

MOOSE Z1250

Security System Control

Specifications, Installation
and Programming Guide

Introduction

LIMITATIONS

This control panel is part of a system designed to warn against unauthorized entry and other situations. However, it is not a guarantee of protection against the occurrence of those events. Any alarm system is subject to compromise or failure to warn for various reasons. Unauthorized access can be gained through unprotected points or by disarming or bypassing protected points. Sensing devices are power driven and do not operate without electrical power. Telephone lines over which alarm signals are transmitted may be out of service or rendered inoperable by an intruder. Smoke detectors have limitations and cannot detect all types of fires or sense smoke out of the effective range of the detector.

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SPECIAL NOTE referencing the word “Fire” in this manual.

Use of this control for fire detection and/or annunciation may not be permitted by certain states, counties, municipalities or local jurisdiction. It is the responsibility of the installing alarm company to check with the local A.H.J. (Authority Having Jurisdiction) or State Fire Marshal's office prior to using this control for fire detection.

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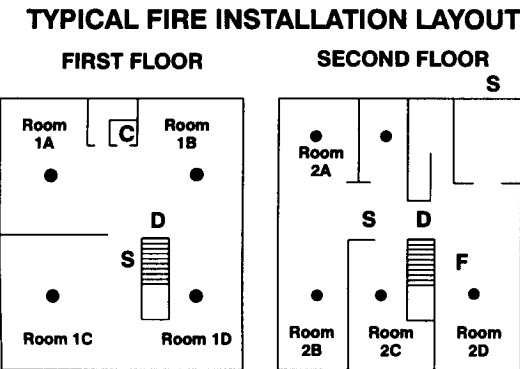
Installation And Wiring

1.1 Planning The Installation

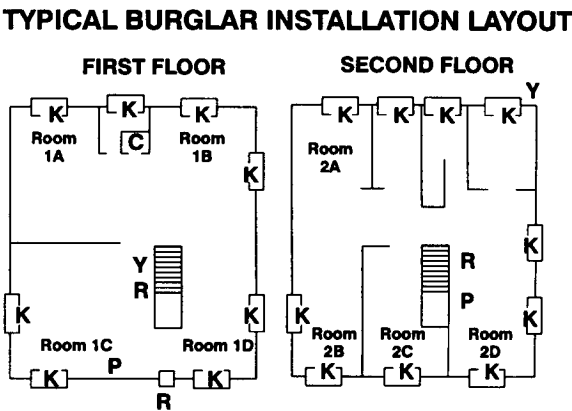
The first step in any multi-zone security system installation is planning the job.

1. **Read through this entire manual** to familiarize yourself with all system features and procedures before actually beginning the installation. Chapter 5 contains information regarding Underwriters Laboratories (UL) and NFPA requirements.
2. Perform a physical survey of the installation site. Use the figures below as a guide in planning the installation.
3. Discuss the installation requirements and applications with the customer.
4. Compare the installation requirements and applications with the factory default settings to determine what customized programming is needed to meet the specific installation requirements.
5. Bench test the system prior to installation.

LEGEND			
C – Control	D – Smoke Detector	K – Contact	P – Panic Button
S – Siren (Steady Output)	• – Thermostat	R – Keypad	
Y – Siren (Yelp Output)	F – Fire Trouble Sounder		



Note: Alternate locations may be required for the devices indicated.

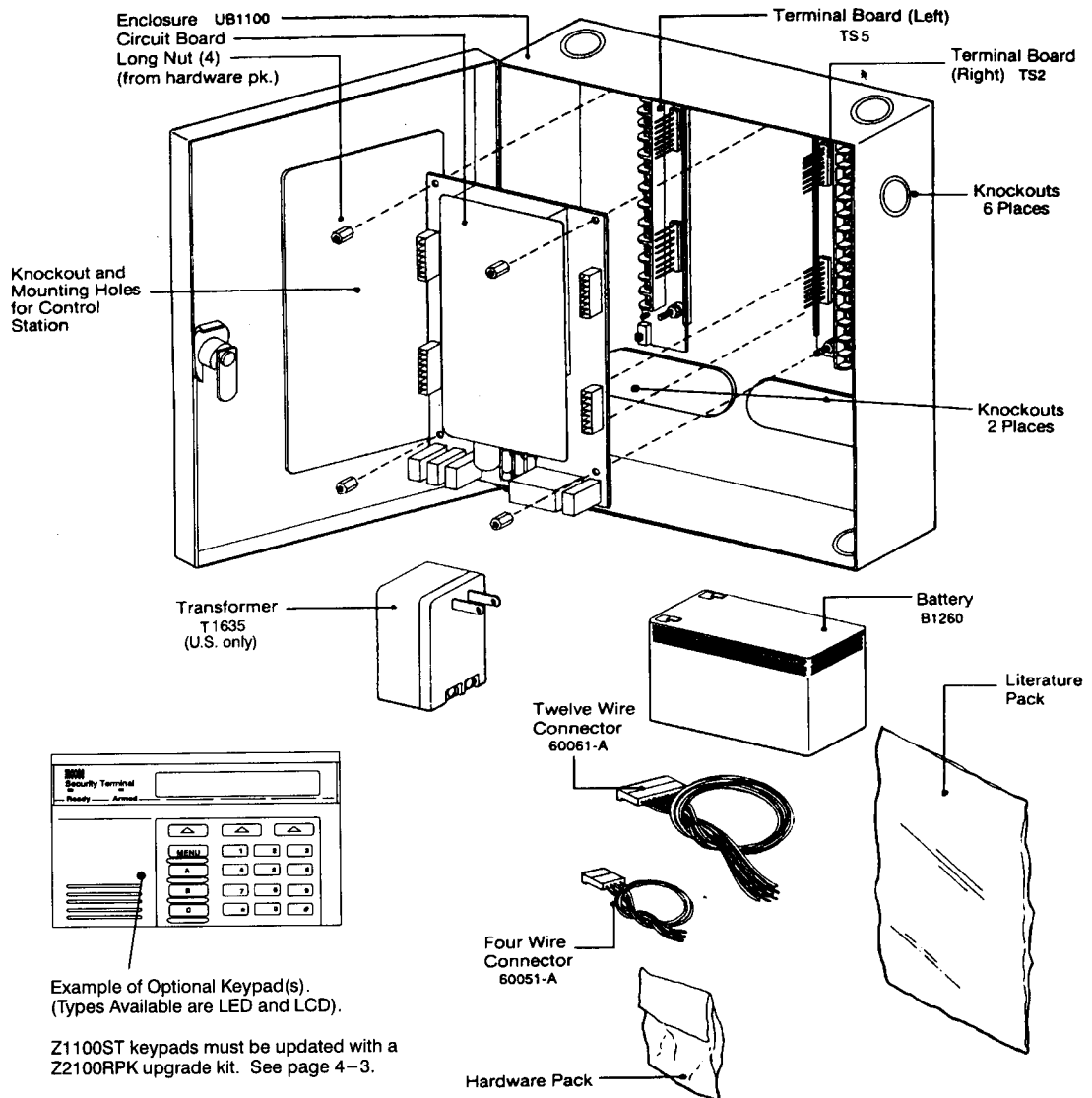


Note: All perimeter openings from ground level up to 18' should be provided with protection.

FIGURE 1–1. Typical Installation Layout

1.2 Parts Diagram & Descriptions

FIGURE 1-2 details the parts of the control panel. These parts are referenced in later sections of this manual.



NOTE: Optional TC1100 tamper cover is available for commercial burglary installations.
Optional FC1100 flush cover is available for recessed mounting.

FIGURE 1-2. Parts List

1.3 Mounting And Wiring Preparation

System Control Mounting

Remove all packing material and compare the system components with those in the figure above to familiarize yourself with the part names. Mount the control in a secure, dry location where the ambient temperature inside the control box can remain at 32° to 120° Fahrenheit (0° to +49° Celsius). Choose a location that allows easy wiring to an unswitched power outlet and to a grounding conductor for the control. A central location makes running system wiring easier. Remove control box knockouts that best suit your wiring needs. Mount the control using the upper center slotted hole to level. Install and connect all necessary wiring for the power transformer, detection loops, keypads and siren outputs. Refer to FIGURE 1-4, page 1-4.

Control Station Mounting

Select a mounting location 48–52 inches above the floor with an ambient temperature range of 32° – 120° F (0° to +49° C) away from direct sunlight. Run a 22-gauge, four-conductor cable from the control. (Stranded wire provides lower resistance and additional protection from breakage.) The maximum resistance per wire is 25 Ohms. For wire runs between 200' and 1000', a minimum size of 18 awg. is recommended. Device placement beyond 1000' is not recommended. Remove the retaining screw and separate the keypad from the mounting plate. Fasten the mounting plate to the electrical box (or directly to the wall using anchors) with the appropriate screws. Be sure to use flat head or oval head screws to prevent shorting of the circuit board.

WARNING

TO PREVENT INJURY, MAKE SURE THAT POWER IS REMOVED FROM THE CONTROL.

Splice the four conductor cable to the plug-in connector supplied with the keypad. Press the splices back through the hole and seal the hole with insulation to prevent air infiltration and dust. Plug the connector into the keypad and re-install the keypad back onto the mounting plate and secure with the retaining screw. Wire the four conductor cable to the control. (See Wiring Instructions on page 1–7.) Remove the control station screen protective plastic film after installation is complete.

1.4 Wiring

Earth Ground Connection

In order for the control's lightning and transient protection to be effective, it is essential that the control be connected to an earth ground (ground rod or other grounding electrode). Finding a proper ground path can affect selection of the control mounting location since the ground wire should be as short and straight as possible.

An ideal ground for a security system is a unified earth ground. In this type ground, the power line, telephone and security system ground rods are bonded together. This reduces the chance of step voltage blowout, a problem that may occur during lightning strikes. See the figure below.

Refer to NEC Article 250 for proper grounding requirements.

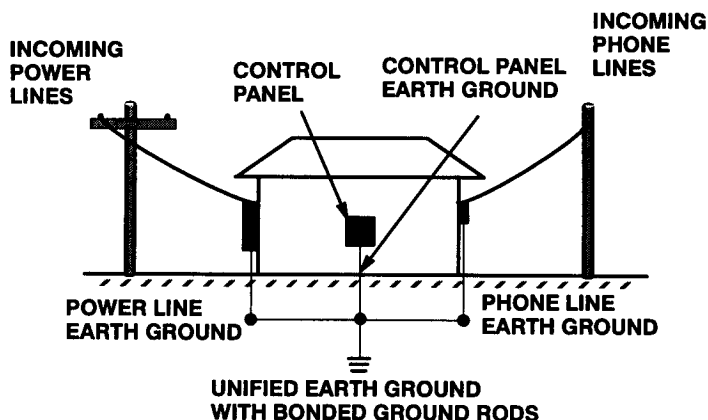
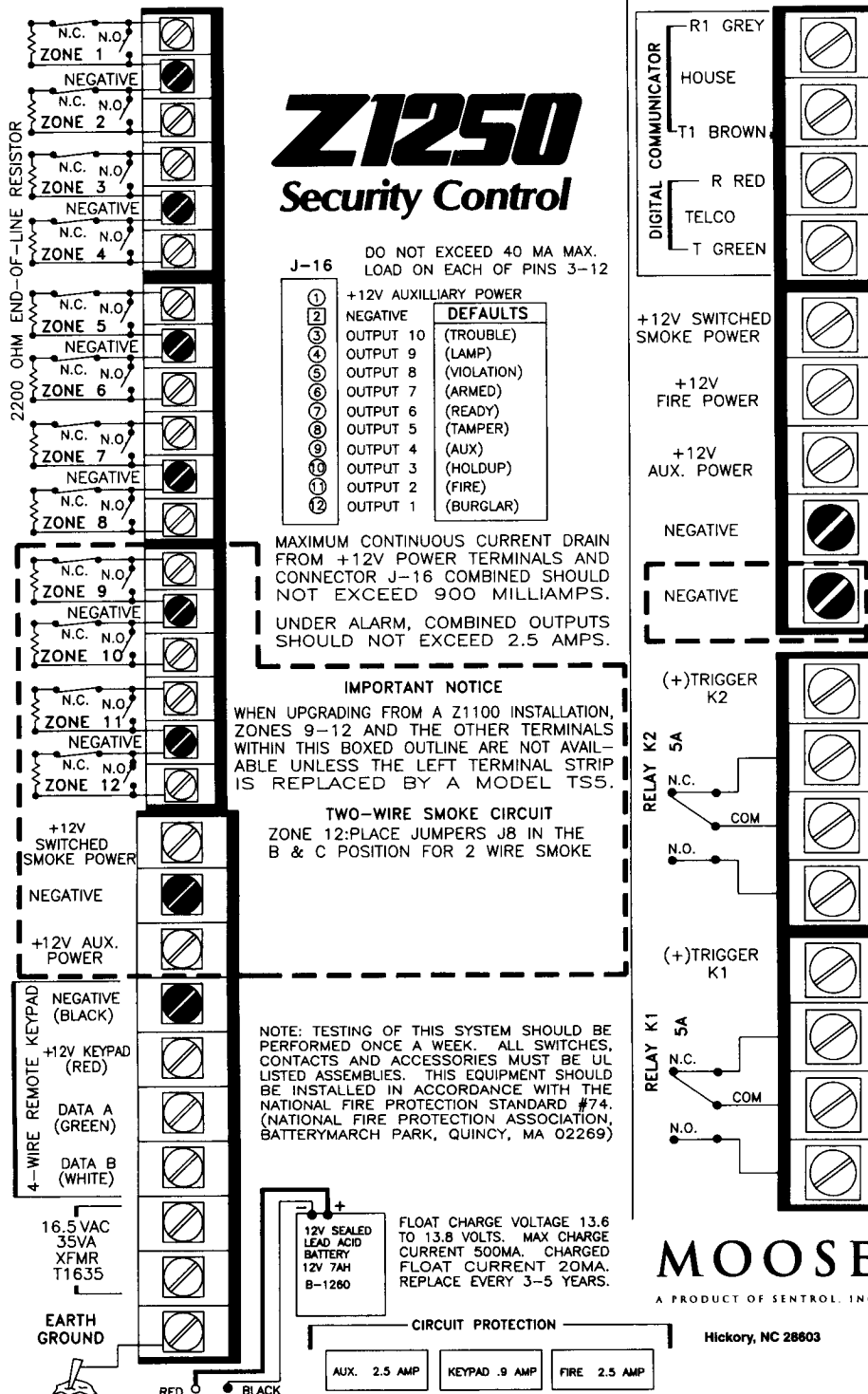


FIGURE 1–3. Unified Earth Ground

Use a minimum 14 gauge solid ground wire. Crimp the wire to the Earth Ground spade lug from the hardware pack and attach it to one of the Earth Ground points on the control board. Run the earth ground wire and attach to a bonded earth ground. Be sure to keep wire runs short and avoid 90° or sharp turns. Use a minimum radius of eight inches for bends. Remember, ground wires must be routed separately. Be sure to route toward the earth. Always use eight-foot copper clad ground rods. Never run parallel to metal without properly bonding to that metal.

Installation And Wiring



NOTE: See Interconnect Diagram on control inside cover for notes applicable to FIGURE 1-4

FIGURE 1-4. Suggested UL Burglar Alarm And/Or Alarm Hookup

Standby Battery Connection

To connect the battery, place the battery in the enclosure. Make sure the power switch is in the OFF position. Connect the black battery lead from the control panel terminal strip to the battery terminal marked “-”. Connect the red battery lead from the control panel terminal strip to the battery terminal marked “+”. Leave the power switch in the OFF position.

CAUTION

The control is designed with reverse polarity protection on the battery charging circuit; however, prolonged improper connection of the battery to the control results in damage. The power should remain disconnected until all connections have been made and checked for accuracy.

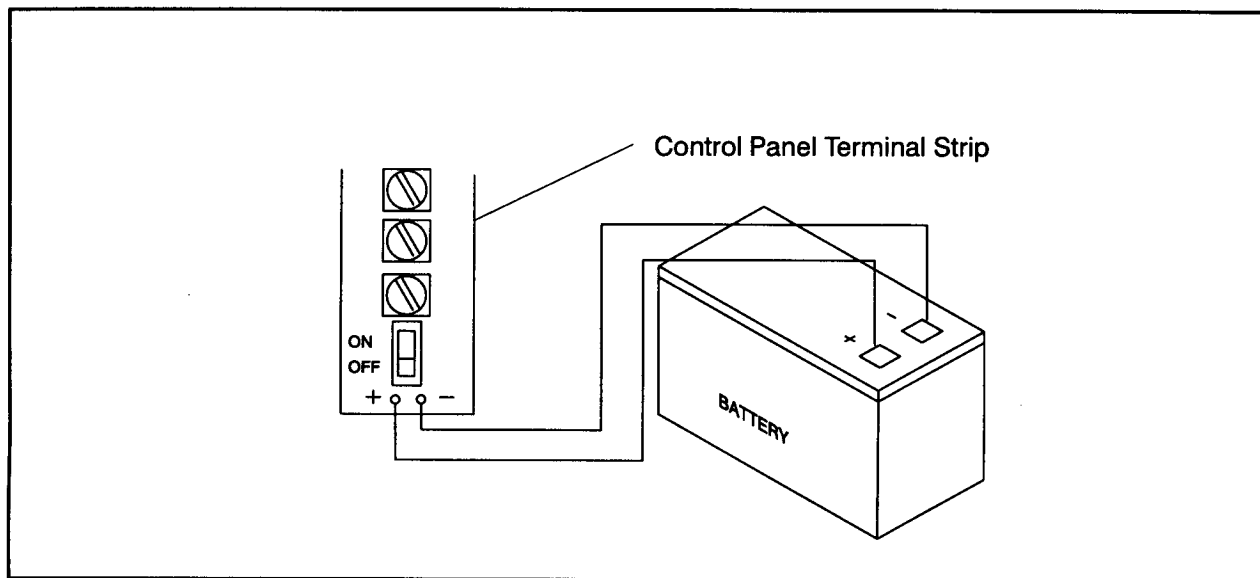


FIGURE 1-5. Battery Connection

Low Battery And AC Failure

The control is designed to operate with and recharge a 12 volt, 7 amp-hour sealed lead acid battery as a backup for the primary power supply. The control maintains a float charge for the battery of 13.8 VDC at 100 mA. This is in addition to the continuous output of 900mA that the control panel power supply maintains (see maximum current drains for UL Listed Systems). The battery automatically takes over in the event of an AC power outage. If the AC power fails and the battery voltage drops to 11.2 VDC, the control annunciates a Low Battery trouble condition. The AC Fail trouble condition displays visually at the keypad upon power outage, but is not reported to the central station for a programmable time delay. The trouble prompt for each of these conditions is present until the condition (Low Battery or AC Fail) is corrected. The control performs a battery test every fifteen minutes. The installer may manually activate a battery test if desired.

Installation And Wiring

A/C Transformer Primary Power Input

The control is powered by a T-1635 16.5 VAC, 35 VA, internally fused, UL Listed Class II (power limited) transformer, supplied with the control package (U.S. only). The specified transformer **must** be used to operate this control.

CAUTION

Do not short the terminals of the transformer together. This causes the internal fuse to blow. The transformer must be connected to a 120 VAC, 24-hour outlet not controlled by a switch other than an approved over-current protection device.

To prepare the control for primary power connection, connect the screw terminals on the transformer to the terminals marked AC INPUT on the control using 18-awg. wire not exceeding 50 feet between the transformer and the control. Do not run the AC primary power in a multiconductor with other system circuits. Do not plug the transformer in at this time. Final connection of the transformer and standby battery should be made after all other connections have been made.

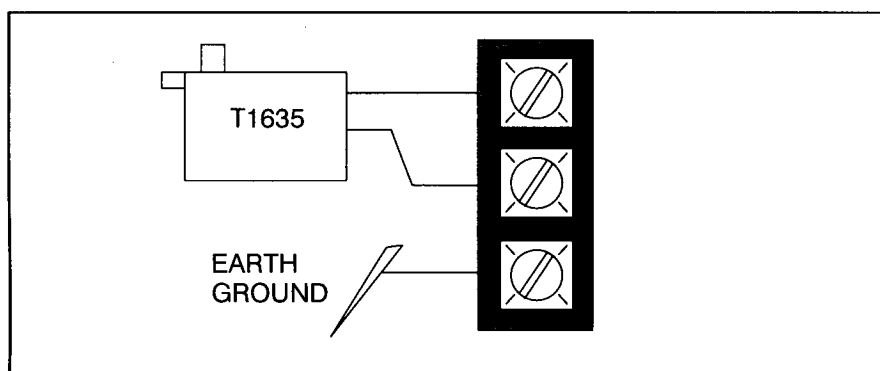


FIGURE 1-6. Transformer Connection

PTC (Positive Temperature Coefficient) Circuit Breakers

The control is equipped with thermal activating, self-restoring, solid state overcurrent protection devices (PTC's), which interrupt current flow demands when it exceeds the rated threshold. When the keypad indicates "BLOWN FUSE," a PTC has interrupted current flow to one of the following circuits:

- | | |
|-------------------------------|--|
| F1 (2.5 A) protects +12V AUX | (2 Terminals) |
| F2 (0.9 A) protects +12V KP1 | (1 Terminal) |
| F3 (2.5 A) protects +12V FIRE | (3 Terminals, Fire Power And Switched Smoke) |

If power has been interrupted to any of these circuits, remove the field wiring from the terminals for approximately 20 seconds in order for the PTC to reset. If the PTC resets, determine the problem with the field wiring and repair. If the PTC does not reset, the problem is with the terminal strips and/or main circuit board and must be replaced.

