B] = 99 [1] + [✱], or [A] = 95 Duress = 92
[3] + [#], or [C] = 96 Tamper = 9

The Ademco Contact ID reporting format comprises a 10-digit subscriber account number, 1-digit event qualifier ("new" or "restore"), 3-digit event code, and 3-digit zone number, user number, or system status number, as follows:

Ademco Contact ID Reporting takes the following format:

CCCCCCCCCC Q EEE ZZZ

where:

CCCCCCCCCC = Customer ID (subscriber account number)

Q = Event qualifier, where: E = new event, R = restore

EEE = Event code (3 hexadecimal digits)*

ZZZ = Zone/contact ID number reporting the alarm, or user number for open/close reports. System status messages (AC Loss, Walk Test, etc.) contain zeroes in the ZZZ location.

* **NOTE:** For a complete list of event codes, refer to the Central Station office receiver manual.

TABLE OF CONTACT ID EVENT CODES

Code	Definition
100	Alarm, 24-hour, Medical
110	Fire Alarm
121	Duress
122	Alarm, 24-hour Silent
123	Alarm, 24-hour Audible
131	Alarm, Perimeter
132	Alarm, Interior
134	Alarm, Entry/exit
135	Alarm, Day/Night
143	Alarm, Expansion Module
146	Silent Burglary
150	Alarm, 24-Hour Auxiliary
162	Alarm, 24-Hour, Carbon Monoxide Det.
301	AC Power
302	Low System Battery/Battery Test Fail
305	System Reset
321	Bell/Siren # 1 Trouble
333	Trouble or Tamper Expansion Module
344	RF Receiver Jam Detection
351	Telco Line Fault

Code	Definition
353	Long Range Radio Trouble
373	Fire Loop Trouble
374	Exit Error Alarm
380	Global Trouble, Trouble Day/Night
381	RF Supervision Trouble
383	RF Sensor Tamper
384	RF Sensor Low Battery
401	Disarmed, Armed AWAY (Max), Armed AWAY
406	Cancel by User
407	Remote Arm/Disarm (Downloading)
408	Quick Arm AWAY/MAX
441	Disarmed/Armed STAY/INSTANT, Quick Arm STAY/INSTANT
570	Bypass
602	Periodic Test
606	AAV to Follow
607	System Test
623	Event Log 80% Full
629	1-1/3 Day No Event

System Operation

In This Section

- *Security Codes*
- *Keypad Functions*
- *Relay/Powerline Carrier Devices*
- *4285/4286 VIP Module*
- *Exit Error Alarm Displays*
- *Trouble Conditions*

Security Codes

Installer Code

The installer programs the 4-digit Installer code initially as part of the programming procedure. The factory default Installer code is **4-1-1-2,** but may be changed in field ✶20.

The Installer code is the only code that can enter Programming mode. In normal operation mode, it is also used to enter the Master code, which allows access to the normal functions of the system.

Master Code

In normal operation mode, the Installer code is used to enter the 4-digit Master security code using *the hardwired connected keypad*. Therefore:

To enter the system's Master code, enter:

[Installer code] + **8** + **02** + **[desired 4-digit Master code]**

To change the Master code, enter:

[Master code] + **8** + **02** + **[new Master code]** + **[new Master code again]**

Secondary User Codes

In Normal Operation mode, the Master security code can be used to assign up to 14 secondary user 4-digit security codes. The Master code is also used to remove any secondary User code(s) from the system (individually). During assignment of user codes, a user can also be assigned to a macro, as indicated below.

To assign (or change) a user code, enter the following on the keypad:

[Master code] + **CODE** key + User **# [03–16]** + **[desired User Code]**

The folowing screen will appear, accompanied by three beeps from the keypad.*

Execute Macro ?
0 = No 1 or 2

*This display will not appear if using a fixed-word keypad – only beeps will be heard.

If a user is going to be assigned to a macro, enter 1 or 2. You may assign a user to either of the two macros. If not assigning a user to a macro, enter “0”.

Note: Programming a macro for a user will be found in ***Section 20 – Macros (Speedkey***).

The system will emit a single beep when each user code has been successfully entered.

To delete a user security code, enter the following on the keypad:

[Master code] + **[CODE] key** + **User No. (03–16)**

Notes:

- All Master and Secondary User codes permit access to the system for arming, disarming, etc.
- The Installer code can disarm the system only if it was used to arm it.
- Babysitter code is User code No. 15; it can disarm the system only if that code (or the installer code) was used to arm it.
- Duress code is User code No. 16;. When this is used to perform any system operation, a special code is sent to the monitoring station (this is a silent alarm, no sounds, no displays). Instruct users to be careful not to use this code for normal usage.
- If a Secondary User code is inadvertently repeated for different users, the lower user number will take priority.
- Opening and Closing reports are sent for the Installer code as No. 01, with the appropriate subscriber number. Each Master code and set of Secondary User codes are sent as Nos. 02 and 03–16, respectively, in Contact ID format (with the appropriate subscriber number). In 4+2 format, it is 1–F, "F" for anything greater than 14.

Keypad Functions

Arming and Disarming

The keypad allows the user to arm and disarm the system, and to perform other system functions, such as bypass zones and display zone descriptors. Zone and system conditions (alarm, trouble, bypass) are displayed in the display window.