Zones 1 Thru 12

The zone wiring is connected to the left terminal strip (TS5). Each zone terminal is labeled Zone 1, Zone 2, Zone 3, . . . etc. Each zone pair has a common negative terminal located between the two zone inputs. The protective loops are designed so that any closed loop device (a device in which a closed circuit occurs when mounted normally in a non-violated condition) is in series with the EOL resistor and other closed loop devices in the same circuit. Open loop devices (devices which create an open circuit when mounted normally in a non-violated state) must be wired so that they are in parallel with the EOL resistor.

NOTE

The resistor must be placed at the end of the loop. Fire zones require use of UL Listed Model CR851 2.2 k Ω end-of-line resistor. All other zones take a standard 2.2 k Ω EOL resistor PN 32034071.

Installation And Wiring

The operation of the protective loop can be checked from the screw terminals with a voltage reading. A Class B protective loop on this control panel should show approximately 6.5 VDC in a normal condition. If the circuit is violated in an open condition, the voltage rises to 13.8 VDC. If the circuit is shorted across the EOL resistor, the voltage is approximately 0 VDC.

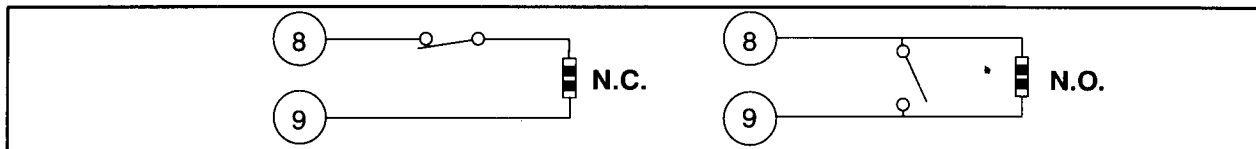


FIGURE 1-7. Typical Wiring Class B Zone

It is possible to wire the protective loop in a way that places the EOL resistor inside the control panel and maintains the supervision of the circuit, utilizing a four-conductor cable as shown in FIGURE 1-8.

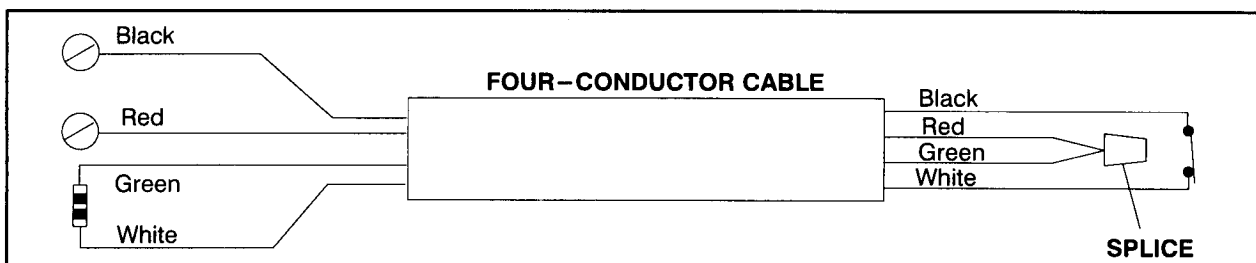


FIGURE 1-8. Special Wiring of Protective Loop

Connect a typical installation configuration as follows:

1. Connect all alarm sensors to the zone wiring per the instructions provided by the sensor manufacturer and FIGURE 1-4 on page 1-4.
2. Connect each zone wire to the terminals according to FIGURE 1-4. Each zone has an input terminal and a common (negative) return. Please note that a negative terminal is shared by two zones and that all negatives are common to each other.

Two-Wire Smoke Detector Loop (Zone 12)

Zone 12 is designed with an optional feature which allows operation with two-wire loop type smoke detectors. To enable this feature, move the J-8 jumper from the A-B position to the B-C position. Program Zone 12 as a two-wire smoke detection loop and connect the smoke detector(s) to Zone 12.

NOTE

For the two-wire smoke detector option, the zone definition (Menu 3) for Zone 12 must be a value of 2007 or 9007 (verified fire). When selected, a CR852 1.8 K Ω EOL must be used instead of the 2.2 K Ω CR851. The CR852 resistor is furnished with the panel.

The loop wiring resistance must not exceed 60 ohms. Use only detectors listed as compatible accessories in Chapter 4. Use the same model detector throughout the installation. The maximum number of smoke detectors that may be connected are listed in Chapter 4 with each detector type.

Data Bus Device Connections

Devices which use the four-wire data bus are the LCD control stations, LED keypads, zone concentrators and the printer interface module. These devices require two conductors for the transfer of data and two conductors for the operating voltage. The data bus connections are the terminals labeled DATA A and DATA B. These are parallel connections and may be home run or may be branched at a field connection. Power for these devices is supplied from the terminal marked Keypad +12V and the common negative terminal.

Installation And Wiring

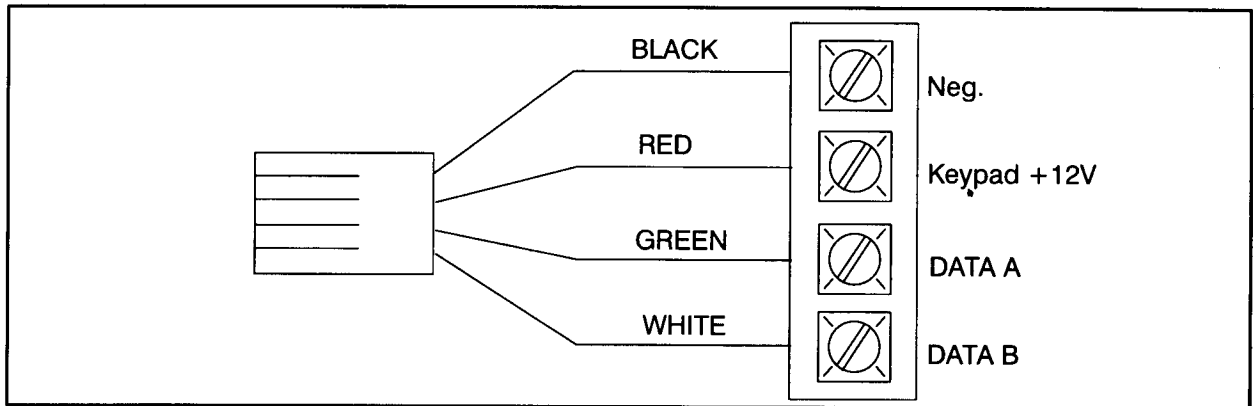


FIGURE 1-9. Four Wire Data Bus

The control board also has a four-pin polarized connector (J-5) which is designed to connect any of the data bus devices directly to the control via the Z-217 four-conductor ribbon cable. This cable may be used when setting up bench testing, programming or servicing devices. However, do not use J-5 as a permanent connection.

Data Bus Device I.D. Setting

The control stations and the zone concentrators contain a DIP switch bank (Dual In-line Package) where the identification number for the device must be set. The valid settings for all control stations are 1-8. **No more than eight control stations are permitted on the control. No more than one control station may be set to a specific address.** The valid settings for the zone concentrators are 1-4. **No more than four zone concentrators may be connected to the control. No more than one zone concentrator may be set to a specific address.** In all devices a setting of 0 disables the device. The printer interface is self-assigning and requires no set up before operation. Refer to the labels on the silk screen for the concentrators and the enclosed label for the switch settings on the LED keypads and the LCD control stations.

CAUTION

Be careful when setting the DIP switches on the concentrators. The switch alignment on the concentrators may be different from the control stations.

The addresses of the control stations are independent of the addresses of the zone concentrators. Set the first device of any type as #1, the second as #2 etc. Do not set the keypad as device #1 and the zone concentrator as device # 2 and so on.

Concentrator Device ID	1	2	3	4
Zones Added (Z2300/2350):	13-20	21-28	29-36	37-44
Outputs Added (Z2350):	11-20	21-30	31-40	41-50

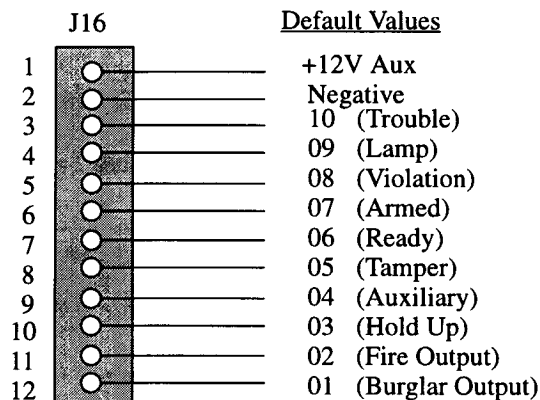
Outputs

The control has 10 outputs, expandable to 50. The first 10 outputs are accessed through the flying lead harness (J16). Splice the end of the stripped conductor (strip 3/8" of insulation) to the corresponding output lead. Output 1 is at the lower end of the J16 connector. Each output provides 13.8 VDC at 40 mA when active.

All 50 outputs are enabled through programming and may be connected so that multiple outputs activate a common device. These outputs should not trigger devices that exceed the current limitations. The first 10 outputs must be terminated within the control panel box. The K1 & K2 Relays or auxiliary low current relays (such as the MPI-206) may be triggered to drive higher current demands. These relays must be triggered externally.

K1 And K2 Hook-up And Operation

Two Form C Relays (K1 & K2) rated for 5 Amps @ 28 VAC/VDC are included on the control board. Each may be configured to provide "dry" contact closure or voltage (+12 VDC) output. See FIGURE 1-12 on page 1-11.



Pins 3 through 12 on J16 each have a maximum current draw of 40 mA.

FIGURE 1-10. Special Application Programmable Outputs

Auxiliary Power Connections

Devices requiring unswitched 24-hour power (motion detectors, glass break detectors, etc.) should be connected to one of the auxiliary terminals. The negative terminal of the load device should be connected to any convenient negative terminal. All negative terminals on the terminal strip are at the same reference and may be used whenever a circuit ground is required. Use caution when wiring the control to distribute the load devices among the supply and the negative terminals evenly. No device should share the same negative terminals as a high current consuming device such as a siren driver.

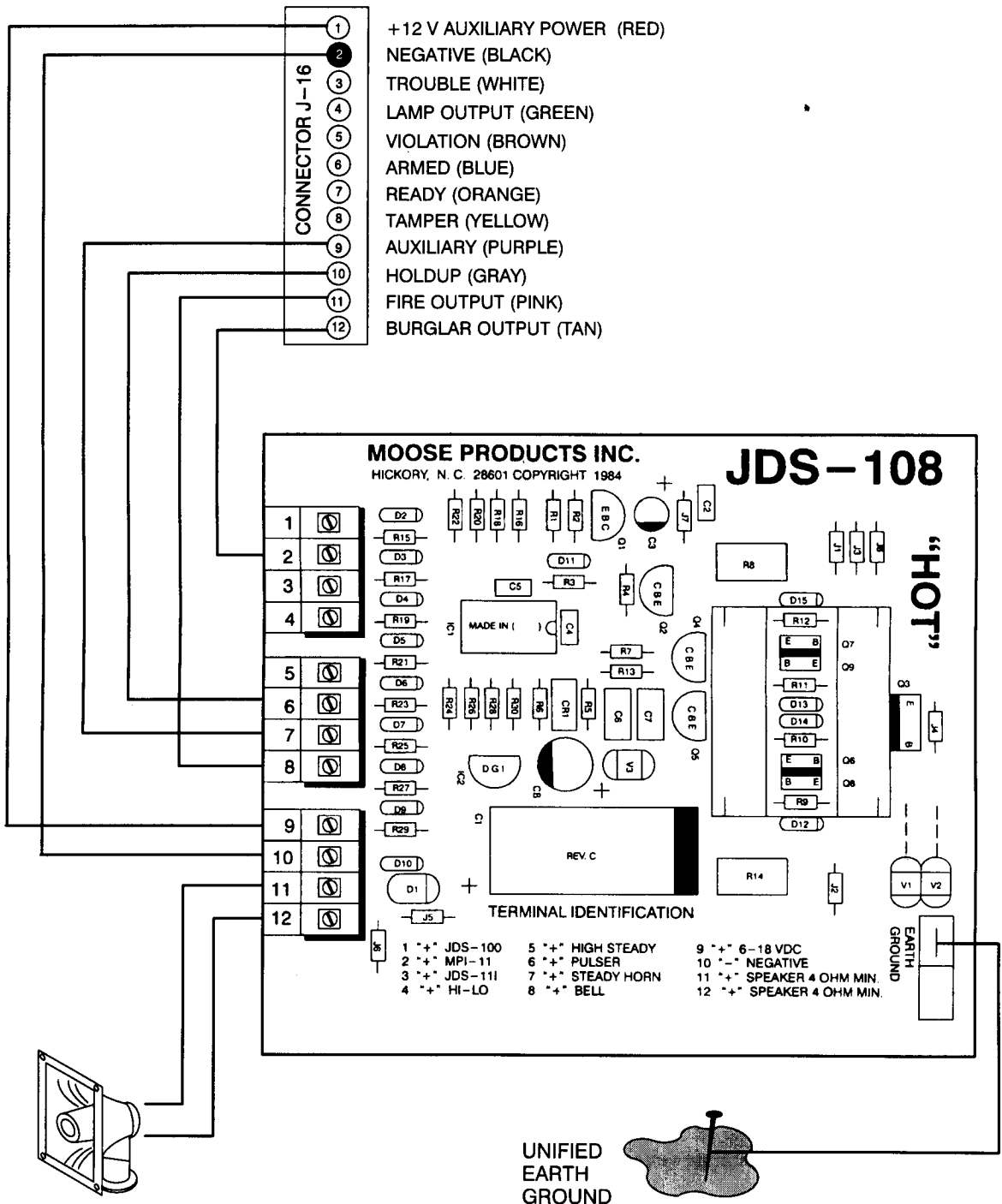
NOTE

Circuit ground refers to any negative terminal connection on this control. This does not refer to the earth ground terminal or to the common terminals of the K1 and K2 relays. These terminals are not at the same voltage potential and should not be wired so that they are electrically connected to a negative.

Switched Power Connections (For use with UL Listed four-wire smoke detectors)

Some devices require a temporary break in the operating supply voltage to allow reset or unlatch from the alarm state (i.e. smoke detectors, etc.). These devices must be connected to the +12VDC Switched Power Terminal. When a smoke reset is performed, the operating voltage to these devices is momentarily interrupted.

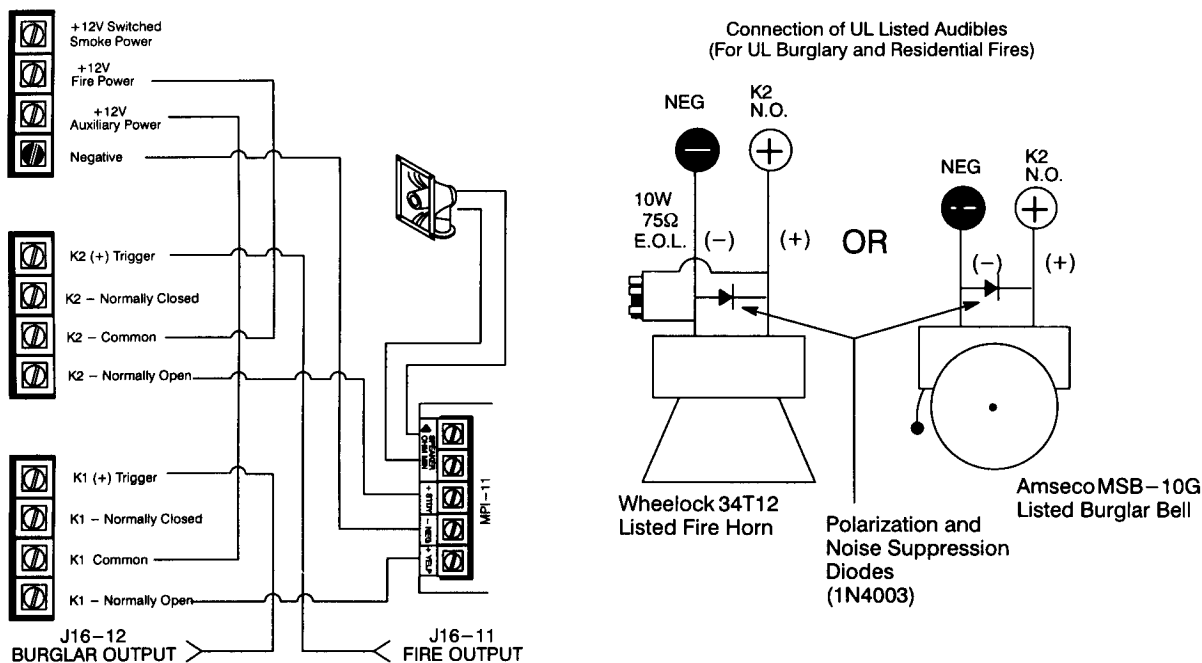
Installation And Wiring



NOTE: The JDS-108 siren driver is not a UL listed audible device

FIGURE 1-11. Typical JDS-108 Siren Hookup

Installation And Wiring



NOTE: The MPI-11 siren driver is not a UL listed audible device.

FIGURE 1-12. Audible Hookup Examples

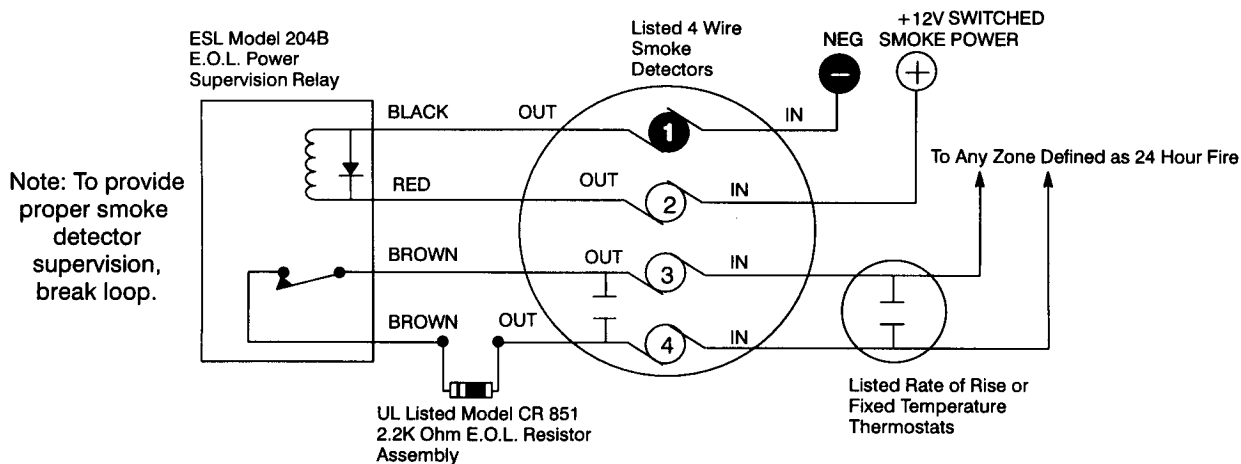


FIGURE 1-13. Four Wire Smoke Detector Hookup

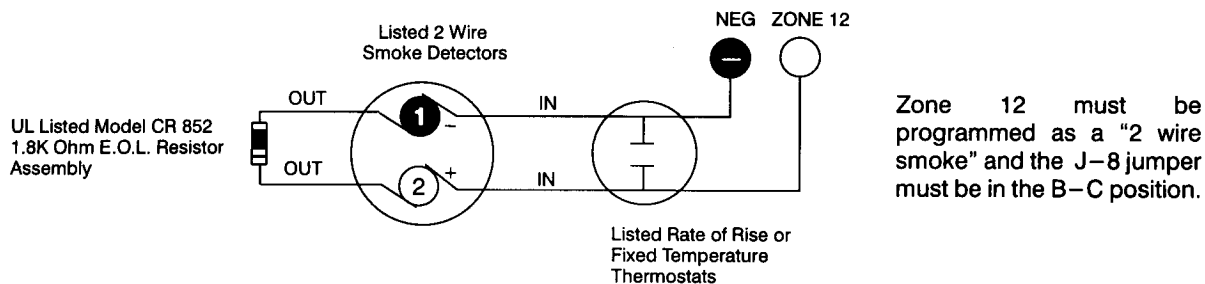


FIGURE 1-14. Two Wire Smoke Detector Hookup (Zone 12 only)

Installation And Wiring

Telephone Line Connection

The telephone interface is connected by the use of an approved interconnect jack such as the RJ-31X. These devices allow the subscriber to disconnect the control/communicator from the public switched telephone network in the event of harm or malfunction. The control is equipped with line seizure so that the premises telephone service is interrupted during communication to the central station.

NOTE

Wiring for the telephone line must not be routed through the same knockout or conduit as the AC/DC power wiring.

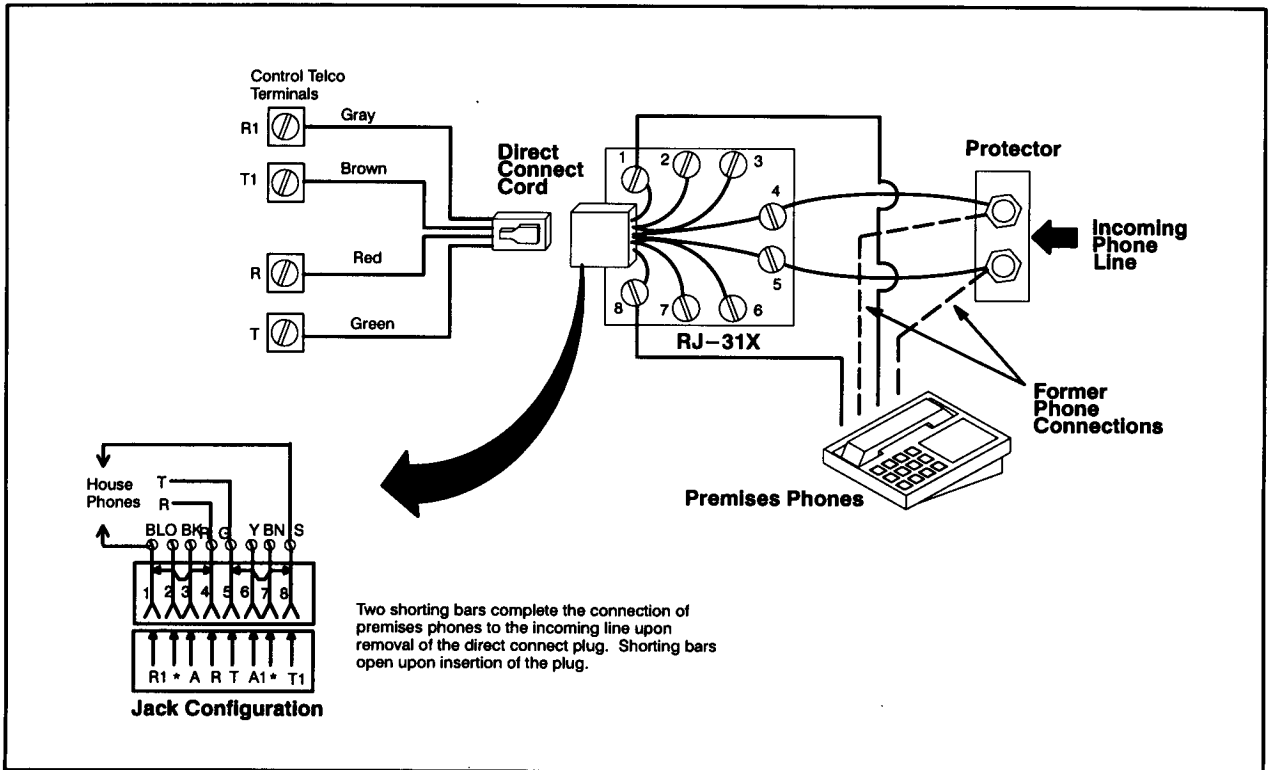


FIGURE 1-15. Telephone System Connection

Ground Start Telephone Networks

The system has an option to allow communication over a ground start type telephone network. NOTE: The use of a ground start telephone network is not permitted on UL Listed installations.

Connect a Z232 Ground Start Module to the system as follows:

- White wire to Pin SP1 (Ground Start trigger), located on top right corner
- Red wire to a +12VDC Aux Power terminal
- Black wire to a NEG terminal
- Orange wire to the Earth Ground terminal
- Blue wire to the Telco T (TIP) terminal

The Z232 provides a 1.5 second short between Earth Ground and one side of the phone line as part of the dialing routine.

2.1 Introduction

After all connections have been made and checked thoroughly, the control may be powered up by connecting the AC and the battery terminals. For best operation during bench testing, all zones should be terminated with end of line resistors and the correct transformer and battery should be connected to the unit. The control comes from the manufacturer with a factory set (default) program. The factory set code for user passcode No. 1 is 12345. This code is authorized to operate all user passcode related features on the system. The system is designed to accommodate the grouping of specific zones into partitions called areas. The default program is designed to assign all zones to a single area (#1). This is the most common mode in which the system operates. This section of the manual gives an overview of powering up and basic keypad functioning.

2.2 Powering Up With The Keypad

Upon powering up the first time, the control performs self-diagnostics and establishes contact with all keypads and devices. During this time, each keypad should display its installed ID number and the IDs of the functional keypads 1 through 8.

(Panel type) REV X.XX
KEYPAD 1 OF 123 . . .

This identification number corresponds to the DIP switch setting on the back side of the keypad. If a problem arises during power up, remove power and re-check the position of the DIP switches on the keypads. Up to eight keypads (either LCD or LED) may be used in any combination with the system.

NOTE

ACR 505 card reader keypad counts in the same way as a standard LCD or LED keypad.

Once the zones are in a secure state, keypad screen displays:

AREA 1 READY TO ARM
ARM

The ARM command appears directly above the soft key required to arm the system.

NOTE

The words “AREA 1” in this example refer to the name of the area affected by this keypad. An appropriate name is programmed into this field at the time of installation. Detailed descriptions of partitions and alphanumeric entries are discussed in Chapter 3.

Menu Key

One of the guidance tools on the keypad is the menu key which causes the keypad to display a list of control options that changes with each key press.

Soft Keys

The keypad is equipped with three soft keys which are centered below the screen and point to areas of the display from which user operation choices are made. Each soft key corresponds to a control option displayed directly above that

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key. When an item is selected by pressing the corresponding soft key, additional sub-options such as NEXT, CLEAR, QUIT, ENTER, STORE, CHANGE, and PREV appear as necessary.

Nearly every option on the control requires the use of a valid user passcode. The user passcode may be used for functions in a specific area or system-wide. Several of the options may be performed at any time, even while the control is fully or partially armed. The menu system is designed to be next-step-oriented so that after a brief explanation of the options, the user may begin operating the system immediately. For purposes of discussion, the installer and the end consumer are both considered users, but have different levels of authorization.

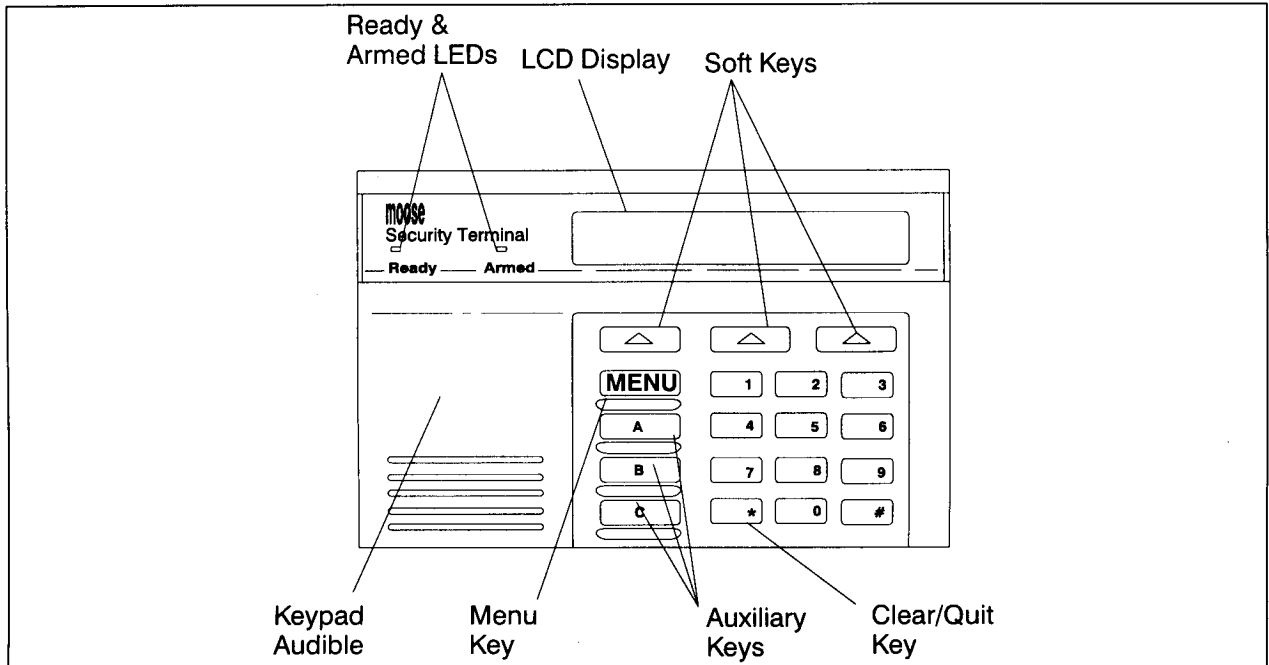


FIGURE 2-1. System Keypad

2.3 Keypad Overview

Ready and Armed LED's	These LEDs indicate the status of the burglar zones assigned to the keypad's primary area. The Ready LED illuminates when the burglar zones are all secure. The Armed LED illuminates when the area has been armed and flashes after an armed burglar zone has been violated, setting off an alarm.
Menu Key	The menu key allows the user to scroll through all available options. Each time the menu key is pressed, a new selection of options appears on the screen. The user can activate/select a function by pressing the soft key directly below that option. After the desired option is selected, the user is prompted for a user passcode. Additional sub-menu options may appear to assist the user. The user may return to the status screen by pressing the * key.
Keypad Audible	The piezo resonator activates for conditions including entry and exit notification, alarm, trouble, chime, etc.
Auxiliary Keys	When programmed, these keys activate auxiliary alarms (Panic, Fire, Emergency, etc.).
Clear/Quit Key	The * key is used to reset code entry errors and to allow the user to escape out of a menu. Pressing and holding the * key for three seconds acts as the reset key for missing keypad, memory error and failed to communicate system troubles.
Soft Keys	The soft keys allow the user to access options directly from the screen.
Keyboard Downlighting	The keypad contains recessed lights to provide illumination during operation.

2.4 Installer Operations

The control has 99 user passcodes and one installer passcode. The User's Guide contains a description of panel operations accessible to the user passcodes. Panel operations accessed by the installer passcode are slightly different.

Arming and Disarming

The installer passcode has limited arm/disarm privileges. It may be used to arm all areas and may disarm any area, so long as that area was armed with the installer passcode. It may be used to silence alarms in an area armed with the the installer passcode or in an area that is not armed. The installer passcode may also be used to silence a trouble condition in a disarmed area. For a full description of arming and disarming procedures, see the security system User's Guide.

Menu Features

The menu key allows the user to scroll through the available options. Each time the menu key is pressed, a new selection of options will appear on the LCD screen. By pressing the soft key below the desired option, the user may activate that function. After the desired option has been entered, the user is prompted for a passcode. Additional sub-menu options may appear to assist the user. The user may return to the status screen by pressing the * key.

First Key Press:

RESET	VIEW	ENABLE
ALARM	STATUS	CHIME

Second Key Press:

EVENT	EXTEND	SMOKE
HISTORY	CLOSING	RESET

Third Key Press:

KEYPAD	PROG	SYSTEM
OPTIONS	OPTIONS	TEST

Fourth Key Press:

SET	REMOTE	COMM
CLOCK	CONNECT	TEST

This section describes the menu options when the installer passcode (96321 at default) is entered.

First Key Press Menu:

RESET ALARM: Resets silent Hold-up Alarms only. **This function or a disarm of the entire area must be performed to get a new Hold-up Alarm.**

VIEW STATUS: Allows the status of each zone and area to be viewed. While viewing zone status, it is possible to bypass any zones defined as bypassable. **Note: Bypassing burglary zones in armed areas is not permitted. The area must be disarmed first, then the zone bypassed and then the area re-armed in order to achieve a bypass.**

ENABLE CHIME: Provides an audible annunciation from the control station(s) when certain doors and windows are opened while the system is disarmed. This feature is commonly used for residential door annunciation or as customer entry notification in retail establishments. The display screen on this feature is similar to the status screen. Pressing the **CHANGE** soft key turns the chime on or off.

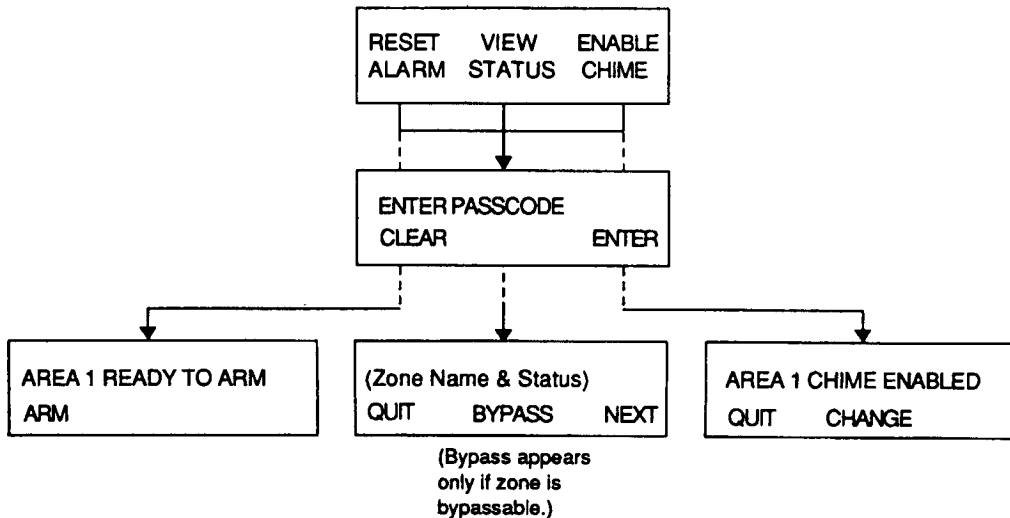


FIGURE 2-2. First Key Press Menu

Second Key Press Menu

EVENT HISTORY: Permits the display of a limited number of past events from the event memory log. This log displays events such as openings, closings, alarms, troubles, and accesses. Along with the type of event, the log contains information such as date, time, user, zone, etc. associated with the event. Events are sorted on a first-in, first-out basis. After pressing the **EVENT HISTORY** soft key and entering the installer passcode, the LCD displays **EVENT HISTORY** with menu choices **QUIT**, **PRINT**, and **DISPLAY**.

QUIT: Resets system.

PRINT: Allows the printing of the history data on an external printer if the system is equipped with one.

DISPLAY: Displays the history data on the LCD. It prompts **START WITH MOST RECENT?** with menu choices **QUIT**, **YES**, and **NO**.

QUIT: Returns display to the previous screen.

NO: Prompts for the date with which the listing should begin.

YES: Lists the events beginning with the most recent. When an event is on the LCD screen, pressing the **DISP** key displays additional information such as user name, zone name, date, and time.

EXTEND CLOSING: The installer passcode is not operation for this function.

SMOKE RESET: Allows the resetting of the smoke detectors after an alarm.

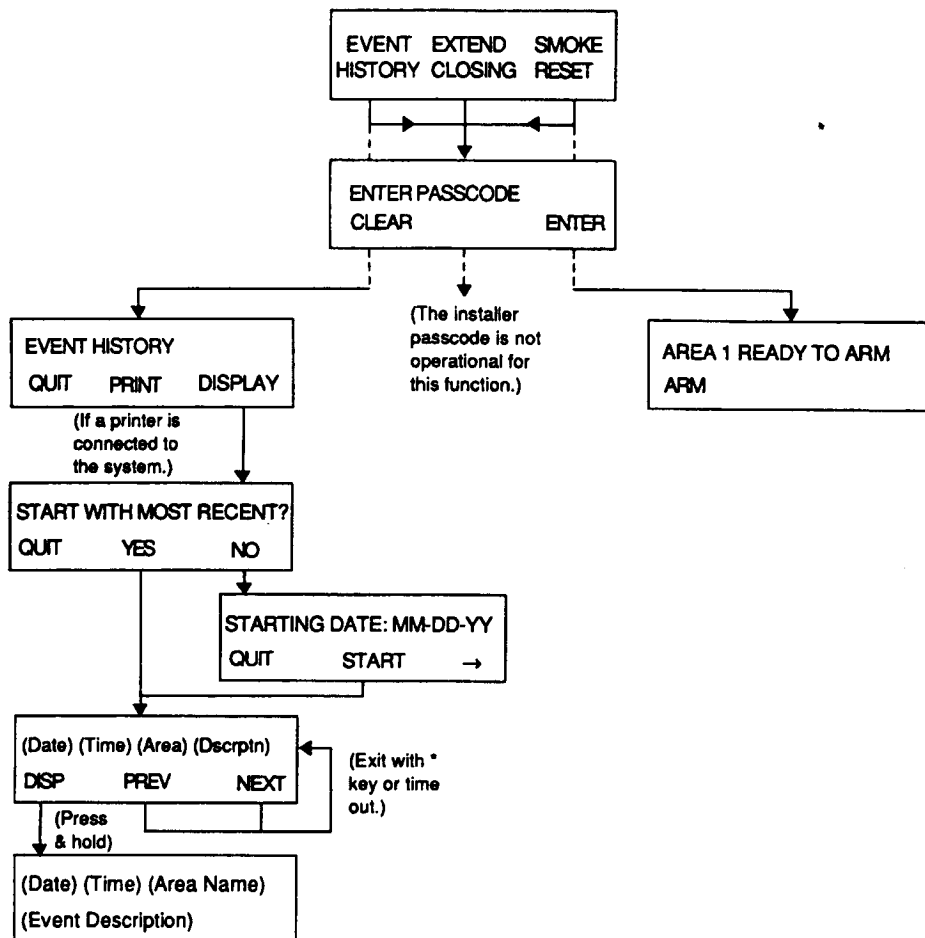


FIGURE 2-3. Second Key Press Menu

Third Key Press Menu:

KEYPAD OPTIONS: Allows the adjusting of the downlighting (not operational on all keypads), piezo volume and screen viewing angle of the keypad in use. The AC Fail Light lamp adjustment allows you to set a keypad to provide light during a power failure or to be dim to conserve the system's battery.

PROG OPTIONS: Initiates Local Programming (see Chapter 3).

SYSTEM TEST: Allows the testing of various aspects of the system.

VOLTS: Displays the system operating voltage.

LOCAL TEST: Allows testing of individual zones (see Chapter 5 for a description of LOCAL TEST operation).

BATTERY TEST: Displays the battery voltage.

Operating The System

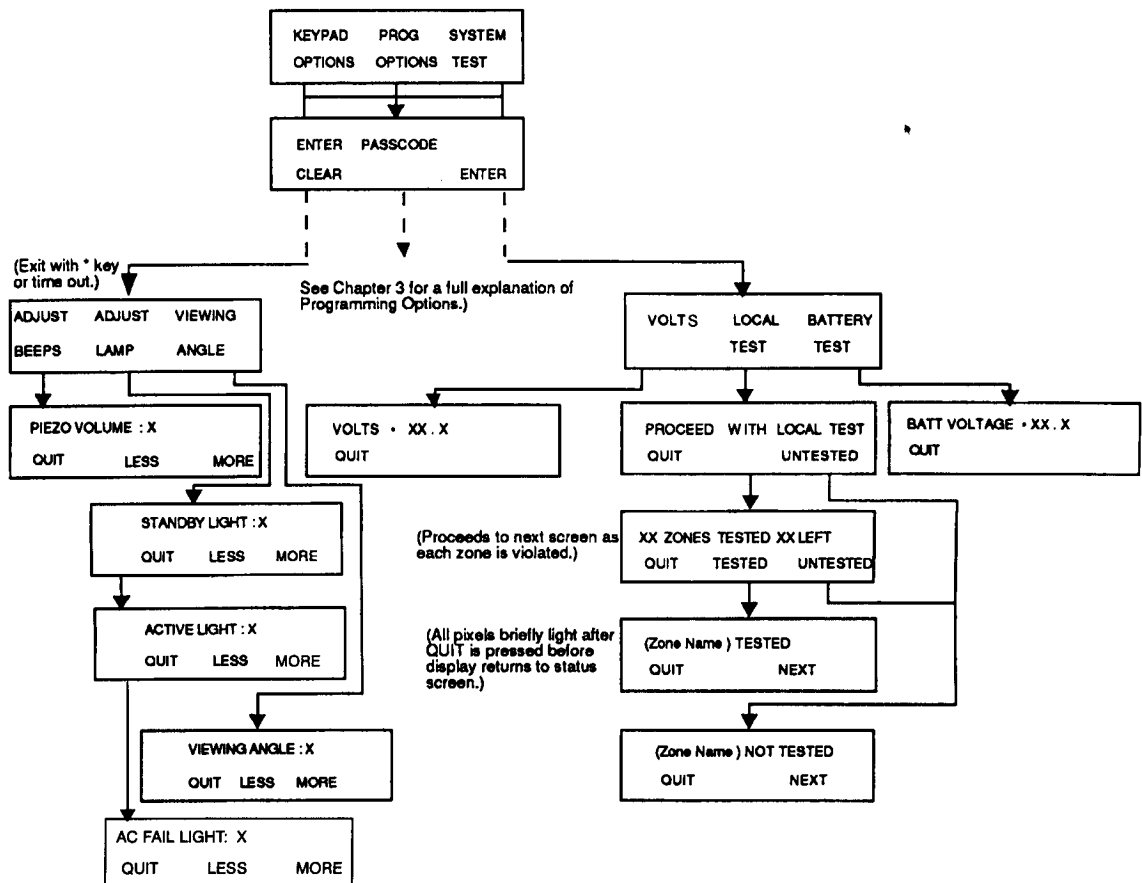


FIGURE 2-4. Third Key Press Menu

Fourth Key Press Menu:

SET CLOCK: Allows the adjusting of the system's clock.