All keypads with backlighting capability will automatically illuminate when the system is placed in entry mode.

When an alarm occurs, keypad sounding and external sounding will occur, and the zone(s) in alarm will be displayed on the keypad. Pressing any key will silence the keypad sounder for 10 seconds. Disarming the system (code + OFF) will silence both keypad and external sounders. When the system is disarmed, any zones that were in an alarm condition during the armed period will be displayed. To clear this display, simply repeat the disarm sequence (enter the security code and press the OFF key) again.

The keypads also feature chime annunciation, and 3 panic key pairs. The panic keys can be programmed for silent, audible, fire, or personal emergencies, and will notify the central station of the alarm condition, if that service is connected.

Arming Commands

The following is a brief list of system commands. For detailed information concerning system functions, refer to the User Guide.

Disarmed, Not Ready — Before arming, the system must be in the "System Ready" condition (all zones must be intact). If the **NOT READY** message appears, press ✶ (READY key) to display faulted zones.

Arming AWAY ..... Enter code + **2** [AWAY] key, or press the "A" key (no code entry required).

Arming STAY ..... Enter code + **3** [STAY] key, or press the "B" key (no code entry required).

Arming INSTANT ..... Enter code + **7** [INSTANT] key, or press the "C" key* (no code entry required). * Unless programmed for macros operation

Disarming ..... Enter code + **1** [OFF] key.

Bypassing Zones ..... Enter code + **6** [BYPASS] key plus zone number(s).

Forced (Quick) Bypass (if enabled) ..... To automatically bypass all faulted zones, use the "Quick Bypass" method: Enter code plus **6** [BYPASS], then wait for all open zones to be displayed. You can arm when the display indicates **BYPASS** or **SYSTEM READY**.

Chime Mode ..... Enter code + 9 CHIME key.
To turn chime off, enter code + 9 CHIME key again.

Wired keypads contain the following dedicated quick arming keys :

No security code is required to arm the system using the A, B, or C keys. However, a security code is always required to disarm the system.

A = arm AWAY

B = arm STAY

C = arm INSTANT (if not programmed for Macros)

D = When pressed, if programmed to do so, will send a special message to a pager and display "**Page in progress**" on the keypad for 30 seconds.

The message it sends is coded as 999-9999 and signifies ANY pre-arranged message the user and recipient have agreed on, such as "call office," "call home," etc.

SUMMARY OF ARMING MODES

Arming Mode	Features for Each Arming Mode			
	Exit Delay	Entry Delay	Perimeter Armed	Interior Armed
AWAY	Yes	Yes	Yes	Yes
STAY	Yes	Yes	Yes	No
INSTANT	Yes	No	Yes	No

PANIC Keys

There are three PANIC key pairs that can be used to manually initiate alarms and send a report to the Central Station.

The Panic function is activated when both keys of the appropriate key pair are pressed at the same time.

The Panic functions are identified by the system as follows:

Keys	Keypad Display	Function Programmed
1 + ✶	95	
✶ + #	99	
3 + #	96	

Important: If the Silent Panic function is programmed, it will only be of practical value if the system is connected to a Central Station.

Relay/Powerline Carrier Device Activation

If relay outputs (via a 4204 or 4229) or Powerline Carrier devices are used, two keypad entries available to the user are included. They can manually activate or deactivate the device(s) for starting or stopping some action, such as turning lights on or off, etc.

These keypad entries are:

[Security Code] + # + 7 + [Device No.] activates (starts) that device.

[Security Code] + # + 8 + [Device No.] deactivates (stops) that device.

4285/4286 VIP Module (if used)

Refer to the separate instructions supplied with the Phone Module for information concerning its operating procedures.

The phone module **cannot** be used to add user codes in this system. User codes must be added by using a wired keypad.

Exit Error Alarm Displays (if programmed)

- A display of **CANCELED ALARM** or **CA** and a zone indication will appear if an exit or interior zone contained a fault during closing at the time the Exit Delay ended (e.g., exit door left open), but the system was disarmed during the Entry Delay time. The alarm sounder and keypad sound continuously, but stop when the system is disarmed. No message will be transmitted to the Central Station.
- A display of **EXIT ALARM** or **EA** and a zone indication will appear when the Exit Delay ends if an exit or interior zone contained a fault during closing. The alarm sounder and keypad sound continuously until the system is disarmed (or timeout occurs). An "**Exit Alarm**" message is sent to the Central Station.
- The **EXIT ALARM** display and zone indication will also result if an alarm from an exit or interior zone occurs within 2 minutes after the end of an Exit Delay.

In any of the above cases, use a second “Off” sequence (code plus OFF key) to clear the display.

General Information

The word **CHECK** on the keypad's display, accompanied by a rapid beeping at the keypad, indicates that there is a trouble condition in the system. Pressing any key will silence the audible warning sound. Instruct users to call for service immediately upon seeing any of the following messages. (See ***Section 25: Troubleshooting Guide*** also)

CHECK and BATTERY Displays

- A display of **CHECK** and one or more zone numbers indicates that a problem exists with the displayed zone(s) and requires attention.