REMOTE CONNECT: This feature is used to manually connect the panel to a remote programming computer. The control panel seizes the telephone line.

COMM TEST: Allows the testing of the communications link to the central station. The panel calls the central station, but hangs up without reporting upon initial handshake. If communication with the central station is established, the keypad displays **COMM TEST SUCCESS**.

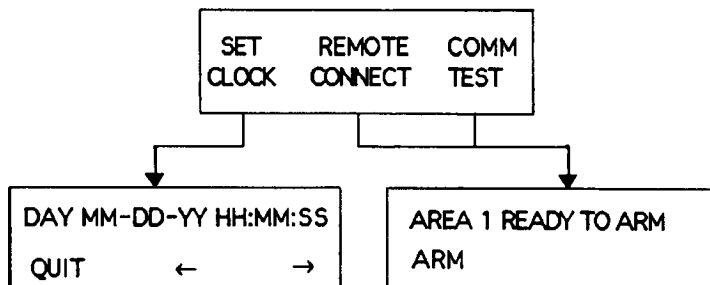


FIGURE 2-5. Fourth Key Press Menu

Programming The Control

Chapter

3

3.1 Introduction

The control may be programmed locally from any LCD keypad. Local programming uses a powerful, yet friendly, menu-driven interface. It may also be programmed using upload software, known as RPM/2.

3.2 Local Programming

There are two levels of operation for programming the control locally, user level and installer level.

User level programming provides the ability to add, change, or delete user passcodes and names. It also allows scheduled events to be changed. A master user code is required to access the user programming level. User programming is explained in the User's Guide.

Installer level programming allows total customization of the control's operating features. Only the installer code may access this level. **If the installer code is lost or forgotten, it is impossible to program the control locally.** Anyone attempting installer level programming should be familiar with the contents of this publication prior to programming the control panel.

If remote programming is used, it is possible to "lock out" or prevent takeover of a control by another installation company by selecting "Lockout Local Prog." This prevents the installer passcode from gaining access to programming via an LCD keypad. The installer passcode may still be used for the non-programming functions described in Chapter 2. **Lockout Local Prog** does not affect remote programming.

3.3 Remote Programming (RPM/2)

Remote programming utilizes extensive error checking and security safeguards, including data encryption, password log-on, panel IDs and agency codes.

Panel IDs are used by RPM/2 to identify a control during a remote session. The agency code is used by the control to identify the remote programmer during initialization of a remote session. These codes are loaded into the control by RPM/2 during the first RPM/2 session. They cannot be viewed by local programming.

The panel ID and agency code work together to prevent illegal takeover by another RPM/2 computer. Once the agency code is programmed, the control also prevents local changing of reporting telephone numbers and disables the RESTORE DEFAULTS function.

3.4 Area Partitioning

The control may be divided (partitioned) into 1–8 independent areas. To the customer, each area appears to be a full-featured system. This allows one control to be shared by multiple, independent departments within a common structure. Any combination of zones, user codes, and keypads may be assigned to any area up to the maximum number available.

When reporting to the central station, events such as AC Power Failure, Low Battery, automatic tests, etc., are considered system reports and are transmitted as an Area 1 account although they are displayed on all keypads regardless of area.

Each area can be programmed to control separate outputs with a dedicated audible or annunciator. It is also possible to common the outputs of multiple areas so that a central siren or bell can be used. The burglar alarm audible should be positioned so that it can be heard by all partitions. When partitioning is not desired, simply designate all zones to a single area (Area 1). This is the default or factory setting for zones 1–12.

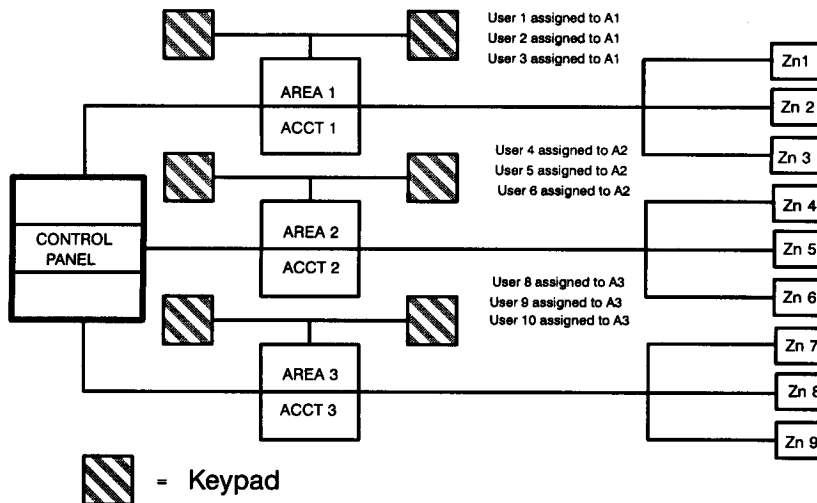
Programming The Control

An example of a partitioning application is a business that is divided into separate departments with each department occupied by a different manager. The control communicator would be installed in a secure area (common utility closet) with dedicated and uninterrupted AC power and telephone service. This must be considered when planning the control panel position as the power and phone service to a tenant may be terminated if that tenant leaves.

Each tenant's compartment is assigned an area with a number of zones, codes, and keypads. When an area experiences an alarm or other event, the adjacent system areas are not alerted to the event since the keypad would be programmed to respond only to events in the assigned areas.

Perhaps the most unique programming feature is the ability to allow crossover between areas. This is called multi-area operation and is an optional feature that allows the user(s) from one area to operate another area from a designated keypad. Programming is discussed in detail later in this manual. By factory default, users are only allowed to see and operate their primary assigned area. Multi-area operation may be useful for applications where the security system is installed in a facility that is divided into departments. Each department has a set of users who are responsible for arming and disarming only the security system to which they are assigned. If desired, the system may be set up to allow one or more users to have control over multiple areas.

Another popular feature is common area or vestibule arming. In some installations, one area may be set up to be common to other areas, such as a medical or legal commons with a general reception area. The common area or vestibule should arm with the last area out and disarm with the first area opened.



Each area may have a separate account number at the central station and may report to two receivers or just one; or one with the second as backup. The type of activity within a specific area / account may be divided among the two receivers as well. Ex. Open / Close reports may transmit to rec. A and alarm activity may transmit to rec. B.

1. Maximum Zones = 44

Any number of zones may be assigned to any area in any sequence

2. Maximum Users = 99

Any number of users may be assigned to operate on any combination of areas.

3. Maximum Keypads = 8

These may be assigned to any area with ability to operate in other areas if desired.

FIGURE 3-1. Area Partitioning

3.5 Installer Level Programming

From an idle keypad, press the menu key several times until PROG OPTIONS appears as a selection (refer to Installer Operations in Chapter 2).

KEYPAD	PROG	SYSTEM
OPTIONS	OPTIONS	TEST

Press the soft key titled PROG OPTIONS. The display changes to:

ENTER PASSCODE	ENTER
CLEAR	

Enter the installer code (96321 at default).

NOTE

The manufacturer recommends that the installer code be changed from factory default for security against unauthorized programming changes.

Press the ENTER soft key. The keypad briefly displays the panel's configuration. There are two possible configurations:

- 1.. Multi-Area
- 2.. Separate Areas

In configuration 1 (Multi-Area), user codes may be assigned to operate in more than one area and keypads may have a primary and extended areas of operation.

In configuration 2 (Separate Areas), each user code and keypad may only be assigned to operate in one of the areas.

If the panel has not been configured (i.e. it is being programmed for the first time), then the keypad displays the panel configuration question:

“Allow Multi–Area Codes?”

If YES is pressed, the panel is set to Configuration 1. If NO is pressed, the panel is set to Configuration 2.

Once this question is answered it is not asked again unless the panel is completely defaulted. Be careful to answer this question correctly.

NOTE

Until the panel has been configured, it may not be programmed remotely with RPM/2.

When the panel is first powered–up, the name displayed for Area 1 is “DEFAULT”. Once the panel is configured, the name displayed for Area 1 is automatically changed to “AREA 1”. Therefore, if the keypad displays “DEFAULT READY TO ARM”, then the panel has not been configured yet and it may not be remote programmed.

If a programmed panel is later defaulted, the name displayed for Area 1 shall return to “DEFAULT”.

After the panel configuration has been briefly displayed, the first programming menu, M1: AREA DEFINITIONS is displayed.

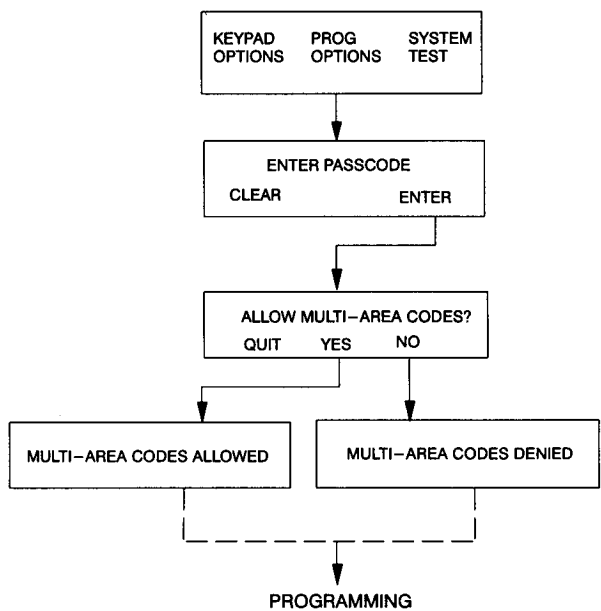


FIGURE 3-2. Setting Panel Configuration

Programming Menus

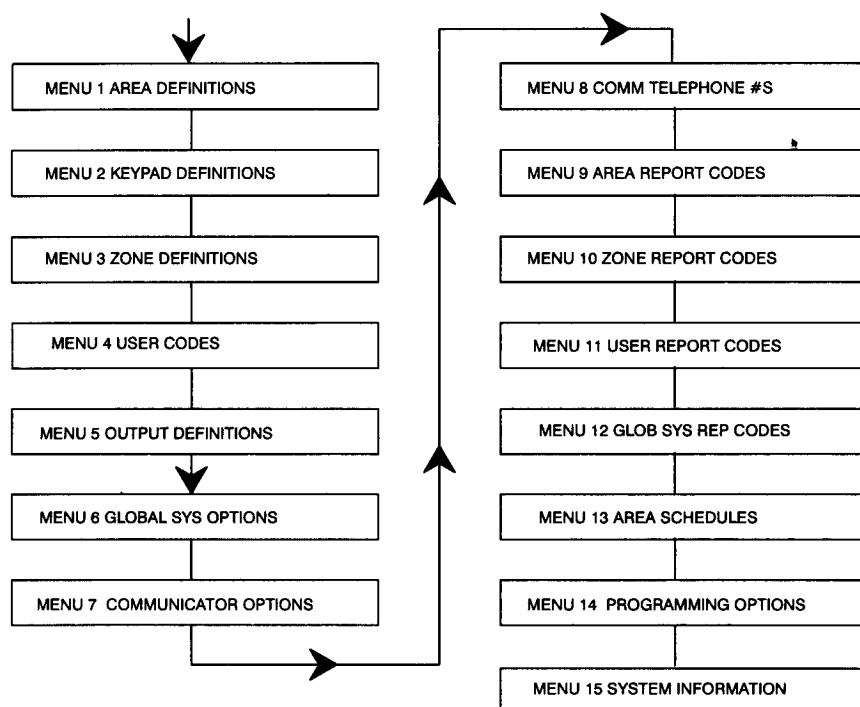


FIGURE 3-3. Main Menu Flow Chart

3.6 Soft Keys Used During Programming

NOTE

After becoming familiar with the menu structure, it is recommended to read about the powerful navigation abilities explained in Section 3.9. The control exits program mode after three minutes of inactivity. Pressing the * key twice exits to the normal operations mode.

*	This key is available for all menus and is used to back up one level or exit programming.
NEXT	May be used to step forward from one screen or menu to the next.
SELECT	Used to choose the currently displayed menu or menu item so that it may be programmed.
STORE	After entering a numeric value for a menu item, this key must be pressed to store the data in permanent memory.
CHANGE	Available with options that display either a Yes or No choice. With each press of the key, the currently displayed choice is changed.
CLEAR	Used to erase an incorrect digit entry.
PREV	May be used for backing up one item (level) at a time.
—>	Used to move the blinking cursor (data entry point) when programming menus that have more than one option, and when programming names (characters and words) for areas, zones, etc.

3.7 Programming Names Using The Text Editor

To program the name of an area, keypad, zone, or user, place the flashing cursor inside the quote marks by pressing the arrow → key. While inside the quote marks, the numeric touchpad keys produce characters. Pressing the 2 key once produces an “A” character. Pressing 2 again produces a “B” and so on. The keys and characters correspond to the alphanumeric association on a telephone touch pad: the 2 key= A, B, and C, the 3 key= D, E, and F, and so on. Once the desired character is displayed, advance the cursor by pressing the arrow → key. Repeat the character entries until the desired name is complete, then press NEXT to complete the process. It is also possible to use a library of pre-programmed words. The library is accessed by pressing the pound # key after the cursor is placed into the name field. Instead of individual characters, the numeric touchpad keys now produce the words that correspond to each letter. Pressing the pound # key a second time produces soft keys for inserting or deleting spaces or characters.

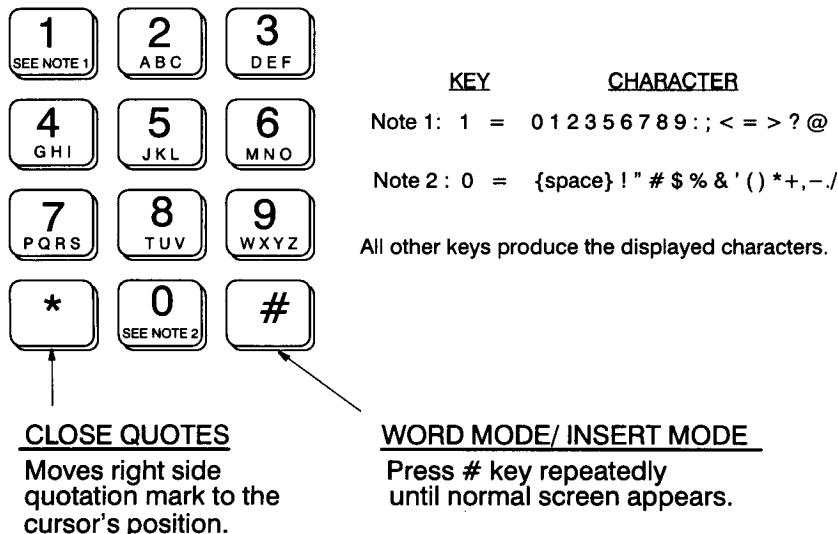


FIGURE 3-4. Text Editor

BUILT-IN LIBRARY OF WORDS

A (2)	D (3)	F	I	M (6)	PHOTO	SKYLIGHT	V
ALARM	DELAY	FAMILY	INFRARED	MAIN	PIR	SLIDING	VALVE
AREA	DEN	FIRE	INSIDE	MASTER	PLAY	SMOKE	VAULT
ATTIC	DETECTOR	FIRST	INTERIOR	MAT	POLICE	SOUTH	
	DINING	FLOOR		MOTION	POOL	SPRINKLER	W (9)
	DOOR	FOYER	J (5)	MICROWAVE	PRESSURE	STORAGE	WALL
	DOWNSTAIRS	FREEZER	JANITOR			SYSTEM	WAREHOUSE
B	DRIVEWAY	FRONT		N	R		WATER
BACK				NORTH	REAR	T (8)	WEST
BAR			K		ROOF	TAMPER	WINDOW
BASEMENT	E	G (4)	KITCHEN	O	ROOM	TRAP	
BATHROOM	EAST	GARAGE		OFFICE			Y
BEDROOM	ENTRANCE	GLASS	L	OUTSIDE	S	U	YARD
BELL	EXIT	GUEST	LAUNDRY	OVERHEAD	SAFE	ULTRASONIC	
	EXTERIOR		LIVING		SECOND	UPPER	Z
C		H	LOBBY		SENSOR	UPSTAIRS	ZONE
CAFETERIA		HALL	LOWER	P (7)	SHOP	UTILITY	
CARPORT		HOUSE		PANIC	SIDE		
CEILING				PASSIVE			
CLOSET							

() INDICATES THE KEY TO PRESS TO BEGIN WORDS WITH THAT LETTER.

FIGURE 3-5. Built-In Library Of Words

3.8 Entering Programming

Menu 1

M1: AREA DEFINITIONS		
PREV	NEXT	SELECT

Press Select to program this menu. Press Next to advance to the next menu. Another screen then appears for choosing which area to program.

AREA 1 DEFINITIONS		
PREV	NEXT	SELECT

Press Select to program Area 1. Press Next to proceed to the next area. Press Prev to back up one area or exit to the top of this menu. Area 1 menu is typical of every area definition menu. Following is a list of the descriptions and factory default settings for Area 1.

NOTE

When entering values into the menu items, it is possible to enter values which exceed the valid range of the programmed option. It is the responsibility of the installer to ensure the correct value of any entry programmed into the control.

ITEM AND DEFAULT	DESCRIPTION																		
A1: "AREA 1"	Area name (up to 10 characters). Refer to Text Editor on page 3–6.																		
A1: EXIT TIME = 60	Exit delay time in seconds for delay and interior follower defined burglary zones. Valid range is 0–255.																		
A1: ENTRY 1 TIME = 20	Amount of time in seconds to enter burglary zones defined as Delay #1. Valid range is 0–255.																		
A1: ENTRY 2 TIME = 40	Amount of time in seconds to enter burglary zones defined as Delay #2. Valid range is 0–255.																		
A1: KEY A DEF. = 2	Defines the condition to be activated by Panic Key A on the keypads in this area. Select from the following table.																		
<table><tr><th><u>Available Value Selection</u></th><th></th><th><u>Functional Description</u></th></tr><tr><td>0</td><td>=</td><td>Key Not Used</td></tr><tr><td>1</td><td>=</td><td>Burglar Alarm</td></tr><tr><td>2</td><td>=</td><td>Fire Alarm</td></tr><tr><td>3</td><td>=</td><td>Holdup Alarm</td></tr><tr><td>4</td><td>=</td><td>Auxiliary Medical Alarm</td></tr></table>		<u>Available Value Selection</u>		<u>Functional Description</u>	0	=	Key Not Used	1	=	Burglar Alarm	2	=	Fire Alarm	3	=	Holdup Alarm	4	=	Auxiliary Medical Alarm
<u>Available Value Selection</u>		<u>Functional Description</u>																	
0	=	Key Not Used																	
1	=	Burglar Alarm																	
2	=	Fire Alarm																	
3	=	Holdup Alarm																	
4	=	Auxiliary Medical Alarm																	
A1: KEY B DEF. = 3	Defines the condition to be activated by Panic Key B. See table.																		
A1: KEY C DEF. = 4	Defines the condition to be activated by Panic Key C. See table.																		
A1: SIL. KP ON BURG: NO	Eliminates the keypad piezo sounder upon burglar alarm.																		
A1: SIL. KP ON HOLDUP: YES	Eliminates keypad piezo sounder and visual display upon holdup alarm.																		
A1: REPORT LOCKOUT = 0	Selects the number of communicator reports allowed by each zone in this area. Valid range is 0–15.																		

Programming The Control

ITEM AND DEFAULT	DESCRIPTION
A1: AUDIBLE LOCKOUT = NO	Determines if the intrusion output should be locked out after the first alarm for this area. Resets with disarm. (Lock out is not timed).
A1: ENABLE BYPASS: YES	Enables selective bypassing of any zone that is defined as bypassable in this area.
A1: ENABLE FORCE ARM: NO	Permits the arming of areas with 1 or more zones faulted. Faulted zones are temporarily bypassed and return to operation if the fault is corrected. Only zones that are defined as bypassable may be force armed.
A1: AUTO INTER. OFF: NO	Automatically turns off interior defined zones at end of exit delay if a delay zone isn't violated (i.e. no exit occurs), switching the arming mode from Away to Stay. Note: Auto-Interior Off is only checked when: 1. a keyswitch Away arm is performed, 2. a keypad is used to change arming level of that keypad's primary area from some armed state to Away mode, or 3. a keypad is used to arm that keypad's primary area in Away mode. Auto-Interior Off is ignored: 1. for Area 1 when it is armed in Away mode due to the Common Area 1 areas being armed, 2. when an area is auto-armed, 3. when an area is armed or force armed in Away mode from RPM, 4. when a keypad is used to arm an area other than that keypad's primary area (even when that area is armed in conjunction with the keypad's primary area, i.e., Multi-Area arming).
A1: OPEN AFTER ALARM: NO	Restricts opening reports upon disarming to after an actual alarm only. Prevents regular opening reports.
A1: CLOSING RINGBACK: 0	Determines how the system annunciates the successful transmission of a closing report to the central station. 0 = Ringback Output only 1 = Ringback Output and keypad audible 2 = Ringback and Burglar Outputs and keypad audible.

Programming The Control

Menu 2

M2: KEYPAD DEFINITIONS
PREV NEXT **SELECT**

Press Select to program this menu. Press Next to proceed to the next menu. Another screen then appears for choosing keypad definitions.

KEYPAD 1 DEFINITIONS
PREV NEXT **SELECT**

Press Select to program this keypad. Press Next to proceed to the next keypad. Press PREV to back up one keypad or exit to the top of this menu.

Every keypad must be assigned a unique data address number. The data address is selected by setting the DIP switch on the keypad (see Chapter 1). In programming or defining each keypad, the address number must correspond with the keypad being programmed.

Each keypad definition has several options.

ITEM AND DEFAULT	DESCRIPTION
KP1:“KEYPAD 1”	Keypad name (up to 10 characters) displayed upon non-silent panic key alarms. Refer to Text Editor on page 3–6.
KP1 A:1 E:1	(A:) Defines the primary area to which the keypad is assigned. (E:) Defines extended area operation and is available only if the multi area codes feature was selected upon first time entry into programming. The primary area assignment is automatically included in the extended area field.
KP1 ENABLE PANIC A: NO	Defines if Panic Key A is to be enabled at this keypad.
KP1 ENABLE PANIC B: NO	Defines if Panic Key B is to be enabled at this keypad.
KP1 ENABLE PANIC C: NO	Defines if Panic Key C is to be enabled at this keypad.
KP1 SILENT EXIT = NO	Silences the exit alert at the keypad.
KP1 SILENT ENTRY = NO	Silences the entry alert at the keypad.
KP1 ACCESS TIME = 5 Valid Range = 0–255 0 = Toggle Note: This control is not a UL Listed Access Control System. The access feature should not be used in UL Listed installations.	Time in seconds for an access output activated from this keypad. Toggle access feature allows the output to latch ON/OFF. Access is performed at the keypad by entering a 0 prior to a valid passcode with sufficient authorization. Typically used to activate electrically operated door strikes. All access outputs assigned to this keypad (See Menu 5) are affected when a valid code is entered for this keypad. It is not area dependent.

Press Next after the last item in this menu to advance to the next keypad. Press the * key twice to exit to the user mode.

Programming The Control

Menu 3

M3: ZONE DEFINITIONS		
PREV	NEXT	SELECT

Press Select to program this menu. Press Next to proceed to the next menu.

Every zone has two programming screens. Each screen displays the physical zone number followed by the programmable entry fields.

Screen 1

ZN 01: "ZONE 01"		
PREV	NEXT	—>

Screen 1 of each zone allows a custom zone name (up to 16 characters) to be programmed. The arrow key moves the cursor into the name field and advances one character with each entry. Refer to text editor on page 3–6. Whenever a zone is displayed on the keypad, only the custom name appears. No zone number is displayed unless programmed as part of the description. This way each partition can essentially display consecutive zone numbers i.e. Z1 through Z? regardless of the physical zone numbers. The physical zone number is never used except by the installer.

Press Prev to return to the previous display. After the zone name is complete, press Next to store the name. Press Next again to proceed to screen 2.

Screen 2

ZN 01: AREA:1 DEF:1100		
PREV	NEXT	—>

Screen 2 provides two entry fields. The first field (Area:) requires a single digit entry (0–8) to assign the zone to an area. The second field (Def:) requires a four digit entry to define the zone operation. The arrow key moves the cursor into the Def: field. The four digit zone code can be created using the zone definition tables on page 3–11. Enter four digits until the field is complete, then press Store.

Press Next to proceed to screen 1 of the next zone. Press Clear to erase an incorrect digit entry. Pressing Store completes the entry and stores the data in memory. Entering a number from 1–44 and then pressing Zone, quickly navigates (jumps) to the definition screens for that zone (this is only recommended for experienced users). For detailed instructions regarding creating the zone definition value see the following zone definition tables.

Programming The Control

Digit 1 – Defines The Zone Type

0	Null (Disables the zone completely)	9	Verified Fire * (2 minute window)
1	Burglary	10 (A)	Fire Supervisory
2	Fire 24 Hour	11 (B)	Universal **
3	Holdup 24 Hour	12 (C)	Universal Logged**
4	Auxiliary 24 Hour	13 (D)	Sentry Test Burglar ***
5	Momentary Keyswitch (Arm AWAY/Disarm)	14 (E)	Listen-In Module Input ****
6	Communicator Report 24 Hour (CCM)	15 (F)	Momentary Keyswitch (Arm STAY/No Disarm)
7	Tamper (24 Hour Burglary)		
8	Burglary Chime (Always) Regardless Of Area Chime		

* **Verified Fire:** Upon activation, control removes switched smoke power for 5 seconds. The loop is ignored for an additional 25 seconds. Subsequent activations within the next 60 seconds cause alarms.

** **Universal:** May be used to activate a programmable output (Non-Reporting). Universal Logged is also recorded in Event Log when activated.

*** **Sentry Test:** Ensures that a zone is capable of initiating an alarm by preventing arming until one violation has occurred from the zone during each disarm period.

**** See Chapter 5 for UL notes.

To program an A, B or C digit, press the # key followed by 0, 1 or 2 respectively.

To program an D, E or F digit, press the # key followed by 3, 4 or 5 respectively.

NOTE: See Programming Notes on page 3–34 for important information about **Verifying or Self Verifying Burglar Zones, Trouble Open/Short** and the **Listen-In Module**.

Digit 2 – Defines The Response

0	Perimeter Instant	8	Verifying Interior Instant ****
1	Perimeter Delay 1	9	Self-Verifying Interior Instant ****
2	Perimeter Delay 2	10 (A)	Verifying Interior Follower ****
3	Interior Instant	11 (B)	Self-Verifying Interior Follower ****
4	Interior Follower	12 (C)	Verifying Interior Night Follower ****
5	Interior Night Follower	13 (D)	Self-Verifying Interior Night Follower ****
6	Interior Delay 1		
7	Interior Night Delay 1		

NOTE: Digit 2 only applies to Burglar Zones (digit 1 = 1, 8, or D). Exit time applies to all burglar zones except Perimeter Instant. All Follower zones have entry delay after a delay zone violation.

When armed in the AWAY mode: Perimeter, Interior and Interior Night zones are armed.

When armed in the STAY mode: Perimeter zones are armed, Interior and Interior Night zones are bypassed.

When armed in the NIGHT mode: Perimeter and Interior zones are armed and Interior Night zones are bypassed.

Digit 3 – Defines Bypassing (0 or 1 ONLY)

0	Not Bypassable (Any zone can be programmed as bypassable. Fire should not be programmed as bypassable.)
1	Bypassable

Programming The Control

Digit 4 – Defines Troubles/Supervision

0	Supervised, no trouble output (Standard for Burglar)
1	24 Hr. Trouble on Loop Open, Alarm on Loop Short (Required for Fire)
2	24 Hr. Trouble on Loop Short, Alarm on Loop Open
3	Burg Day Alert on Loop Open, Alarm on Open/Short When Armed.
4	Burg Day Alert on Loop Short, Alarm on Open/Short When Armed.
5	Non Supervised, (Closed circuit contacts only, no end-of-line resistor)
6	Non Supervised, (Open circuit contacts only, no end-of-line resistor)
7	Two-wire Smoke (Zone 12 only, refer to page 1-7)
8	Trouble on Open and Short, No Alarm

Burg Day Alert = Trouble When Disarmed

Factory supplied zone names and definitions of the first 12 zones in the control:

SCREEN	DESCRIPTION OF ZONE
ZN 01: "ZONE 01" ZN 01 AREA:1 DEF:1110	(BURG., DELAY #1, BYPASSABLE, NO TROUBLE/SUPV)
ZN 02: "ZONE 02" ZN 02 AREA:1 DEF:1210	(BURG., DELAY #2, BYPASSABLE, NO TROUBLE/SUPV)
ZN 03: "ZONE 03" ZN 03 AREA:1 DEF:1310	(BURG., INTERIOR INSTANT, BYPASSABLE, NO TROUBLE/SUPV)
ZN 04: "ZONE 04" ZN 04 AREA:1 DEF:1310	(BURG., INTERIOR INSTANT, BYPASSABLE, NO TROUBLE/SUPV)
ZN 05: "ZONE 05" ZN 05 AREA:1 DEF:1300	(BURG., INTERIOR INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 06: "ZONE 06" ZN 06 AREA:1 DEF:1300	(BURG., INTERIOR INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 07: "ZONE 07" ZN 07 AREA:1 DEF:1300	(BURG., INTERIOR INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 08: "ZONE 08" ZN 08 AREA:1 DEF:1300	(BURG., INTERIOR INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 09: "ZONE 09" ZN 09 AREA:1 DEF:1000	(BURG., PERIMETER INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 10: "ZONE 010" ZN 10 AREA:1 DEF:1000	(BURG., PERIMETER INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 11: "ZONE 11" ZN 11 AREA:1 DEF:1000	(BURG., PERIMETER INSTANT, NON-BYPASS, NO TROUBLE/SUPV)
ZN 12: "ZONE 12" ZN 12 AREA:1 DEF:2001	(FIRE, 4-WIRE, NON-BYPASS, TROUBLE/OPEN)

The zone definition menu continues up to Zone 44. There are no pre-set factory default values beyond Zone 12.

Programming The Control

Menu 4

M4: USER CODES		
PREV	NEXT	SELECT

Press Select to program this menu. Press Next to advance to the next menu.

Every user code has two programming screens. Each screen displays the physical user code number followed by the programmable entry fields.

Screen 1

UC 01 C:12345	"USER 01"
PREV	NEXT →

Screen 1 allows a one-to-five digit passcode and an eight-character name to identify the user. The arrow key moves the cursor into the name field and advances one character with each entry. Refer to text editor on page 3–6. When a code is programmed from the user level, only the custom name appears. No user numbers are displayed. This way, user codes are viewed and retrieved by looking for the user name. **The user code must not begin with 0.**

After the user name is correct, press Next to complete the entry. Press Next again to proceed to Screen 2.

For multi-area applications, duplicate passcodes among all user passcodes and the installer's passcode (see Menu 14) are not allowed, regardless of the area assignments of the passcodes.

For separate area applications, do not enter duplicate passcodes among user passcodes within an area and the installer's passcode.

Screen 2

UC 01 L:F A:1 E:1	
PREV	NEXT →

Screen 2 is used to assign:

- (L:) The user's authority level (See Table on page 3–14).
- (A:) The **Area Editable From** determines the area in which a user (with a high enough Authority Level) must be operational to edit the passcode and user name. For example, if Area Editable From is Area 2, a user trying to edit the passcode must be operational in Area 2 and he must attempt it from a keypad that is also operational in Area 2. All passcodes can be edited by the installer from any keypad.
- (E:) **Areas Operational On** is used in combination with the keypad's Areas of Operation to determine the areas suitable for an operation. For example, if a user operational in Areas 1, 2 & 3 enters his passcode on a keypad operational in Areas 2, 3, & 4 to perform an arming operation, the system attempts to arm Areas 2 & 3.

In multi-area applications, Area Editable From and Areas Operational On are completely independent.

In separate area applications, Area Editable From and Area Operational On are the same area and Areas Operational On is not editable.

User 1 has the default passcode "12345" with the default settings shown above. This is the only user with a default passcode. There are a total of 99 users.

Programming The Control

LEVEL	CODE CAN BE USED TO:
0	Nothing. Code is Non-Operable
1	Operate the Access Feature ONLY (0 key followed by Code activates the output(s) assigned for this keypad).
2	Arm the control Only.
3	Arm the control – Operate the Access feature (0 key followed by Code).
4	Special Arm the control – This code can arm the control but it CANNOT disarm unless the control was armed by this code or another level 4 code.
5	Arm with Restricted Disarm. This code can Disarm ONLY during the scheduled open time +/- time window.
6	Arm with Restricted Disarm + Operate the Access feature.
7	Arm or Disarm only, no restrictions. (Most typically used configuration.)
8	Arm or Disarm + Access.
9	Arm or Disarm + Access + Activate a Duress Alarm by using this code to arm/disarm. (Duress avail. this digit only)
10 (A)	Arm or Disarm + Access + Bypass Zones.
11 (B)	Arm or Disarm + Access + Bypass + Perform a Local Test.
12 (C)	Arm or Disarm + Access + Bypass + Local Test + View Event History log.
13 (D)	Arm or Disarm + Access + Bypass + Local Test + Event History + Extend Closing
14 (E)	MASTER USER – Arm or Disarm + Access + Bypass + Local Test + Event History + Extend Closing + Program Codes within extended areas + Modify Schedules.
15 (F)	GRAND MASTER USER – Arm or Disarm + Access + Bypass + Local Test + Event History + Extend Closing + Program Codes + Set Clock + Modify Schedules.

NOTE: The ability to view status, reset silent holdup alarms, silence trouble conditions and reset smoke detectors begins with the disarm privilege.

Access output requires entering 0 before the codes.

The operations that the installer passcode can perform are listed in Chapter 2.

Any valid passcode can adjust keypad settings, perform a remote connect and perform a manual comm test.

Programming The Control

Menu 5

M5: OUTPUT DEFINITIONS

PREV

NEXT

SELECT

This menu is used to assign the programmable outputs. The control is equipped with 10 programmable, on-board outputs. Additional outputs can be obtained in groups of ten by the addition of zone concentrators. The outputs on the control circuit board are assigned to positions 1–10. The outputs on the zone concentrators are assigned to positions 11–50.

Press Select to program this menu. Press Next to proceed to the next menu.

Output 1 is typical of every output. Each output is assigned a condition (i.e. Burglar, Fire, Status, Alarm) and areas to which it should respond when the condition is active in those areas.

OUT 01 C:1 A:1

PREV

NEXT

→

Select the desired output condition from the list below. Enter that digit into the C: field. To assign the output to the desired area(s), press the arrow key to move the cursor into the A: field. Then enter the number (s) of the area(s) to which the output should respond and press Store. To remove an area assignment, enter the area and press Store or enter 0 and press Store to erase all area assignments. Each output may be assigned to one or more areas so that for example, a common siren can be assigned to all areas.

NOTE

If you select access as a condition, the A: changes to K: because access is assigned by keypad rather than by area. If an output is defined for multiple areas, the output becomes active for any single area with the condition present. It does not collectively represent the condition of all areas. Some output conditions are area independent and the A: is not displayed for them.

The timing for all alarm outputs and universal outputs is programmed in Menu 6.

The ten on-board outputs and all of the zone expander outputs are current limited to 40mA each.

Programming The Control

CONDITION TABLE	OUTPUT BECOMES ACTIVE WHEN:
0 = Not Used	
1 = Burglar Alarm	A burglary defined zone or panic key has been alarmed.
2 = Fire Alarm	A fire defined zone or panic key has been alarmed.
3 = Holdup Alarm	A hold-up defined zone or panic key has been alarmed.
4 = Auxiliary Alarm	An auxiliary defined zone or panic key has been alarmed.
5 = Tamper (24-Hr. Burg.)	A tamper defined zone has been alarmed.
6 = Ready	All burglar zones within the area assignment have returned to a non-violated state (use single area).
7 = Armed	The area assigned has been armed.
8 = Violation	Any of the burglary, fire, auxiliary, or tamper defined zones or panic keys have been alarmed. This output remains active until reset with a silence alarm.
9 = Lamp	Active for 2 min. after any keypress, during entry and exit times, and during alarms. Mostly used to activate line carrier devices such as X-10®.
10 = Trouble Indicator	Active with any loop or system trouble. Stays on until the trouble condition is cleared.
11 = Audible Trouble	Same as trouble output. Deactivates when trouble condition is silenced at keypad.
12 = Chime Enabled Indicator	The chime mode is activated for the area assigned.
13 = Chime Output	Active for 2 sec when a disarmed chime always zone is violated. Pulsed twice when chime is enabled and a disarmed perimeter burglar zone is violated.
14 = Entry Time Warning	Active during entry time.
15 = Exit Alert	Active with the commencement of exit time after the area has been armed.
16 = Access	A valid passcode is entered after the 0 command. Is keypad assignable and lasts for the time programmed for the keypad's access time (See Menu 2).
17 = Universal	A universal defined zone is violated.
18 = Universal Logged	A universal logged defined zone is violated.
19 = Armed Special	The system is armed with a Level 4 user code.
20 = Fire Trouble	A fire, verified fire, or fire supervisory zone indicates a trouble condition. Stays on until the trouble condition is cleared.
21 = Closing Ringback	Active for 1 sec after the central station kissoff of the closing signal.
22 = Auto Arm Warning	Indicates that the system is about to be automatically armed. Active for 3 sec every minute on the minute for the 10 minutes leading up to an auto arm.
23 = Instant Armed	Indicates that the entry delay has been disabled and all zones are in instant mode.
24 = Armed And Exit Time Expired	Indicates that the system is armed and the exit time has expired.
25 = Fire Supervisory	A zone defined as fire supervisory is in alarm.
26 = Duress	Indicates that a duress code was used to arm or disarm the control. Use for backup reporting only.
27 = Listen-In Module Output	An alarm event is reported to the central station. The output activates only if it has been programmed for the same area as the alarm event. Remains active until the panel finishes reporting and disconnects from the central station. (See Programming Notes on page 3-34.)
28 = Not Available	

Programming The Control

CONDITION TABLE	OUTPUT BECOMES ACTIVE WHEN:
29 = Switched Power Interrupt	Active for 5 sec when a smoke reset occurs manually or by verified fire. (Special circumstances apply for verified fire. See Zone Def. Menu 3.)
30 = Not Available	
31 = Communications Failure	A communication is unsuccessful in reporting an event after the number of dial attempts.
32 = Not Available	
33 = Ground Start	Triggers a telco ground start circuit for 1 sec.
101-144 = Zone (1-44) Violated	Allows individual zone status output indication. (See Programming Notes on page 3-34.)
201-244 = Zone (1-44) In Alarm	Allows individual zone alarm output indication. (See Programming Notes on page 3-34.)

NOTE

Some of the outputs listed are primarily intended for audible annunciators remote from the keypads. These include the entry and exit and chime outputs. Outputs of this type closely mirror the activity of the piezo resonator on the keypad. If the keypad output is pulsed or steady, the programmable output reflects that activity. Other outputs are intended to operate commonly used annunciation devices such as LEDs and sirens. When the use of any output is considered, the security control terminal delivering the output and the amount of current that it can provide should be compared to the requirements of the load device before operating the output. It may be necessary to activate the device through the on-board relay or separately installed auxiliary relays. The same output type may be programmed for any of the output terminals.

Output Conditions 29 – 33 are area independent.

Programming The Control

Menu 6

M6: GLOBAL SYS OPTIONS

PREV

NEXT

SELECT

Press Select to program this menu. Press Next to proceed to the next menu. This menu is used to program options that affect the entire system, rather than only one area.

ITEM AND DEFAULT	DESCRIPTION
1 Burg Cut-Off: 10	Time in minutes before a burglar activated output automatically deactivates. Valid range is 0–255 minutes (0 = no cut off).
NOTE For all cut off times, each area performs its own cut off even though all areas share the same time value setting.	
2 Pulsing Burg: Yes	Sets the burglar output to pulse at the rate of 1 second on, 1 second off.
3 Fire Cut Off: 0	Time in minutes before a fire activated output automatically deactivates. Valid range is 0–255 minutes (0 = no cut off).
4 Pulsing Fire: No	Sets the fire output to pulse at the rate of 1 second on, 1 second off.
5 Holdup Cut-Off: 10	Valid range is 0–255 minutes (0 = no cut off).
6 Aux Cut-Off: 10	Valid range is 0–255 minutes (0 = no cut off).
7 Univ Out Time: 0	Valid range is 0–255 seconds (0 = latch). If 0 is programmed, the first violation will activate the output, a subsequent violation will deactivate it.
8 Univ Logged Out Time: 0	Valid range is 0–255 seconds (0 = latch).
9 Alarm Abort Time: 0	Time in seconds (0–255) that a user has after a Burglar Alarm activation to SILENCE the alarm and abort the Burglar Alarm event. (See Programming Notes on page 3–35.)
10 Post Alarm Abort: No	If enabled, Abort Alarm events are posted in the Event Log. (See Programming Notes on page 3–35.)
11 AC Trouble Delay: 10	Allows an AC power fail report to be delayed from 0–255 minutes.
12 Wrong Code Lock Out: 8	Sets the number of failed code entry attempts allowed before a 50 second lockout for a particular keypad. (Range = 0 – 15; 0 = No lockout).
13 Common Areas: 1 Note: Enter only the areas common to Area 1. When last common area is armed, Area 1 arms if it is ready or force arms if force arming is enabled for Area 1.	Area 1 may automatically arm/disarm according to the condition of other common area(s). If the entry door in a vestibule or lobby application is assigned to Area 1, it may arm automatically when the last common area defined by this option is armed. Area 1 arms in AWAY mode, retaining its own exit/entry delay, and automatically disarms when any one of the other common areas is disarmed. Area 1 may have its own keypad and be disarmed by any authorized person not necessarily having access to the other area(s).
14 Sync Clock To AC: Yes	Synchronizes the internal clock with the local power company's 50 or 60 Hz for accurate time keeping. This feature should always be enabled unless the local primary AC source is unreliable.
15 KP Panic 3 Sec Hold: Yes	Requires all keypad panic keys to be pressed and held for approximately 3 seconds in order to activate an alarm condition.
16 Bell Test On Arm: No	Pulses the burglar defined output for one second upon arming.

Programming The Control

Menu 7

M7: COMMUNICATOR OPTIONS

PREV

NEXT

SELECT

Press Select to program this menu. Press Next to proceed to the next menu.

This menu allows the Digital Communicator to be enabled and defines the operating formats and functionality.