  Note: The control will sense a high resistance in the loops on hardwired zones 2–8 and display **CHECK** and the affected zone number when the system is in the disarmed mode. A Trouble report will also be sent to the Central. It will not be possible to arm the system as long as this condition exists (unless this zone is bypassed). If the system is in the armed mode when the high resistance condition occurs, this display will not appear, but will do so as soon as the system is disarmed. Check the sensor or the loop wiring for the displayed zone.

  When the problem has been corrected, the display can be cleared by entering the Off sequence (code plus OFF key) **twice**.
- A display of **CHECK** and **09** indicates that communication between control and a zone expander or wireless receiver is interrupted. Check the wiring and/or DIP switch settings on the units.
- If there are wireless sensors in the system, the **CHECK** condition may also be caused by some change in the environment that prevents the receiver from receiving signals from a particular sensor.
- A display of **BAT** (on fixed-word keypads) or **SYSTEM LO BAT** (on alpha keypads) with **no** zone number indicates that the system's main standby battery is weak.
- A display of **BAT** (on fixed-word keypads) or **LO BAT** (on alpha keypads) **with** a zone number **and** periodic beeping at the keypad indicates that a low-battery condition exists in the wireless sensor displayed (zone **00** indicates a wireless keypad). If the battery is not replaced within 30 days, a **CHECK** display may occur.

  Note: Some wireless sensors contain a nonreplaceable long-life battery that requires replacement of the entire unit at the end of battery life (for example, Nos. 5802, **Error! Bookmark not defined.**5802CP).

Telephone Line Failure

A display of **CHECK 94** (on fixed-word keypads) or **TELCO FAULT** (on alpha keypads) indicates that a monitored telephone line (if programmed in field ✶92) has been cut (or disconnected). Depending on how the system was programmed, the keypad may also produce a trouble sound, and the external sounder may be activated. Silence by entering Installer code plus OFF.

Power Failure Displays

- If there is **no** keypad display **at all** and the **POWER** indicator (if present) is not lit, operating power for the system has been lost and the system is inoperative.
- If the message **AC LOSS** (on alpha keypads) or **NO AC** (on fixed-word keypads) is displayed, and the **POWER** indicator (if present) is off, the system is operating on battery power only.
- If the battery standby capacity is used up during a prolonged AC power outage, the control's auxiliary power will shut down to minimize deep discharge of the battery.

Other Displays (fixed-word displays are in parentheses)

Busy-Standby (**dI**) If this remains displayed for more than 1 minute, the system is disabled.

Modem Comm (**CC**) The system is in communication with the Central Station for change of function or status verification.

Comm. Failure (**FC**) A communication failure has occurred.

Open-circuit (**OC**) The keypad is not receiving signals from the control and sees an open-circuit.

Long Rng Trbl (**bF**) Backup LRR communication failure.

Bell Failure (CHECK 70) Bell supervision failure.

RCVR Jam (CHECK 90) RF jam detected

Testing the System

In This Section

- *Test Procedure*

Test Procedure

After installation is completed, the security system should be carefully tested, as follows.

1. With the system in the disarmed state, check that all zones are intact. If a **NOT READY** message is displayed, press [✶] to display the faulted zone(s). Restore faulted zone(s) if necessary, so that the **SYSTEM READY** message is displayed. Fault and restore every sensor individually to assure that it is being monitored by the system.
2. Enter the 4-digit Security code and press the TEST [**5**] key. The outside sounder will sound for 1 second. The keypad should sound 3 beeps each time a contact is faulted. A "**Test**" report**Error! Bookmark not defined.** is transmitted (if programmed) to the Central Station immediately. If the backup battery is discharged or missing, the sounder may not turn on and a "**Low Battery**" report will be transmitted with a "**Test**" report. The keypad will beep once every 30–35 seconds as a reminder that the system is in the Test mode.

To turn off the Test mode, enter 4-digit Security code and press the OFF [**1**] key.

NOTE: Triggering a zone set to **Arm AWAY**, **Arm STAY**, or **Disarm** will take the system out of Test mode and cause that action.

Alarm messages will be sent to the Central Station during tests 3 and 4, below. Notify Central Station personnel in advance that tests will be in progress.

3. Arm the system and fault one or more zones. After 15 seconds (if Optional Dialer Delay is selected), silence alarm sounder(s) by entering the **Security code** and pressing OFF key. Check entry/exit delay zones.
4. Check the keypad-initiated alarms that are in the system by pressing the appropriate PANIC key pairs. If the system has been programmed for audible emergency, the keypad will emit a **steady** alarm sound, and **ALARM** and zone number will be displayed. Silence the alarm by entering the **Security code** and pressing OFF key.

   If the system has been programmed for Silent Emergency, there will be no audible alarms or displays, but a report will be sent to the Central Station.
5. If output Relay Units/Powerline Carrier devices have been installed, test their programmed action.

6 Notify Central Station personnel when all tests are finished, and verify results with them.

7. To test the wireless part of the system and the RF receiver, perform the following two additional tests:

a. **TRANSMITTER SNIFFER MODE**

Make sure the system is disarmed before trying to enter this mode.

Press **[Installer code] + # + 3** on the keypad. This initiates a procedure to verify that all transmitters have been properly programmed.

Note: If the communicator is in the process of sending a report to the Central Station, the system will not go into the Sniffer mode. If so, wait a few minutes, and try again.

The keypads will display all zone numbers of wireless units programmed into the system. As the system receives a signal from each of the transmitters, the zone number of that transmitter will disappear from the display. The transmitter codes may be checked upon installation, or in an installed system.

All the wireless zone numbers should disappear after about 90 minutes.

While in the Sniffer Mode, the keypad will emit a beep about every 30 seconds.

Notes

- All BR-type units must physically be activated to clear the display.
- When **one** button of a transmitter (RF, UR, or BR) is activated, all zones assigned to other buttons on that transmitter are cleared. This also applies to 5816 and 5817 transmitters that have multiple loops (zones).
- Any transmitter that is not "enrolled" will not turn off its zone number.

Exit this mode by keying **[Installer code] + OFF [1].**

b. **GO/NO GO TEST MODE:** By pressing **[Installer code] + [#] + [4]** on the keypad, a mode similar to the user Test mode (code + TEST) is entered, but the wireless receiver gain is reduced. Checking in this mode assists in determining good mounting locations for the transmitters when the system is being installed, and verifies that the RF transmission has sufficient signal amplitude margin for the installed system.

Exit the mode by entering **[Installer code] + OFF [1].**

NOTES: System Test mode ([Installer code] + TEST [5]) will be **automatically terminated** after 4 hours if the installer or user does not manually terminate it. This ensures that fire and panic zones will not remain disabled.

However, **Sniffer mode** ([Installer code] + [#] + [3]) **does not automatically expire.** You must manually exit ([Installer code] + OFF [1]) sniffer mode to return to normal operation. Sniffer mode also terminates if a user arms the system.

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.

The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to ensure the system's proper operation at all times.

Troubleshooting Guide

SYSTEM (including Wireless)

SYMPTOM	POSSIBLE CAUSE	REMEDY
1. Transmitter signal not received at 5881/5882.	1a. Transmitter or 5881/5882 not properly powered.	1a Check or change transmitter's battery. Check SL150's AC power.
	1b. If transmitter is 5827/5827BD, House Code not set in field ✶24, or transmitter not set to same House Code set in that field.	1b. Check code switches inside transmitter. Must match with RF House Code programmed in SL150.
	1c. Transmitter located too far from RF receiver.	1c. Move transmitter or RF receiver.
	1d. Metal shielding between transmitter and RF receiver.	1d. Check for large metal obstructions, then relocate transmitter if necessary.
	1e. Transmitter malfunctioning.	1e. Verify by activating 5881/5882 with another, similar transmitter. If O.K. now, return defective transmitter.
	1f. 5881/5882 malfunctioning.	1f. Verify by making sure other transmitters cannot activate 5881/5882. If defective, replace and return original 5881/5882.
	1g. Transmitter No. (zone) not programmed.	1g. Verify programming.
	1h. 5881/5882 address incorrect.	1h. Set DIP switch on 5881/5882 for address “0.”
	1i. Field ✶22 not set properly.	1i. Set field ✶22 for “1 or “4”.”
2. Transmitter zone number appears during Transmitter Sniffer mode, but does not clear.	2a. Transmitter zone type (ZT) is set to **00** (Not Used).	2a. Set ZT to a valid active zone type in field ✶56.
	2b. Transmitter battery not installed.	2b. Install proper battery.
	2c. 5800 system transmitter not **enrolled** in system.	2c. Enroll unit in field ✶56.
3. LOW BATTERY message on keypad.	3a. **Bat** or **System Lo Bat** (no zone nos.): System battery is low or missing.	3a. Verify that battery charging circuit is working. If ok, replace battery.
	3b. **Bat** or **Lo Bat** + **00**: Remote RF keypad battery is low.	3b. Replace remote RF keypad battery
	3c. **Bat** or **Lo Bat** + **nn**: Transmitter for zone “nn” has a low battery.	3c. Replace transmitter battery in zone "nn."
4. Periodic beep(s) from keypad	4a. System is in Test mode.	4a. Enter [Code] + OFF to exit Test mode.
	4b. A transmitter low battery has occurred and is displayed.	4b. Enter [Code] + OFF and replace the battery.
	4c. A supervision Check has occurred.	4c. Check the transmitter indicated. Restore communication to the receiver to cancel the condition.
5. With 5800 system, no response to a transmitter in normal operation, although zone number clears during Transmitter Sniffer mode.	5a. Put control in Test mode. If zone does not respond, try operating the tamper switch or another input to the transmitter. If another input causes the zone to be displayed, the wrong input was **enrolled** when programming.	5a. Delete input's serial number (not the zone), and enroll the proper input (see field ✶56).

SYSTEM (including Wireless - cont'd)

SYMPTOM	POSSIBLE CAUSE	REMEDY
	5b. If no response at all from this transmitter, this physical transmitter has not been enrolled by the system. Transmitter Sniffer display is being cleared by another unit programmed for this zone.	5b. Determine which transmitter is programmed for this zone and reprogram as necessary.
6. Nuisance or phantom alarm.	6a. Sensors not properly installed, wired, or monitored. 6b. Universal transmitter (5817) programmed wrong.	6a. Check installation to see if in accordance with established procedure. 6b. Check programming switches on transmitter.
7. Intrusion alarm for no apparent reason.	7a. Protected door or window opened while system armed. 7b. Improper user operation of exit/entry delays. 7c. Magnets located too far from switches, and/or doors and windows not properly aligned.	7a. Check with all occupants of protected home. 7b. Check setting of entry and exit delays. 7c. Check all openings for proper switch and magnet orientation.
8. "CHECK" and zone number 2–8 are displayed.	8. Control has sensed a high resistance condition on a loop in one of the hardwired zones (2–8).	8. Check the sensor or the loop wiring in the affected zone. The system will not arm until this condition is corrected (or the affected zone is bypassed).