ITEM AND DEFAULT	DESCRIPTION
1 Enable Comm: No	Used to enable the control digital communicator for event reporting.
2 Comm Test Time: 00:00	Sets the hour and minute in military format for the auto communicator test.
3 Days Between Tests: 1	Sets the time intervals in days for the auto communicator test (range = 0–255). A setting of 0 disables Automatic Comm Test Reporting.
4 Enable Skip Test: No	Allows the auto comm test to be skipped if any signal has been transmitted to the central station since the last auto comm test.
5 Test On Power-up: No	Causes a communicator test to initiate immediately upon system power up. Does not affect days between tests counter.
6 T1 Trans Format: 6	Transmission format to be used when the communicator dials telephone #1. (Refer to Transmission Formats table on page 3–20.)
7 T1 Trans Speed: 2	Transmission speed to be used when the communicator dials telephone #1 and a pulsed format is used. (Refer to Transmission Speeds Table on page 3–20.)
8 T1 Dial Attempts: 5	Maximum number of dial attempts (0–15) when the communicator dials telephone #1.
9 T2 Trans Format: 6	Transmission format to be used when the communicator dials telephone #2. (Refer to Transmission Formats table on page 3–20.)
10 T2 Trans Speed: 2	Transmission speed to be used when the communicator dials telephone #2 and a pulsed format is used. (Refer to Transmission Speeds Table on page 3–20.)
11 T2 Dial Attempts: 5	Maximum number of dial attempts (0–15) when the communicator dials telephone #2.
12 Time Between Calls: 5	Time delay in seconds (0–255) between each dial attempt.
13 Dial Type: 0	Sets the type of dialing. (Refer to Dial Types Table on page 3–21.)
14 On-hook Time: 5	Time in seconds (0–15) the phone remains on-hook (non-loaded) after the communicator seizes the phone line. Useful when the control attempts to seize an occupied telephone line.
15 Dial Tone Wait: 0	Time the communicator waits for dial tone before blind dialing or hanging up. (Range 0–2 where 0=6 sec, 1=12 sec, and 2= 24 sec).
16 Allow Blind Dial: Yes	Allows the communicator to blind dial on line 1 if no dial tone is detected.

Programming The Control

Transmission Formats

VALUE	FORMAT AND DESCRIPTION
0	Data Format is "3+1 Non-Extended". The last 3 digits of the account code and the first digit of the report code are sent twice in a row for verification.
1	Data Format is "3+1 Two Line Extended". The last 3 digits of the account code and both digits of the report code are sent. Line 1 is the account code and the first report code digit. Line 2 is the first report code digit 3 times and the second report code digit. Each line is sent twice in a row for verification.
2	Data Format is "3+1 Single Line Extended". The last 3 digits of the account code and the first digit of the report code are sent. If the first digit of the report code is 'B' thru 'F', a second line with the first report code digit 3 times and the second report code digit is also sent twice in a row for verification.
3	Data Format is "4+2 Extended". The last 4 digits of the account code and both digits of the report code are sent twice in a row for verification.
4	Data Format is "SIA Level 1". All six digits of the account codes are sent. The report code is only used to determine if the event is to be sent. The reports are generated from a SIA report table. The Transmission Speed is ignored.
5	Data Format is "BFSK" (binary frequency shift key). The last 3 digits of the account code and both digits of the report code are sent in one packet. The Transmission Speed is ignored. A Radionics developed format.
6	Data Format is "Contact ID". The last 4 digits of the account code are sent. The report code is only used to determine if the event is to be sent. The reports are generated from a Contact ID report table. The Transmission Speed is ignored. An Ademco developed format.
10	Data Format is "3+1 Non-Extended (Parity)". The last 3 digits of the account code and the first digit of the report code are sent once with a parity checksum for verification.
11	Data Format is "3+1 Two Line Extended (Parity)". The last 3 digits of the account code and both digits of the report code are sent. Line 1 is the account code and the first report code digit. Line 2 is the first report code digit 3 times and the second report code digit. Each line is sent once with a parity checksum for verification.
12	Data Format is "3+1 Single Line Extended With Parity". The last 3 digits of the account code and the first digit of the report code are sent. If the first digit of the report code is 'B' thru 'F', then a second line with the first report code digit 3 times and the second report code digit is also sent. Both lines (if used) are sent once with a parity checksum for verification.

Transmission Speeds

WARNING

**WHEN PULSED FORMATS ARE USED, THE SYSTEM ONLY ACCEPTS
2300 HZ HANDSHAKES FROM THE RECEIVER.**

VALUE	SPEED AND DESCRIPTION
0	Fast 20 pps, 1800 hz data.
1	Slow 10 baud = 10 pps, 1900 hz data, 800 mS. inter-digit time.
2	Fast 20 baud = 20 pps, 1800 hz data, 600 mS. inter-digit time.
3	Fast 15 baud = 15 pps, 1900 hz data, variable inter-digit time.
4	Fast 20 baud = 20 pps, 1800 hz data, variable inter-digit time.
5	Superfast = 40 pps, 1800 hz data.

Programming The Control

Dial Types

VALUE	TYPE AND DESCRIPTION
0	USP (Pulse US) = “US Rotary” uses North American Standard (60/40) make/break ratio pulses.
1	TT (Touchtone®) = Touchtone® uses industry standard DTMF tones. Touchtone® is a trademark of AT & T.
2	Foreign Pulse = “Foreign Rotary” uses 67/33 make/break ratio pulses, typical of foreign countries.

Receiver Compatibility Table

Receivers	Transmission Format	Transmission Speeds (Pulse Reporting Only)
Ademco 685	3/1, 4/2, Contact ID	Auto, 10B, 15B, 20B
FBI CP220	3/1, 4/2, Contact ID	Auto, 10B, 15B, 20B
Osborne–Hoffman (Quick Alert)	3/1, 4/2, Contact ID, BFSK, SIA	Auto, 10B, 15B, 20B
Radionics 6000	3/1, BFSK	Auto, 10B, 15B, 20B
Radionics 6500	3/1, 4/2, BFSK	Auto, 10B, 15B, 20B
Silent Knight 9000	3/1, 4/2, SIA	Auto, 10B, 15B, 20B
Varitech V–300D	3/1, 4/2	Auto, 10B, 15B, 20B

All receivers listed functioned with the listed formats at time of testing. Modifications or programming changes may affect receiver operation. Consult manufacturer of specific receiver for setup and operation. The 3/1 formats listed have not been tested with parity bits selected and should not be programmed with parity bits selected on UL Listed systems.

Programming The Control

Menu 8

M8: COMM TELEPHONE #s

PREV

NEXT

SELECT

Press Select to program this menu. Press Next to proceed to the next menu.

This menu includes entries for 1 (16 digit) long distance or prefix access number and 2 central station telephone numbers (16 digits each).

Event reporting assignments for each telephone number are programmed under the AREA REPORT CODES menu. The assignment of telephone dialing options and reporting formats are programmed under the COMMUNICATOR OPTIONS menu.

PREFIX:	(16 DIGITS) Utilized for dialing long distance access numbers or when more than 16 digits are needed for a telephone number. Programming an A as the first digit of telephone numbers 1 and 2 causes the communicator to automatically dial this prefix before it dials the telephone number.
PHONE 1:	(16 DIGITS) Telephone number for the first receiver.
PHONE 2:	(16 DIGITS) Telephone number for the second receiver.

Dialed Digits Allowed

0-9	Numbers from 0 to 9 dial the appropriate Touchtone® or pulse digit.
A	The communicator can be instructed to dial the prefix number before dialing telephone numbers 1 or 2 by programming the first digit of the telephone number with an A. The communicator can be instructed to switch from Touchtone® dialing to Pulse or vice versa during the dialing of a telephone number by programming an A digit anywhere else within the dial string.
B	Programming a B into any digit position causes the communicator to produce a Touchtone® * tone. Useful for unique applications such as voice mail or cellular applications.
C	Programming a C into any digit position causes the communicator to produce a Touchtone® # tone.
D	Programming a D into any digit position causes a 3-second pause during dialing.
E	Programming an E into any digit position forces the communicator to pause and wait for a second dial tone.
F	An F may be programmed after the last digit of a telephone number to signify end of dialing.

Programming The Control

Menu 9

M9: AREA REPORT CODES
PREV NEXT **SELECT**

Press Select to program this menu. Press Next to proceed to the next menu.

Another screen then appears for choosing which area report codes to program.

AREA 1 REPORT CODES
PREV NEXT **SELECT**

Press Select to program Area 1. Press Next to proceed to the next area. Press Prev to return to the previous screen.

Each report code requires a two digit entry. The first digit sets the primary event code and the second digit sets the extended code. Each digit has a range from 0–F. If extended reporting is not required, program the second digit as a zero (0). To completely disable a report code, program both digits as zero (0). To enter codes A–F, press the # key followed by a number from 0–5. For example: #+0=A, #+1=B, #+2=C, #+3=D, #+4=E, and #+5=F. When the SIA or Contact ID format is selected, it is only necessary to program a value other than zero into the first digit position to enable that event to be reported, the correct transmitted data is automatically sent.

ITEM AND DEFAULT	DESCRIPTION
1 A1 Tel 1 Acnt No:	Account number used when dialing telephone #1 (up to 6 digits).
2 A1 Tel 2 Acnt No:	Account number used when dialing telephone #2 (up to 6 digits).
3 A1 Key A: 00	Code sent for alarms activated by panic key A.
4 A1 Key B: 00	Code sent for alarms activated by panic key B.
5 A1 Key C: 00	Code sent for alarms activated by panic key C.
6 A1 Duress: 00	Code sent for alarms activated by duress code arm or disarm.
7 A1 Kp Lockout: 00	Code sent when a keypad is locked out due to failed passcode attempts.
8 A1 Abort: 00	Code sent when an authorized user resets a burglar alarm prior to the alarm abort time expiration.
9 A1 Cancel: 00	Code sent when an authorized user resets a burglar alarm after reporting.
10 A1 Keyswitch Close: 00	Code sent when system is armed with keyswitch zone.
11 A1 Keyswitch Open: 00	Code sent when system is disarmed by keyswitch zone.
12 A1 Installer Close: 00	Code sent when system is armed by RPM or by the installer at a keypad.
13 A1 Installer Open: 00	Code sent when system is disarmed by RPM or by the installer at a keypad.
14 A1 Auto Close: 00	Code sent when armed by scheduled program.
15 A1 Auto Open: 00	Code sent when disarmed by scheduled program.
16 A1 Late Close/Open: 00	Code sent when scheduled opening or closing is late (after the time window has expired).
17 A1 Early Close/Open: 00	Code sent when scheduled opening or closing is early (before the time window has started).
18 A1 Fail Close/Open: 00	Code sent when a scheduled open or close does not occur (when the time window has expired).
19 A1 Closing Extended: 00	Code sent when the scheduled closing time is extended.
20 A1 BA Phn No: 3 *	Directs which telephone number(s) to report the intrusion alarms and restorals.

Programming The Control

ITEM AND DEFAULT	DESCRIPTION
21 A1 FA Phn No: 3 *	Directs which telephone number(s) to report the fire alarms and restorals.
22 A1 Holdup Phn No: 3 *	Directs which telephone number(s) to report the holdup alarms and restorals.
23 A1 Aux Phn No: 3 *	Directs which telephone number(s) to report the aux alarms and restorals.
24 A1 CCM Phn No: 3 *	Directs which telephone number(s) to report the critical condition monitoring events and restorals.
25 A1 TBL/RST Phn No: 0 *	Directs which telephone number(s) to report the zone troubles and restorals.
26 A1 BYP/RST Phn No: 0 *	Directs which telephone number(s) to report the zone bypasses and restorals.
27 A1 OPN/CLS Phn No: 0 *	Directs which telephone number(s) to report the openings and closings.

* The following table is used in the phone direction options. Each value corresponds to a telephone number and order of operation that the communicator is to follow when reporting events to the central station.

Telephone Number Assignment Table

0	Disables reporting of these conditions.
1	Directs reports to telephone #1 only.
2	Directs reports to telephone #2 only.
3	Directs reports to telephone #1 first with telephone #2 as backup.
4	Directs reports to telephone #2 first with telephone #1 as backup.
5	Directs reports to both telephone #1 and telephone #2.

Programming The Control

Menu 10

M10: ZONE REPORT CODES		
PREV	NEXT	SELECT

Press Select to program this menu. Press Next to proceed to the next menu.

Each zone has two programming screens for assigning the report codes. Screen 1 is used to assign the alarm and restore report codes. Screen 2 is used to assign the bypass and trouble report codes. The restore may be an alarm, trouble, or bypass restoral.

Each report code requires a two digit entry. The first digit sets the primary event code and the second digit sets the extended code. Each digit has a range from 0–F. If extended reporting is not required, program the second digit as a zero (0). To completely disable a report code, program both digits as zero (0). To enter codes A–F, press the # key followed by a number from 0–5. For example: #+0=A, #+1=B, #+2=C, #+3=D, #+4=E, and #+5=F. When the SIA or Contact ID format is selected, it is only necessary to program a value other than zero into the first digit position to enable that event to be reported, the correct transmitted data is automatically sent.

Defaults for all zones: Screen 1 – ALM: 10 RES: E0
 Screen 2 – BYP: 00 TBL: F0

Example:

Screen 1

Z01	ALM:	RES:
-----	------	------

Screen 2

Z01	BYP:	TBL:
-----	------	------

Menu 11

M11: USER REPORT CODES		
PREV	NEXT	SELECT

Press Select to program this menu. Press Next to advance to the next menu. This menu is used to program the opening and closing reports for each user code.

Each report code requires a two digit entry. The first digit sets the primary event code, and the second digit sets the extended code. Each digit has a range from 0–F. If extended reporting is not required, program the second digit as a zero (0). To completely disable a report code, program both digits as zero (0). To enter codes A–F, press the # key followed by a number from 0–5. For example: #+0=A, #+1=B, #+2=C, #+3=D, #+4=E, and #+5=F. When the SIA or Contact ID format is selected, it is only necessary to program a value other than zero into the first digit position to enable that event to be reported, the correct transmitted data is automatically sent.

The open and close report code is assigned to the user, not the area. Some users may be assigned to arm and disarm multiple areas. Any user with the authority to arm and disarm multiple areas has the same opening and closing report codes. However, the central station can differentiate between areas by the area account code.

Defaults for all users are: CLS:C0 OPN: B0

Example:

UC01	CLS:	OPN:
------	------	------

Programming The Control

Menu 12

M12: GLOB SYS REP CODES

PREV

NEXT

SELECT

Press Select to program this menu. Press Next to advance to the next menu.

Each report code requires a two digit entry. The first digit sets the primary event code and the second digit sets the extended code. Each digit has a range from 0–F. If extended reporting is not required, program the second digit as a zero (0). To completely disable a report code, program both digits as zero (0). To enter codes A–F, press the # key followed by a number from 0–5. For example: #+0=A, #+1=B, #+2=C, #+3=D, #+4=E, and #+5=F. When the SIA or Contact ID format is selected, it is only necessary to program a value other than zero into the first digit position to enable that event to be reported, the correct transmitted data is automatically sent.

ITEM AND DEFAULT	DESCRIPTION
1 TRBL/RSTR PHN NO: 0	Telephone number directory for trouble/restore system reports. (See Telephone Number Assignment, page 3–24)
2 COMM TEST NOT NORM: 00	Transmitted to the central station at the comm test time–of–day in place of the comm test report when a trouble condition is present. If this report code is set to “00”, a normal comm test event is transmitted.
3 COMM TEST: 00	Transmitted to the central station at the comm test time–of–day when no trouble conditions are present. Transmitted at power–up, if Test On Power–Up is enabled (Menu 7). Implies proper operation of the communicator and the telephone line.
4 AC FAIL: 00	Notifies the central station that the control has lost the primary AC input. The delay time before this report is transmitted is located in the global system options menu (Main Menu 6).
5 AC RESTORE: 00	Notifies the central station that the AC primary power has been restored.
6 LOW BATT: 00	Transmitted when the control detects a low battery. The battery fails at a voltage reading of 11.2 VDC or less.
7 BATT RESTORE: 00	Transmitted when the low battery condition has been restored.
8 COMM RESTORE: 00	When an event report code is unsuccessful in communicating, the fail to communicate (local trouble) displays. If a subsequent report of any type is successful, the control also reports this code.
9 MEMORY ERROR: 00	If the internal memory system check finds an unauthorized change in the value of one or more of the programming options, this code is reported.
10 LOCAL PROG BEGIN: 00	Transmitted when the programming mode is initiated at the control site.
11 LOCAL PROG END: 00	Transmitted after programming mode is terminated at the installation site. This occurs approximately 5 minutes after exiting programming mode or by holding the * key 3 seconds.
12 LOCAL PROG DENIED: 00	Transmitted when a user request for programming at the control station is followed by an invalid authorization code.
13 REM PROG END: 00	Transmitted when an RPM session has been completed normally.
14 REM PROG DENIED: 00	Transmitted when an unauthorized RPM session is attempted (i.e. improper ID code or access device).
15 REM PROG ABORTED: 00	Transmitted when an RPM session is aborted. If an event requiring a report to the central station occurs during an RPM session, the control may abort the session to report the event.

Programming The Control

ITEM AND DEFAULT	DESCRIPTION
16 LOG NEARLY FULL: 00	Transmitted when the number of events that have not been dumped to RPM reaches 80% of the Event Log's capacity.
17 MISSING KEYPAD: 00	Transmitted when a keypad is removed or fails to respond to system polling.
18 RESTORE KEYPAD: 00	Transmitted when a missing keypad is restored to the data bus.

Programming The Control

Menu 13

M13: AREA SCHEDULES

PREV

NEXT

SELECT

Press Select to program this menu. Press Next to proceed to the next menu. Another screen then appears for choosing which area schedules to program.

AREA 1 SCHEDULES

PREV

NEXT

SELECT

Press Select to program Area 1. Press Next to proceed to the next menu.

Automatic Arming And Disarming

If automatic arming is enabled, the control produces a three second audible warning signal at the appropriate keypad(s) once every minute beginning 10 minutes prior to the event. During this warning, the same keypad(s) displays a visual indication of the impending action and the amount of time remaining. This allows the user ample warning to exit or override the impending action. The time window is not used for this feature. Scheduled opening and closing and automatic arming must not be enabled at the same time. Time of auto arm may be extended by one hour (or up to midnight) using the extended closing function. Automatic Disarming occurs at the scheduled time with no warning. Auto Arming arms the control in the AWAY mode with normal exit time.

Scheduled Manual Arming And Disarming

These items are used to set up daily schedules for authorized openings and closings. The schedule indicates when the control expects an area to be armed and disarmed. A programmable time window allows reasonable variation before and after the time set for the user to arm and disarm the control. All arming or disarming that occurs within the programmed time windows is logged locally, but is not reported. If the arming or disarming occurs outside the time window, it may be reported to the central station which responds accordingly. There is no control station warning during this window.

NOTE

The Late To Close deadline may be extended by one hour, as long as that extension does not go past midnight. Engage this function by selecting the EXTEND CLOSING option.

ITEM AND DEFAULT		DESCRIPTION
1	A1 AUT ARM DAYS (SMTWTFS):	Selects the days of the week the system automatically arms. Each day of the week is selected by entering the number 1–7 corresponding to the day.
2	A1 AUT DIS DAYS (SMTWTFS):	Selects the days of the week (1–7) the system automatically disarms.
NOTE If items 1 and 2 are selected for a specific day of the week, items 3 and 4 must not be selected for the same day. Programming the area in this manner prevents the area from automatically arming as the scheduled open/close features and the auto-arming/disarming features conflict.		
3	A1 SCH CLS DAYS (SMTWTFS):	Selects the days of the week (1–7) the panel expects a closing. Not to be confused with the automatic arming feature, this schedule establishes the weekly calendar and timetable for closings to be executed by an authorized user.

Programming The Control

ITEM AND DEFAULT	DESCRIPTION
4 A1 SCH OPN DAYS (SMTWTFS):	Selects the days of the week (1–7) the panel expects an opening. Not to be confused with the automatic disarming feature, this schedule establishes the weekly calendar and timetable for openings to be executed by an authorized user.
5 A1 TIME WINDOW: 0	Time in minutes the scheduled opening and closing may deviate +/- from the programmed time table. Valid range = 0–255. (The time window does not extend past midnight).

NOTE

The following menu items establish the timetable for the events in items 1–4. If scheduled opening and closing are enabled, the control expects the events to occur within the time parameters set (+/- the time window). If automatic arming is selected, the control arms/disarms the area on schedule. If a zone is violated at the time of the automatic arming, the control arms the area, provided force arming is enabled for the area and the zone is programmed as bypassable. If force arming is not enabled or the zone is not bypassable, the control does not arm the area.

6 A1 CLOSE TIME SUN: 00:00	Time for automatic arming or scheduled closing on Sunday.
7 A1 CLOSE TIME MON: 00:00	Time for automatic arming or scheduled closing on Monday.
8 A1 CLOSE TIME TUE: 00:00	Time for automatic arming or scheduled closing on Tuesday.
9 A1 CLOSE TIME WED: 00:00	Time for automatic arming or scheduled closing on Wednesday.
10 A1 CLOSE TIME THU: 00:00	Time for automatic arming or scheduled closing on Thursday.
11 A1 CLOSE TIME FRI: 00:00	Time for automatic arming or scheduled closing on Friday.
12 A1 CLOSE TIME SAT: 00:00	Time for automatic arming or scheduled closing on Saturday.
13 A1 OPEN TIME SUN: 00:00	Time for automatic disarming or scheduled opening on Sunday.
14 A1 OPEN TIME MON: 00:00	Time for automatic disarming or scheduled opening on Monday.
15 A1 OPEN TIME TUE: 00:00	Time for automatic disarming or scheduled opening on Tuesday.
16 A1 OPEN TIME WED: 00:00	Time for automatic disarming or scheduled opening on Wednesday.
17 A1 OPEN TIME THU: 00:00	Time for automatic disarming or scheduled opening on Thursday.
18 A1 OPEN TIME FRI: 00:00	Time for automatic disarming or scheduled opening on Friday.
19 A1 OPEN TIME SAT: 00:00	Time for automatic disarming or scheduled opening on Saturday.