CONTROL

SYMPTOM	POSSIBLE CAUSE	REMEDY
1. AC POWER light off.	1a. Interrupted AC power supply.	1a. Check transformer connection and power line circuit breaker.
2. Digital communicator message not being received.	2a. SL150 in Test mode. 2b. Telephone connection not secure. 2c. Digital communicator malfunctioning. 2d. Telephone number in program needs prefix or access code. 2e. Telephone call to central monitoring station requires operator assistance.	2a. Remove from Test mode. 2b. Check all connections. 2c. Check with a different SL150. 2d. Program prefix or access code into the SL150. 2e. SL150 system cannot work in this situation.
3. Does not arm properly.	3a. **READY** light not on.	3a. Check for faulted zones and make intact, or use Bypass arming, if desired.
4. SL150 doesn't respond to keystrokes on keypad.	4a. **CC** or **MODEM COMM** displayed: System is in communication with downloader at Central Station. 4b. **dI** or **SYSTEM BUSY** displayed: System has just been powered and is in its 1-minute initialization. 4c. **E4** or **E8** displayed: More zones have been programmed than the zone Expansion Modules can handle. 4d. Keypad address setting incorrect.	4a. Wait until download session is finished. 4b. To bypass this time, press '#' + '0'. 4c. Delete some zones or use a higher capability RF receiver. 4d. Keypads must be set for address 31 (non-addressable mode).

SMOKE DETECTOR

SYMPTOM	POSSIBLE CAUSE	REMEDY
1. Detector alarms, no apparent reason.	1a. Dust, dirt in sensing chamber.	1a. Clean unit's sensing chamber with vacuum cleaner per unit's instructions.
	1b. Improper location.	1b. See unit's instructions for locations to avoid. Relocate as necessary.
	1c. Unit malfunctioning.	1c. Replace detector.
2. Detector's siren sounds.	2a. Unit not receiving required power.	2a. Check for proper installation of battery. Try new battery.
	2b. Unit malfunctioning.	2b. Replace detector.

CONTACTING TECHNICAL SUPPORT

PLEASE, before you call Technical Support, be sure you:

- **READ THE INSTRUCTIONS!**
- **Check all wiring connections.**
- **Determine that the power supply and/or backup battery are supplying proper voltages.**
- **Verify your programming information where applicable.**
- **Note the proper model number of this product, and the version level (if known) along with any documentation that came with the product.**
- **Note your customer number and/or company name.**

Having this information handy will make it easier for us to serve you quickly and effectively.

You may contact Technical Support at the phone number and times indicated below.

Premier Gold Technical Support: ..... 1–800-538–5585 (8 am–6 pm EST)

Specifications & Accessories

In This Section

- *Specifications*
- *Accessories*

Specifications

SL150 SECURITY CONTROL

1. **Physical:** 12-1/2" W x 14-1/2" H x 3" D (318mm x 368mm x 76mm)
2. **Electrical:**

VOLTAGE INPUT:	16.5VAC from plug-in 25VA transformer, Ademco No. 1321 (in USA), or Powerline Carrier device Interface AC Transformer if Powerline Carrier devices are being used.
RECHARGEABLE BACKUP BATTERY:	12VDC, 4AH (Sealed Lead Acid). Charging Voltage: 13.8VDC. For actual battery size needed, refer to Section 12, FINAL POWER-UP (see "Calculating the Battery Size needed").
ALARM SOUNDER:	12V, 2.0 Amp output can drive 12V BELLS or can drive one or two 702 (**series** connected) self-contained 20-watt sirens. Do **not** connect two 702s in parallel.
AUXILIARY POWER OUTPUT:	12VDC, 600mA max (500mA max for UL installations). Interrupts for 4-wire smoke detector reset. **Note**: For UL installations, Alarm Sounder plus Auxiliary Power currents should not exceed 600mA total.
STANDBY TIME:	(see Table in ***Section 12: Final Power-Up)***
FUSE:	Battery (3A) No. 90–12

3. **Communication:**

FORMATS SUPPORTED:

Ademco Express:	10 characters/sec, DTMF (TouchTone) Data Tones, 1400/2300Hz ACK, 1400Hz KISSOFF.
Ademco Contact ID Reporting:	10 characters/sec., DTMF (TouchTone) Data Tones, 1400/2300Hz ACK, 1400Hz KISSOFF.
Ademco Low Speed:	10 pulses/sec, 1900Hz Data Tone, 1400Hz ACK/KISSOFF.
Radionics/SESCOA:	20 pulses/sec, 1800Hz Data Tone, 2300Hz ACK/KISSOFF. Can report 0–9, B–F

Line Seize: Double Pole;

Ringer Equivalence: 0.7B;

FCC Registration No.: AC 398U–68192–AL–E

4. **Maximum Zone Resistance:** Zones 1–8 = 300 ohms excluding EOLR

SL6150 REMOTE KEYPAD Error! Bookmark not defined.

1. Physical:	6-1/2" W x 5-7/8" H x 1-5/16" D (150mm x 124mm x 33mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 40 mA Standby; 70mA with ARMED LED lit, LCD backlit and sounder on.
3. Interface Wiring:	To control panel's terminal strip connection points:
Keypad Connector .....DO:	Terminal 7: Data Output from control to keypad.
Keypad Connector .....+:	Terminal 5: +12VDC
Keypad Connector .....–:	Terminal 4: –12VDC Rtn (Ground)
Keypad Connector .....DI:	Terminal 6: Data Input from keypad to control.

SL6150RF REMOTE KEYPAD

1. Physical:	6-1/2" W x 5-7/8" H x 1-5/16" D (150mm x 124mm x 33mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 50 mA Standby; 100mA with ARMED LED lit, LCD backlit and sounder on.
3. Interface Wiring:	Same as SL6150 Keypad

SL6160 REMOTE KEYPAD

1. Physical:	7-1/4" W x 5-1/4" H x 1-1/2" D (184mm x 133mm x 38mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 40 mA Standby; 150mA with ARMED LED lit, LCD backlit and sounder on.
3. Interface Wiring:	Same as SL6150 keypad.

5881/5882 SERIES RF RECEIVERS (5800 System)

1. Physical:	7-3/8" W x 4-3/8" H x 1-7/16" D (188mm x 112mm x 37mm) **Note**: 10-7/8" (277mm) high with antenna
2. Electrical:	Voltage Input: 12VDC; Current Drain: 35mA
3. Interface Wiring:	To control panel's keypad connection points.
4. Range:	200 ft (60m) **nominal** indoors from wireless transmitters (the actual range determined with system in Test mode).
5. Zones:	**(**With the **Ademco SL150**) 5881L/5882L: accepts up to 8 transmitters 5881M/5882M: accepts up to 16 transmitters 5881H/5882H: accepts up to 30 transmitters

5800TM TRANSMITTER MODULE (used with 5827BD Wireless 2-Way Keypad)

1. Physical:	2-1/4" W x 4-1/8" H x 7/8" D (57mm x 105mm x 22mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 20mA
3. Interface Wiring:	To control panel's keypad connection points

4219 WIRED EXPANSION MODULE

1. Physical:	6-1/2" W x 4-1/4" H x 1-1/4" D (169mm x 108mm x 32mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 35mA
3. Interface Wiring:	To control panel's keypad connection points
4. 8 EOLR Loops (A–H):	Loop A can be set for fast (10–15mSec) response to an open.

4204 RELAY MODULE

1. Physical:	6-1/2" W x 4-1/4" H x 1-1/4" D (169mm x 108mm x 32mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 15mA (Relays off) 180mA (Relays on)
3. Interface Wiring:	To control panel's keypad connection points
4. Four Output Relays:	SPDT Contacts, Rating: 2A max at 28VDC/AC

4229 WIRED EXPANSION/RELAY MODULE

1. Physical:	6-1/2" W x 4-1/4" H x 1-1/4" D (169mm x 108mm x 32mm)
2. Electrical:	Voltage Input: 12VDC; Current Drain: 35mA (Relays off) 180mA (Relays on)
3. Interface Wiring:	To control panel's keypad connection points.
4. 8 EOLR Loops (A–H):	Loop A can be set for fast (10–15mSec) response to an open.
5. Two Output Relays:	SPDT Contacts, Rating: 2A max at 28VDC/AC

4285 PHONE MODULE

1. Physical:	6-1/2" W x 4-1/4" H x 1-1/4" D (169mm x 108mm x 32mm)
2. Electrical:	Voltage Input: 12VDC, Current Drain: 160mA
3. Device Address:	Permanently set to address 4.
4. Interface Wiring:	See *4285/4286 VIP Module* section
5. Telephone Line Connections:	See *4285/4286 VIP Module* section

4286 VIP PHONE MODULE

1. Physical:	6-1/2" W x 4-1/4" H x 1-1/4" D (169mm x 108mm x 32mm)
2. Electrical:	Voltage Input: 12VDC, Current Drain: 300mA
3. Device Address:	Permanently set to address 4.
4. Interface Wiring:	See *4285/4286 VIP Module* section
5. Telephone Line Connections:	See *4285/4286 VIP Module* section

Accessories (Compatible Devices)

Transformers

No. 1321	16.5VAC, 25VA Plug-In Transformer
No. 4300	Powerline Carrier device Interface AC Transformer

Sounders

Ademco AB-12M	10" Motor bell & box. UL Grade A. 100mA current draw.
Ademco 1011BE12M	10" Motor bell & box. UL Listed. 100mA current draw.
Ademco 702	Self-contained 6–12 volt siren (driver built-in) and weatherproof for outdoor use. Can be wired for either a steady or warble sound.
Ademco 719	Two-channel, self-contained 6–12-volt siren (driver built-in). 109dB @ 10 feet. 550mA current draw.