Programming The Control

Menu 14

M14: PROGRAMMING OPTIONS

PREV

NEXT

SELECT

Press Select to program this menu. Press NEXT to proceed to the next menu.

This section deals with the attributes of the Remote Programming Manager Software. Before programming the specific functions, it is important to understand the following:

ABORT: During a remote programming session, the control is fully functional and can detect and annunciate alarms locally. The control aborts a session with RPM/2 to report an alarm through the digital communicator; however, it does not abort a session with RPM/2 to report any other type of event.

DATALOCK: As a provision of anti-takeover, the control does not permit local programming of the telephone numbers, or the restore factory defaults option to operate when an agency code has been established and programmed by the RPM/2 software. Other installer programming changes are still allowed. When the Datalock (agency code) is set, the keypad emits an error tone if any attempt is made to change a phone number or to default the control.

ITEM AND DEFAULT	DESCRIPTION
1 INSTALLER CODE: 96321	The Installer passcode is the only passcode that may program the entire Function Map. See Chapter 2 for a description of the other functions that it may perform.
2 EN. REM PROG: YES	Enables operation of the control with the RPM/2 package.
3 AUTO-ANS RING COUNT: 5	Sets the number of rings (0-15) that must occur before the panel automatically answers the telephone for operation with RPM/2. A ring count of 0 disables automatic answering, but manual connection may still be used. If Remote Prog is not enabled, then the auto-answer ring count is ignored and the panel never answers.
4 2 CALL BYP TIME: 0	(0-15) Time in 10 second increments for the answering machine bypass time window. This allows the remote programmer to bypass an answering machine by making two calls to the premises. The first call must ring 3 times or less and not be answered. The answering machine bypass time window starts 10 seconds after the last ring of the first call. If the first ring of the second call occurs within the answering machine bypass time window, the panel answers the second call on the first ring. Remote Programming must be enabled and Auto-Answer Ring Count must be non-zero.
5 EN. POWER UP PROG: NO	A quick way to enter program mode upon power up. Press the menu key and enter "9999" within the first 60 seconds after power up and the control enters in program mode. Consider disabling this feature for anti-takeover.
6 LOCKOUT LOCAL PROG: NO	This is provided for anti-takeover protection. If it is enabled, the installer passcode is not able to get back into program mode from a keypad. The installer passcode is still operational for other functions. Do not enable this unless an RPM account has been established for the control.

Programming The Control

Menu 15

M15: SYSTEM INFORMATION

PREV NEXT

SELECT

This menu permits viewing of specific hardware configurations as well as the revision of software and the number of users programmed. It also displays the system voltage and system current drain.

Press Select to run this menu. Press next to proceed to the next menu.

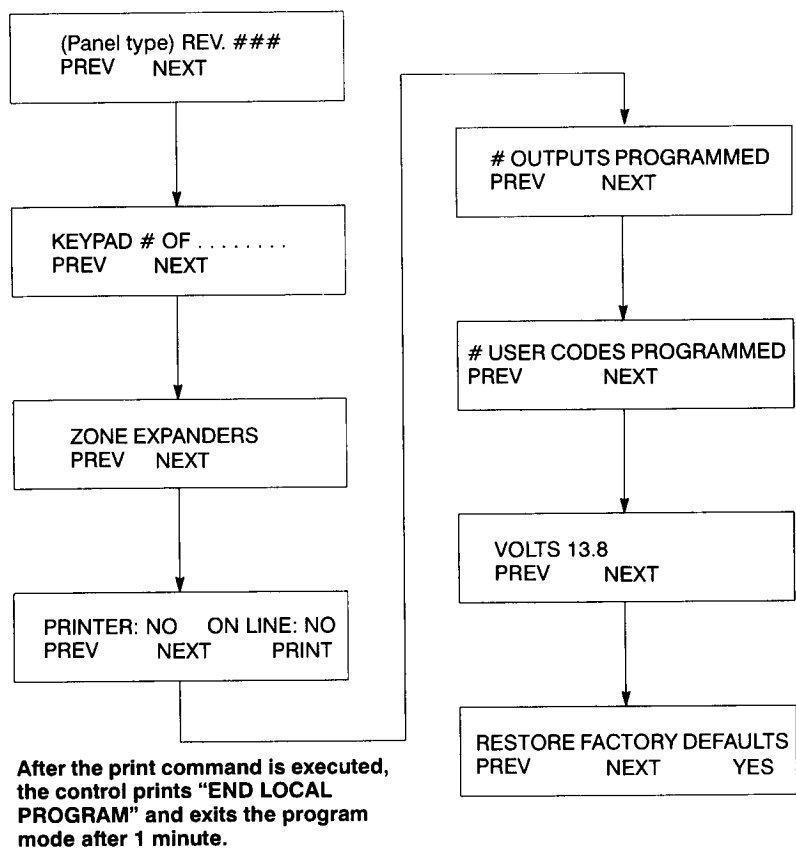


FIGURE 3-6. Menu 15 Flow Chart

3.9 Programming For Experienced Installers

After gaining experience with the menus, a more powerful navigation is achieved by entering the menu or individual item number (item numbers may be used when the programmer is inside the desired menu). Once the number is entered, the prompts change to allow that main programming menu, sub-menu or an item to be directly accessed. See the following example.

M1: AREA DEFINITIONS		
PREV	NEXT	SELECT

From this menu, it is possible to jump directly to main programming menu M3 (Zone Definitions). Entering a 3 changes the display.

M1: AREA DEFINITIONS		
CLEAR	MENU	AREA 3

In this display, the 3 shown is the entry made by the programmer. Use the soft keys below each of the prompts (CLEAR, MENU, or AREA) to move around within the menus as follows:

Remove the entry of the digit 3 and return to the previous display by pressing CLEAR. Advance to the M3 main programming menu by pressing the soft key below MENU. Enter into the area definitions menu (as shown in last sample screen) and automatically advance to Area 3 sub menu by pressing the soft key below AREA.

This menu and item jumping allows greater freedom to move within the menu hierarchy. It eliminates time consuming steps especially on existing installations where minor programming changes are required. The jumping option does not function when the display requires a YES or NO response.

Considerations For System Programming

Many options are interdependent requiring other variables to be set before the function or feature works. Some examples of these features follow.

When partitioning, consider the following menus and the extended fields of operation in each.

- M1: Area Definitions
- M2: Keypad Definitions
- M3: Zone Definitions
- M4: User Code Definitions

For central station monitoring, the following menus and their fields are involved.

- M7: To Enable Communication And Select Format, Speed, Etc.
- M8: To Set The Phone Numbers To Dial
- M9: To Set Area Account Numbers, Type Of Reporting Split, (i.e., Single, Dual, Backup, Etc.)
- M10: To Set Zone Report Codes
- M11: To Set User Report Codes
- M12: To Set Global Report Codes

3.10 Programming Notes

Note 1: Verifying or Self-Verifying Burglar Zones

Verification is only performed when the zone is armed. A Verifying or Self-Verifying Burglar zone requires verification before it can cause an alarm.

A Verifying Burglar zone causes an alarm if another armed burglar zone in the same area is violated within 40 seconds after the Verifying Zone is violated. A Verifying Burglar zone also causes an alarm if the zone itself stays violated for a full 40 seconds.

A Self-Verifying Burglar zone causes an alarm if it restores and is violated a second time within 40 seconds or if another armed burglar zone in the same area is violated within 40 seconds after the self-verifying zone is violated. A Self-Verifying Burglar zone also causes an alarm if the zone itself stays violated for a full 40 seconds.

Note 2: Trouble Open / Short

An option in the fourth digit of the zone definitions results in a zone that causes a trouble condition on both an Open and a Short of the zone. The trouble condition type is still determined by the first digit of the zone definition.

This option is primarily intended for monitoring Fire Bell Circuits. To do this, the first digit must be set to FIRE (2) and the fourth digit must be set to **TROUBLE OPEN/SHORT** (8). When an Open or a Short is seen on the zone from the Fire Bell Circuit, a Fire Circuit Trouble condition occurs. However, when a Fire Alarm activates the fire bell, this appears as a trouble condition at the zone. Therefore, if a Fire Alarm is active in the zone's area and the zone has been programmed as above, the zone is ignored until the fire alarm is silenced to prevent a false trouble condition.

This option may also be used to monitor devices other than Fire Bell Circuits. To do this, the first digit should be changed to something other than FIRE.

Again the zone produces a trouble condition on both an Open and a Short, but now it occurs always, regardless of any alarm conditions.

A zone of this type should not be used to monitor a bell circuit other than a Fire Bell Circuit. It should not be used to monitor a dual purpose bell circuit; (i.e., a bell that is steady for fire and pulsing for burglar). It should not be used to monitor a Fire Bell Circuit if that bell may be activated by Fire Alarms in areas other than the zone's area. If any of the above rules are violated, then there are conditions when the bell circuit being monitored is activated for an alarm. That activation causes a trouble condition on the zone that is not ignored. On a pulsing alarm bell, the event log quickly fills with Zone Troubles and Restores for the zone.

Note 3: The Listen-In Module

The Listen-In Module must be wired to the telephone lines in series with and behind the control panel. The Listen-In Module must be connected to the panel as follows. A Line-Seized indicator line must be connected from the ACTIVE output on the Listen-In Module to an assigned Listen-In Module zone on the panel. A Listen-In output line must be connected from an assigned output on the panel to the ACTIVATE input on the Listen-In Module.

The zone programmed as the Listen-In Module zone is area independent and is used by the panel to determine whether or not the Listen-In Module has seized the telephone line and has the microphone(s) active. The output programmed as the Listen-In Output may be assigned to any combination of areas. It is used by the panel to signal the Listen-In Module for activation.

The Listen-in Module may be configured in one of two modes, Instant Seize or Answer mode.

If the Listen-In Module is configured in Instant Seize mode, then when it is first signaled from the panel, it instantly seizes the phone line but does not turn on the microphones or signal the panel through the Listen-In Module zone. When the panel releases the connection to the central station and deactivates the Listen-In Output, the Listen-In Module already has the line seized and assumes the connection. At this time, the module turns on the microphones and signals the panel through the Listen-In Module zone.

If the Listen-In Module is configured in Answer mode, then after the panel has signaled it by activating and later deactivating the Listen-In Output, the Listen-In Module starts its incoming call timer. The incoming call timer starts

Programming The Control

when the Listen-In Output is deactivated and runs for five minutes. If a call comes in while the timer is running, then the Listen-In Module answers the call on the first ring. At that time, it signals the panel through the Listen-In Module zone that it has seized the line and the microphones are on.

When the control panel detects the Line-Seized signal from the Listen-In Module zone, it temporarily silences all alarm tones at the keypads and all alarm outputs, although the alarm output timers continue. When the Listen-In Module releases the phone line, it removes the Line-Seized signal to the panel. When the control panel detects that the Line-Seized signal has been removed, it no longer silences alarm tones at the keypads and alarms outputs. The alarm outputs are reactivated if they haven't timed-out.

Also, when the panel detects the Line-Seized signal from the Listen-In Module zone and gets an event (any event) to report to the central station, then the panel signals the Listen-In operator by momentarily seizing the phone line and producing a tone. This interrupts the Listen-in Module connection for about one second but it does not hang-up the phone line. The panel also starts a two-minute timer. It does not try to call out to the central station until either the Line-Seized signal from the Listen-In zone is removed or the two minute timer expires, whichever comes first. If the timer expires before the Line-Seized signal is removed, the panel seizes the line to dial out to the central station, disconnecting and hanging up the Listen-In module's connection.

If an alarm is SILENCED through a keypad during a Listen-In session, it has no impact on the Listen-In operation.

If a Holdup Alarm event is reported to the central station, it is the Listen-In operator's responsibility to NOT activate the speakers on the Listen-In Module.

Note 4: Zone Violated Output

A "Zone Violated" output is activated when its corresponding zone is violated regardless of the zone's armed state or any alarms that result. The output remains activated until the zone restores.

Note 5: Zone In Alarm Output

A "Zone In Alarm" output is activated whenever its corresponding zone causes an alarm. The output remains activated until the alarm is silenced or, for silent holdup alarms, until the alarm is reset. Once a zone has caused an alarm, its "Zone In Alarm" output has no correlation with whether that zone is violated or not.

Note 6: Alarm Abort Time

The **ALARM ABORT TIME** is the time that a user has after a burglar alarm activation to SILENCE the alarm and abort the burglar alarm event. The burglar alarm event(s) is not posted in the event log if the SILENCE occurs before the Burglar Alarm Abort time expires. If **POST ALARM ABORT** is enabled, then an Abort Alarm event(s) is posted in the event log. If the Burg Alarm Abort Time is zero or if the timer expires, then burglar alarm events are posted in the event log and when the SILENCE occurs, the Cancel Alarm event(s) is posted in the event log.

Note 7: Powering Up While Armed

If any area is armed when the panel powers up, violations from all the burglar zones are ignored for three minutes. This allows all armed PIRs to stabilize without causing false alarms.

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Specifications And Accessories

Chapter

4

4.1 Specifications And Accessories

Control Board:

- ☐ 12 zones, each supervised with a 2200 Ω end-of-line resistor. Expandable to 44 zones.
- ☐ One zone, zone 12, is two-wire, smoke compatible.
- ☐ Three keypad activated panic keys
- ☐ Nominal current drain for board only: 100 milliamps
- ☐ Superior six stage lightning/transient protection
- ☐ Two general purpose Form C SPDT (5 A DC) relays
- ☐ Ten alarm and control outputs (expandable to 50)
- ☐ 24-hour battery monitoring
- ☐ Automatic system shutdown if voltage falls below 8.5 volts
- ☐ Operating temperature range inside the enclosure: 32 to 120° F (0 to 49° Celsius)

Power Supply:

- ☐ Full 1.5 amp, 16.5 VAC, 35 VA Transformer
- ☐ 12 VDC Operation
- ☐ 900 mA continuous available current
- ☐ Reverse polarity protection on battery inputs
- ☐ Float charging circuit: 13.8 VDC
- ☐ Over-current protection on outputs for keypad power, auxiliary power.

Recommended Battery (not included):

- ☐ Rechargeable 12 VDC, 7Ah, and two 12V, 7Ah sealed lead acid batteries may be used (see Chapter 5).

Transformer (U.S. only):

- ☐ T1635 UL Listed Class II plug-in, 16.5 VAC, 35 VA secondary, 120 volt, 60 Hz primary connected to 24-hour unswitched outlet.

Enclosure:

- ☐ 20-gauge locking metal cabinet with two keys; 14" x 14" x 3.5" (356mm x 356mm x 89mm).

Digital Communicator:

- ☐ DTMF Touchtone® or Rotary (pulse) dialing; Rotary speed: 10pps, (60/40 or 67/33 make/break).
- ☐ Transmission formats include: SIA Level 1; BFSK and Pulse Formats (4+2, two-line or single line extended, Hexadecimal Reporting): Slow (10 or 15 baud) and Fast (20 or 40 baud); and Contact ID.
- ☐ Reports to most major central station receivers
- ☐ Primary phone number up to 16 digits
- ☐ Secondary phone number up to 16 digits
- ☐ Prefix for phone number up to 16 digits; special application long distance access
- ☐ Reporting capabilities: two 6-digit account codes per area; report by zone; opening and closing reports; force arm/bypass reports; restoral reports; trouble reports; cancel reporting; low battery/fuse blown; test timer; exception reporting.
- ☐ Dial type reversal: reverses dialing method (tone to pulse, pulse to tone) on an in-progress call.

LCD Keypad

- ☐ Four-wire data bus connection.
- ☐ LCD backlighting and keypad downlighting.
- ☐ 12-button keypad with audible feedback.
- ☐ Surface mountable; mounts to any standard single or double gang electrical box.
- ☐ Two lines x 24 characters LCD display.
- ☐ 48-character available for LCD screen.
- ☐ Built-in piezo sounder.
- ☐ Area assignable.
- ☐ Addressable with DIP switches.
- ☐ Built-in English vocabulary.
- ☐ Nominal current drain: 75 to 200 mA (depending on Lamp Setting).
- ☐ Up to eight keypads per system with addition of HCP 12-SULC Auxiliary Power Supply.
- ☐ Size: 6.82" x 4.72" x 0.83" (173mm x 120mm x 21mm).
- ☐ Color: bone white with gray labeling.

Features:

- ☐ Eight partitions.
- ☐ Ready to install with a factory basic program.
- ☐ Fixed terminal strip with plug-in control board.
- ☐ Keypad programming.
- ☐ 99 user authorization codes.
- ☐ Installer programming code.
- ☐ Non-volatile memory retains arm/disarm status and programming after total power loss or board removal.
- ☐ Self-diagnostics with memory error detection.
- ☐ Hardwire zones programmable as Burglar, 24-hour Fire, 24-hour Holdup, 24-hour Auxiliary, CCM (Communicator Zone), Universal zone inputs and 24-hour Burglar (tamper), Verified Fire, Sentry Test, Verifying Burglar and Self-Verifying Burglar.
- ☐ May be programmed for keyswitch arm/disarm.
- ☐ Burglar zones may be defined as instant or delay (2 delay timers), interior, interior follower, interior night, perimeter.
- ☐ Programmable timers: Entry Delay 1, Entry Delay 2, Exit Delay, Access, Alarm Cut-off, Universal and Universal Logged.
- ☐ Invalid code station lockout (programmable option) and 3-minute programming time out.
- ☐ Siren/bell test upon arming (programmable option).
- ☐ Courtesy lamp line carrier trigger output.
- ☐ Timed access (door strike) output.
- ☐ Made in U.S.A.
- ☐ ON/OFF power switch with power LED.

Output Provisions:

- ☐ Low Current Trigger Outputs: Current output of 40 mA each. Ten outputs on main board via flying lead (J16) type connector, expandable to 50 with Z2350 zone concentrators.
- ☐ The maximum combined continuous current drain at the Aux Power, Fire Power, Switched Smoke Power and Keypad Power Terminals is 900 mA.
- ☐ Current Limits: The two Aux Power Terminals are limited to 2.5 A (F1). The Keypad Power Terminal is limited to 1.0 A (F2). The Fire Power and Switched Smoke Power Terminals are limited to 2.5 A (F3).

Optional Accessories:

- ☐ TC1100 Tamper Resistant Enclosure: extra high security cover.
- ☐ FC1100 Flush Cover: For recessed mounting of the control panel.
- ☐ Z217 Programming Cable: For plugging in a keypad directly at the control board for programming.
- ☐ TS5 Left and TS2 Right Terminal Strips.
- ☐ Z2100 LCD Keypad: 48-character display with emergency, menu, and soft keys; nominal current drain: 75–200 mA (depending on Lamp Setting).
- ☐ Z2200 LED Keypad: Simple arming station for smaller applications and single area operation; Ready, Armed, Trouble, and Alarm indication and three emergency keys; Nominal current drain: 25 mA.
- ☐ Z2300/Z2350 Zone Concentrators: Expands the control with 8 additional zones. 2350 also provides 10 additional programmable outputs. Nominal drain: 2300 consumes 40 mA/2350 consumes 45 mA. Maximum Z2300s and Z2350s per system is four.
- ☐ Z2400 Printer Interface: Allows connection of a standard parallel printer via interface. Nominal current drain: 65 mA; Power requirements: 13.8 VDC, 85 mA without printer connected.
- ☐ F2600 Transformer Enclosure: Ensures that the AC plug-in transformer remains securely fixed to the AC wall outlet.
- ☐ CR860 Dual Battery Harness: Allows the connection of an additional 12 VDC, 7Ah, sealed lead acid battery to the control.
- ☐ EB1511 Auxiliary Enclosure: 15" x 11" x 4" with cam lock for wall mounting of auxiliary devices.
- ☐ ACR505 Insertion Card Reader with Keypad: Reads magnetic stripe cards (ACC25 cards available in packs of 25). Should not be used on UL Listed systems.
- ☐ Z1251RPK Upgrade Kit: Consists of a Z1250 control board and a Z2100RPK upgrade kit. This kit upgrades a Z1100e panel to a Z1250 panel and upgrades a Z1100ST keypad to a Z2100 LCD keypad.
- ☐ Z2100RPK Upgrade Kit: Contains an upgrade circuit board and a keypad nameplate. This kit upgrades a Z1100ST keypad to a Z2100 LCD keypad.
- ☐ E1414: 14" x 14" enclosure. UL listed for commercial and residential.
- ☐ Z1250 Control with Transformer.
- ☐ Z1250 Control Board Only.
- ☐ Z239 Eight-LED Display Panel.
- ☐ RPM2 Software Shell for Upload/Download.
- ☐ PSM44 Software Module for Z1250 Control.
- ☐ HCP-12SUL Power Supply: Provides a 12 VDC power limited output with a current rating of 2.0 A continuous while the AC primary power source is present.
- ☐ MPI-266 Low Battery Cut-off Module.
- ☐ MPI-206 Low Current Relay.
- ☐ AE912 Raucous Sounder: Current consumption: 28mA @ 12VDC.
- ☐ MA-2 Sounder. Low current (25 mA), two-tone, piezo sounder (100 dB).
- ☐ JDS-108 Siren Driver. Eight-channel siren driver with low current triggers.
- ☐ MPI-30 Speaker. Thirty-watt, 8 ohm speaker for siren application.
- ☐ ESL-429CT Smoke Detector. 12–24 volt, 2-wire smoke detector with heat sensor.
- ☐ ESL - 104-13 Heat Detector. 135-degree fixed temperature with rate-of-rise heat detector.
- ☐ 3040 Panic Switch. "Pull" panic switch with terminals.
- ☐ 3555 Bill Trap with Jacketed Leads.
- ☐ 3025T Enclosure Tamper Switch.
- ☐ 5422-W Metal Enclosure Assault Sensor.