Ademco 747	Self-contained 12-volt siren (driver built-in) for indoor wall mount. 747F available for flush mounting.
Ademco 747UL	Self-contained siren (driver built-in) for indoor wall mount. UL Listed.
Ademco 744	Siren driver with 6 jumper-selected sound outputs. Rated at 119dB with use of an 8-ohm 30 watt speaker.
Ademco 745X3	Voice siren driver with English, Spanish, and French voice messages. Separate messages for fire and burglary. Use with 8-ohm speaker. UL Listed.
Ademco 705-820,	15-watt, 8-ohm, 5" round speaker.
Ademco 713	40-watt, 8-ohm, indoor/outdoor speaker.
System Sensor, **PA400B (beige) PA400R (red)**	Indoor piezo sounder (beige or red), rated at 90 dB @ 10 feet.

Compatible 2-Wire Smoke Detectors

System Sensor

2300T	Photoelectric w/heat sensor, direct wire
2400	Photoelectric, direct wire
2400TH	Photoelectric w/heat sensor, direct wire
2451	Photoelectric w/B401B base
2451TH	Photoelectric w/heat sensor & B401Bbase
1400	Ionization, direct wire
1451	Ionization w/B401B base
2451	Photoelectric duct detector w/DH400 base
1451DH	Ionization duct detector w/DH400 base

Compatible 4-Wire Smoke/Combustion Detectors

System Sensor

1412	4-wire ionization products of combustion detector
2412	4-wire photoelectric smoke detector
2412TH	4-wire photoelectric smoke detector w/135º F (57° C) heat detector
A77716B	EOL relay module (supervisory module for wired 4-wire fire zone).
2112/24T	Low-profile 4-wire photoelectric smoke detector w/135º F (57° C) heat detector

5800 RF System Wireless Transmitters

5800 Series Transmitter Input Loop Identification

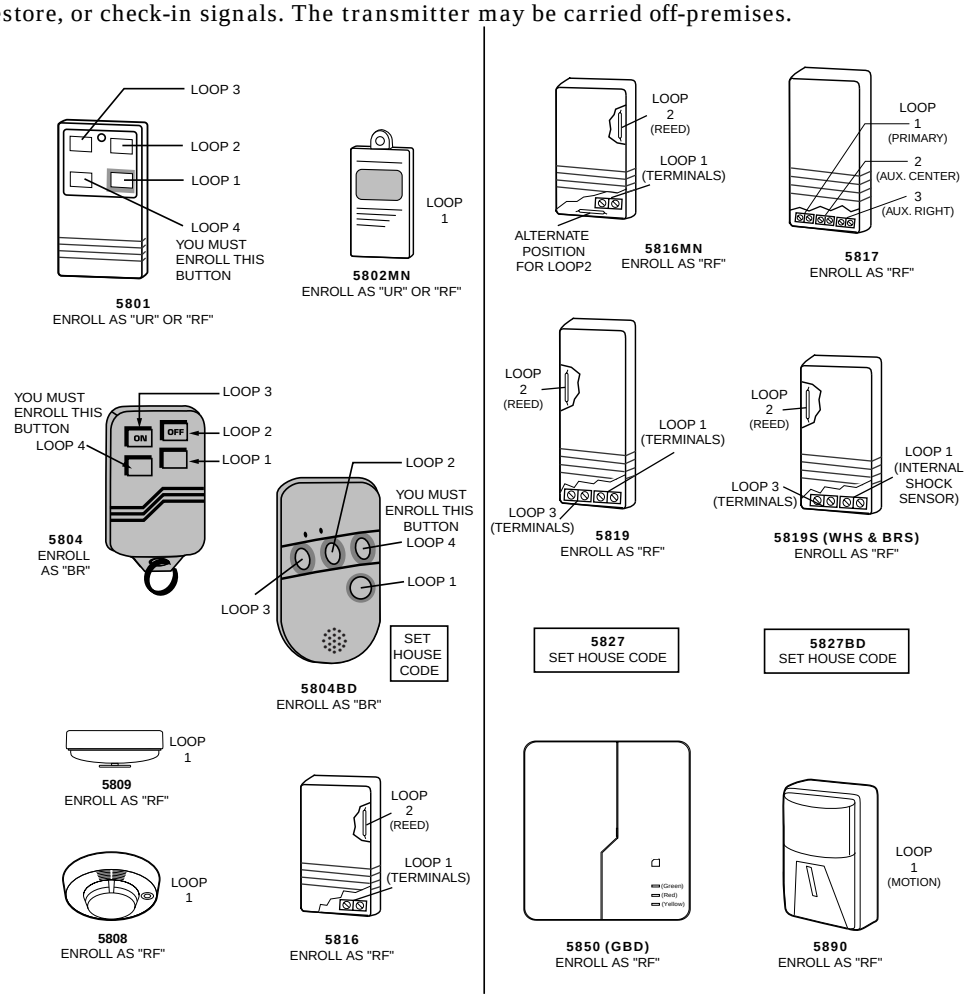
All of the transmitters illustrated on the next page have one or more unique factory-assigned input (loop) ID codes. Each of the input loops requires its own programming zone (e.g., a 5804's four inputs require four programming zones).

Transmitter inputs entered as:

"RF" (Supervised RF) Type send periodic check-in signals, as well as fault, restore, and low-battery signals. The transmitter must remain within the receiver's range.

"UR" (Unsupervised RF) Type send all the signals that the "RF" type does, but the control does not supervise the check-in signals. The transmitter may, therefore, be carried off-premises.

"BR" (Unsupervised Button RF) Type only send fault signals. They do not send low-battery, restore, or check-in signals. The transmitter may be carried off-premises.



Note: For information on any transmitter not shown above, refer to the instructions accompanying that transmitter for details regarding loop numbers, etc.

UL

The 5802MN, 5802MN2, 5804, 5804BD, 5814, 5816TEMP, 5819, 5819WHS & BRS, 5827BD, and 5850 transmitters are not intended for use in UL installations.

Regulatory Agency Statements

UL NOTICE: This is a “Grade A” residential system.

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 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 reduced or eliminated.
- Move the radio or television receiver away from the receiver/control.
- Move the antenna leads away from any wire runs to the receiver/control.
- Plug the receiver/control into a different outlet so that it and the radio or television 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 the following booklet prepared by the Federal Communications Commission helpful: “Interference Handbook”

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 User's Manual. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Regulatory Agency Statements (Continued)

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 an emergency number, 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.

Warnings and Limitations

WARNING!
THE LIMITATIONS OF THIS ALARM SYSTEM

While this System is an advanced design 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:

- 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 may be 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 smoke 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 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 on 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 105°F (32° to 40°C), the detection performance can decrease.

Limitations of This Alarm System (Continued)

- 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, then 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 protect 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 keypad (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. Homeowners, 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.

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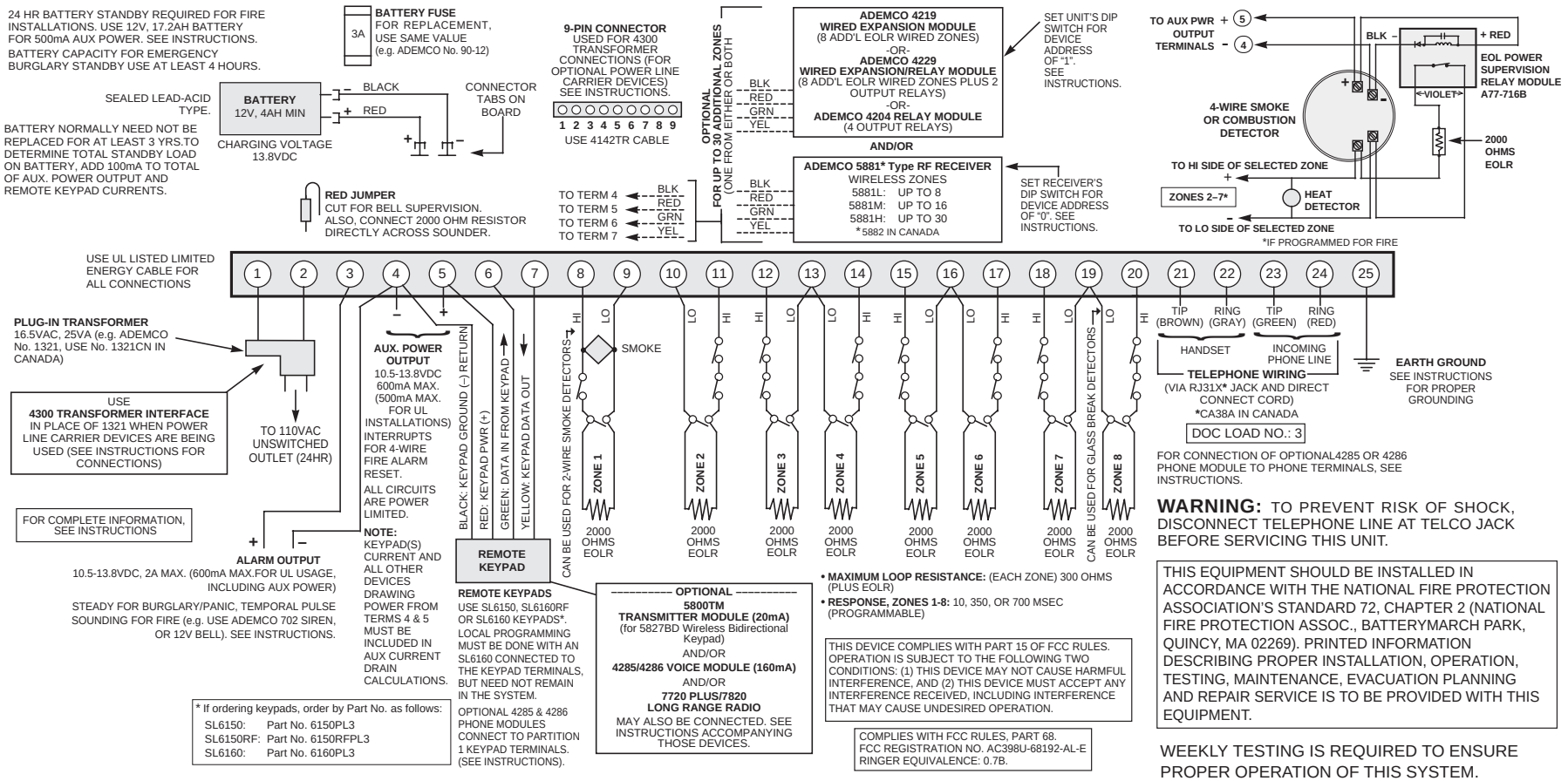
Figure 24. SL150 Summary of Connections



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