4.2 List Of Compatible Accessories

ESL Smoke Detectors (ESL® is a Registered trade name of Sentrol, Inc.)

429 AT, CRT, CST: Input Voltage: 8.5–33 VDC; Standby current: 70µA max. (Maximum of 20 detectors per zone).

445 AT, C, CR, CT, CRT, CS, CSH, CST, CSR, CSRT: Input Voltage: 8.5–44 VDC; Standby Current: 50 µA max.

449 CTE: Input Voltage: 8.5–33 VDC; Standby Current: 10mA max

449 C, CT, CRT, CST, CSRT, CSRH, CSST: Input voltage 8.5–33; Standby Current: 70µA max.

Wheelock

34T–12R Horn: Input Voltage: 9–15.6 VDC; Rated Current: 0.125 A

EH–DL1–R Electronic Horn: Input Voltage 12/24 VDC; Input Current: (@ 12 VDC) 0.015 A/(@24 VDC) 0.017 A

EH–DL2–R– Electronic Horn: Input Voltage: 12 VDC; Input Current: 0.047 A

EH–EL1–R Electronic Horn: Input Voltage: 12/24 VDC; Input Current: (@ 12 VDC) 0.015 A/(@24 vdc) 0.017A

EH–EL2–R Electronic Horn: Input Voltage: 12 VDC; Input Current 0.047 A

AES–DL2–R Multi–tone Electronic Signal: Voltage: 12 VDC; Current (High): 0.050 A; Current (Low): 0.025A

AES–EL2–R Multi–tone Electronic Signal: Voltage: 12 VDC; Current (High) 0.100 A; Current (Low): 0.050 A

MIZ–12–R Mini–horn: Voltage: 12 VDC; Current: 0.010 A

MIZ–12–W Mini–horn: Voltage: 12 VDC; Current: 0.010 A

CH–BF2–R Fire Chime: Input Voltage: 12 VDC; Input Current: 0.020 A

CH–CF2–W Fire Chime: Input Voltage: 12 VDC; Input Current: 0.020 A

CH–DF2–R Fire Chime: Input Voltage: 12 VDC; Input Current: 0.020 A

46T–G4–12–R DC Vibrating Bells: Shell Size: 4 Inches; Input Voltage: 12 VDC; Input Current: 0.125 A

46T–G6–12–R DC Vibrating Bells: Shell Size: 6 Inches; Input Voltage: 12 VDC; Input Current: 0.125 A

46T–G10–12–R DC Vibrating Bells: Shell Size: 10 Inches; Input Voltage: 12 VDC; Input Current: 0.080 A

System Sensors

1400 Photoelectric (max. 6 per zone)

1412, 1424 Ionization 2412AT Photoelectric

1551T Ionization 2412AIT Photoelectric

1806 Ionization 2424AT Photoelectric

1812 Ionization 2424AIT Photoelectric

1824 Ionization 2806 Photoelectric

2312/24T Photoelectric 2812, 2824 Photoelectric

2400 Photoelectric (max. 6 per zone) 2812TH, 2824TH Photoelectric

ASCOA Fire Systems Smoke Detectors

Fixed Temp Heat Detector (Passive Devices): Models 503, 503A, 504, 504A, 603, 604, 623, 624, WPB503–M, WPB504, WPB504–M, A, AT, AE, AEC, AE, A, AT, A

Compatible Devices For Auxiliary Power And Programmable Outputs

- AE 912 Raucous Sounder
- HCP12–SULC Auxiliary Power Supply

4.3 Digital Communicator Table For SIA And Contact ID Formats

This section cross-references many of the reporting options and equivalent codes sent by this control when transmitting in the SIA and Contact ID formats.

Simplified example of data sent in SIA format: XXXXXX EE CCC

Where: XXXXXX = 1 to 6 decimal digit subscriber #

EE = Event data code

CCC = Zone, sensor, or user ID

Simplified example of data sent in Contact ID format: SSSS 18 Q XYZ AA CCC

Where: SSSS = 4 decimal digit subscriber #

18 = Contact ID que for automation systems

Q = Event qualifier; 1 = new event or opening; 3 = new restore or closing; 6 = previously reported event

XYZ = Event code (3 decimal digits)

AA = Area number (00 for system events)

CCC = Zone, sensor, or user # (3 decimal digits)

EVENT TYPE	SIA CODE	CID CODE	EVENT SOURCE
AUX KEY FIRE ALARM	FA	1115	500 + KEYPAD (1-8)
ZONE FIRE ALARM	FA	1110	ZONE (1-44)
ZONE FIRE SUPERVISORY	FS	1200	ZONE (1-44)
ZONE HOLDUP ALARM	HA	1120	ZONE (1-44)
ZONE BURGLAR ALARM	BA	1130	ZONE (1-44)
ZONE BURGLAR TAMPER	BS	1137	ZONE (1-44)
ZONE AUXILIARY ALARM	MA	1100	ZONE (1-44)
ZONE CCM ALARM	UA	1150	ZONE (1-44)
AUX KEY HOLDUP ALARM	HA	1120	500 + KEYPAD (1-8)
AUX KEY BURGLAR ALARM	BA	1133	500 + KEYPAD (1-8)
AUX KEY AUXILIARY ALARM	MA	1100	500 + KEYPAD (1-8)
DURESS	PA	1121	USER (1-99)
ZONE FIRE TROUBLE	FT	1373	ZONE (1-44)
ZONE HOLDUP TROUBLE	HT	1370	ZONE (1 - 44)
ZONE BURGLAR TROUBLE	BT	1370	ZONE (1 - 44)

Specifications And Accessories

EVENT TYPE	SIA CODE	CID CODE	EVENT SOURCE
ZONE AUXILIARY TROUBLE	MT	1370	ZONE (1 – 44)
ZONE OTHER TROUBLE	UT	1370	ZONE (1 – 44)
ZONE FIRE BYPASS	FB	1571	ZONE (1 – 44)
ZONE HOLDUP BYPASS	HB	1572	ZONE (1 – 44)
ZONE BURGLAR BYPASS	BB	1573	ZONE (1 – 44)
ZONE AUXILIARY BYPASS	MB	1572	ZONE (1 – 44)
ZONE OTHER BYPASS	UB	1570	ZONE (1 – 44)
ZONE FIRE ALARM RESTORE	FH	3110	ZONE (1 – 44)
ZONE FIRE SUPERVISORY RESTORE	FR	3200	ZONE (1 – 44)
ZONE HOLDUP ALARM RESTORE	HH	3120	ZONE (1 – 44)
ZONE BURGLAR ALARM RESTORE	BH	3130	ZONE (1 – 44)
ZONE BURGLAR TAMPER RESTORE	BR	3137	ZONE (1 – 44)
ZONE AUXILIARY ALARM RESTORE	MH	3100	ZONE (1 – 44)
ZONE CCM ALARM RESTORE	UH	3150	ZONE (1 – 44)
ZONE FIRE TROUBLE RESTORE	FJ	3373	ZONE (1 – 44)
ZONE HOLDUP TROUBLE RESTORE	HJ	3370	ZONE (1 – 44)
ZONE BURGLAR TROUBLE RESTORE	BJ	3370	ZONE (1 – 44)
ZONE AUXILIARY TROUBLE REST	MJ	3370	ZONE (1 – 44)
ZONE OTHER TROUBLE RESTORE	UJ	3370	ZONE (1 – 44)
ZONE FIRE BYPASS RESTORE	FU	3571	ZONE (1 – 44)
ZONE HOLDUP BYPASS RESTORE	HU	3572	ZONE (1 – 44)
ZONE BURGLAR BYPASS RESTORE	BU	3573	ZONE (1 – 44)
ZONE AUXILIARY BYPASS RESTORE	MU	3572	ZONE (1 – 44)
ZONE OTHER BYPASS RESTORE	UU	3570	ZONE (1 – 44)
KEYPAD ARM	CL	3401	USER (1 – 99)
KEYPAD PARTIAL ARM	CG	3408	USER (1 – 99)
KEYSWITCH ARM	CL	3409	600 + ZONE (1 – 44)
INSTALLER / RPM ARM	CL	3407	NO DATA
EARLY ARM	CK	3451	USER (1 – 99)
LATE ARM	CJ	3404	USER (1 – 99)
AUTO ARM	CA	3403	NO DATA
FAILED TO ARM	CI	1454	NO DATA
CLOSING EXTENDED	CE	3405	USER (1 – 99)
KEYPAD DISARM	OP	1401	USER (1 – 99)
KEYSWITCH DISARM	OP	1409	600 + ZONE (1 – 44)
INSTALLER / RPM DISARM	OP	1407	NO DATA
EARLY DISARM	OK	1451	USER (1 – 99)
LATE DISARM	OJ	1404	USER (1 – 99)
AUTO DISARM	OA	1403	NO DATA
FAILED TO DISARM	OI	1453	NO DATA
KEYPAD LOCKED-OUT	JA	1300	500 + KEYPAD (1 – 8)
KEYPAD MISSING	ET	1330	500 + KEYPAD (1 – 8)
KEYPAD MISSING RESTORE	ER	3330	500 + KEYPAD (1 – 8)
BURGLAR ALARM ABORTED	BC	1406	ZONE (1 – 44)
BURGLAR ALARM CANCELLED	BC	3406	ZONE (1 – 44)
COMM TEST NOT NORMAL	YS	1350	NO DATA

Specifications And Accessories

EVENT TYPE	SIA CODE	CID CODE	EVENT SOURCE
AUTO-COMMUNICATOR TEST	RP	1602	NO DATA
AC FAILURE REPORTED	AT	1301	NO DATA
AC RESTORE	AR	3301	NO DATA
PANEL LOW BATTERY	YT	1302	NO DATA
PANEL BATTERY RESTORE	YR	3302	NO DATA
BLOWN FUSE	YP	1300	NO DATA
FUSE RESTORE	YQ	3300	NO DATA
COMMUNICATION RESTORE	YK	3354	NO DATA
MEMORY ERROR	YF	1303	NO DATA
BEGIN INSTALLER LOCAL PROG	LB	1306	NO DATA
END INSTALLER LOCAL PROG	LX	3306	NO DATA
LOCAL PROG DENIED	LD	0000	NO DATA
END REMOTE PROG	RS	1412	NO DATA
REMOTE PROG DENIED	RD	1413	NO DATA
REMOTE PROG ABORTED	RU	1412	NO DATA
EVENT LOG NEARLY FULL	JL	1623	NO DATA

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UL And NFPA Requirements

Chapter

5

5.1 Underwriter's Laboratories (UL) Listing

This control is listed by Underwriters Laboratories (UL) as follows:

APPLICATION	LISTING
Household Burglary (Grade A)	UL 1023
Household Fire	UL 985
Central Station Burglary (Grade C)	UL 1610/1635
Central Station Burglary (Grade B)	UL 1610/1635
Home Health Care Signaling Equipment	UL 1637
Local Burglary (Grade A)	UL 609
Police Station Burglary Connection (Grade A)	UL 365
California State Fire Marshal	7167-0695:120

UL has established certain requirements which pertain to the installation, use, and programming of this equipment. The local Authority Having Jurisdiction (AHJ) and/or UL may have other requirements which apply to the installation of this system that are not detailed in this manual. It is the responsibility of the installing dealer to check with the AHJ and/or UL before installing this system. The following pages detail guidelines that must be followed in order to comply with the UL listings as stated above.

UL Notes In This Manual

- Key "0" (Access) – The control has not been investigated to UL 294 Access Control System requirements.
- Bypassable 24-hour – Fire zones are programmed as non-bypassable in UL listed systems.
- Unsupervised Burglary Zones – UL does not permit the use of unsupervised zones.

UL Notes About Program Functions

- Entrance Delay Time (1 and 2) – Maximum of 45 seconds.
- Exit Delay Time – Maximum of 60 seconds.
- Burglar Alarm Cutoff Time – Four minutes minimum for household BA/FA and 15 minutes for commercial burglar alarm and police station connected burglar alarm systems.
- Fire Cutoff Time – No automatic cutoff permitted. Shall be programmed to "0", no cutoff.
- Holdup Cutoff Time – Four minutes maximum.
- Communicator Enable – Local or police station connected burglar alarm installations: the communicator must be enabled.
- Time Between Comm. Tests – Commercial installations: automatic test performed every 24 hours.
- Time Between Dial Attempts – UL certified accounts: no more than 45 seconds between attempts.

UL And NFPA Requirements

- Dial type – Shall not be programmed for foreign pulse.
- Dial Attempts Before Shutdown – Five dial attempts minimum, ten dial attempts maximum. Do not program a value of “0”.
- Opening/Closing Reports – This function shall be enabled by programming report codes.
- Low Battery Reporting – This function shall be enabled by programming a report code for Grade A Local Burglar, Grade A Police Connected, and Grade B and C Central Station Burglar installations.
- Single Digit Arming – This function shall be disabled. Passcodes shall have a minimum of three digits.
- Enable Force Arming – This function shall be disabled.
- Enable Bypassing – This function shall be disabled.
- Pulsing Burglar Alarm Output – Shall be programmed to “YES” (pulsing).
- Pulsing Fire Alarm Output – Shall be programmed to “NO” (steady).
- Burglar Loop Audible Lockout – This function shall be enabled.
- Enable Bell Test Upon Arming – This function shall be enabled for Grade A Local Central Station Connected installations.
- Enable Keypad Sounder Upon BA – The system shall have an audible alarm output upon alarm.
- Auto-arming – This function shall be disabled.
- Key A, B, or C – When programmed as “Burglar/Police” (1), the key shall be labeled with a blue shield police sticker. When programmed as “Fire” (2) the key shall be labeled with a red flame sticker. When programmed as “Medical/Emergency” (4), the key shall be labeled with a green and white cross medical sticker.
- Listen-In modules must not be used.
- Burglar Zones shall not be programmed as Verified or Self-Verifying.

UL Notes About The Zone Planning Guide

- Burglar Loops – Shall be defined as “Supervised, No Trouble” (0).
- Fire, Holdup, and Auxiliary Emergency Zones – Shall not be defined as bypassable.
- Special Functions/Alarms – Burglar zones shall have an audible output.
- Medical Emergency – At least one keypad shall be used as part of the system.

Application	Listing	Maximum Continuous Current Drain (Amps) With 7AH Battery	Minimum Battery Standby Time In Hours	Control Stations	Smoke Detector ESL 449 Power Supervision Module ESL 204B	Auxiliary Equipment Required
Home Health Care Household Burglary	UL 1637 UL 1023	0.800	4	6	N/A	Amseco MSB-10G Bell
Household Fire	CSFM	0.280	24	1	Required	Wheelock 34T-12 Horn
Household Burglary/ Fire Combination	UL 1023/ UL 985	0.800	4	6	Required	Amseco MSB-10G Bell and Wheelock 34T-12 Horn
Central Station Burglary (Grade C)	UL 1610 UL 1635	0.450	4	2	N/A	TC1100 Tamper Resistant Enclosure
Central Station Burglary (Grade B)	UL 1610 UL 1635	0.450	4	2	N/A	TC1100 Tamper Resistant Enclosure and ADEMCO AB-12 Bell & Housing
Local Burglary (Grade A)	UL 609	0.450	4	2	N/A	TC1100 Tamper Resistant Enclosure and ADEMCO AB-12 Bell & Housing
Police Station Burglary Connection (Grade A)	UL 365	0.450	4	2	N/A	TC1100 Tamper Resistant Enclosure and ADEMCO AB-12 Bell & Housing

Listed above are UL Listed peripheral devices including smoke detectors and audibles, not exceeding a combined current drain of 450mA (see “List of Compatible Devices,” Chapter 4 of this manual). Maximum combined continuous current drain (standby) refers to 12V Aux Power, 12V Switched Smoke Power, 12V Fire Power and 12V Keypad Terminals. Under alarm conditions, the combined output current drain should not exceed 900 mA.

F2600 Transformer Enclosure

The transformer enclosure ensures that the AC plug-in transformer remains securely fixed to the AC wall outlet. Before installing, disconnect primary power source. Restore power only after the transformer connection has been double-checked for accuracy.

1. Mount the gang box to the wall or supporting structure.
2. Insert the gang box partition into the gang box. The partition divides the gang box into two sections. The large section contains high voltage wiring; the small section contains low voltage wiring.
3. Punch out a conduit knockout in the high voltage side of the gang box. Route the 110 VAC wiring through the knockout hole and into the gang box. Connect the isolated 110 VAC wiring to the duplex outlet.
4. Mount the duplex outlet to the cover plate and the cover plate to the gang box.
5. Punch out a conduit knockout in the low voltage side of the gang box. Route the low voltage wiring through the knockout hole and into the gang box. Connect the low voltage wiring to the transformer.
6. Plug the transformer into the bottom outlet of the duplex outlet. Secure the transformer to the duplex outlet.
7. Attach the cover to the cover plate.

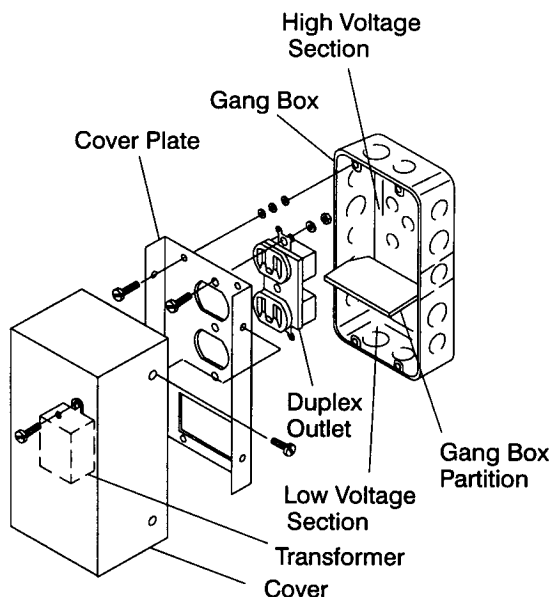


FIGURE 5-1. Transformer Enclosure

Auxiliary Power Supply Installation

The HCP-12SUL Power Supply can provide a 12 VDC power output, with a current rating of 2.0 A continuous, while the AC primary power source is present. If the primary source is lost, the HCP-12SUL electronically switches to its standby battery. See FIGURE 5-2.

Install conduit or another Listed raceway between all connecting junction boxes and protective enclosures as shown.

Use only the battery and transformer as recommended in the Specifications and Instructions for the power supply. See the following section for information about the connection of additional batteries.

UL And NFPA Requirements

NOTE

The HCP-12SUL must not be connected to a load which exceeds 2.0 A continuous demand.

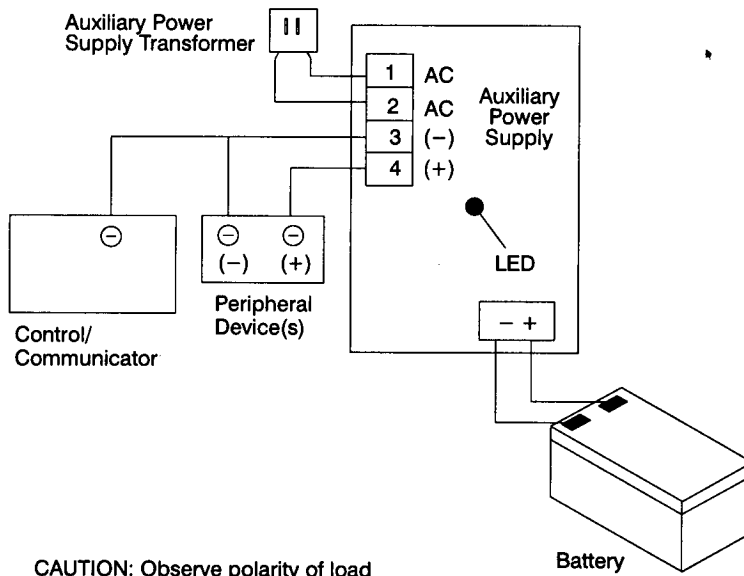


FIGURE 5-2. HCP-12SUL Installation

Connection Of Additional Batteries

Two 12VDC, 7Ah sealed lead acid batteries may be installed using the CR860 Dual Battery Harness as shown in FIGURE 5-3.

If Battery B is shorted, the fuse on Battery B blows. The panel continues uninterrupted operation utilizing only Battery A. Perform a continuity check on the fuse periodically. If the fuse blows, replace it with a fuse of the same size and rating. When installing a new fuse, be sure to check the age and general condition of both batteries before reconnecting.

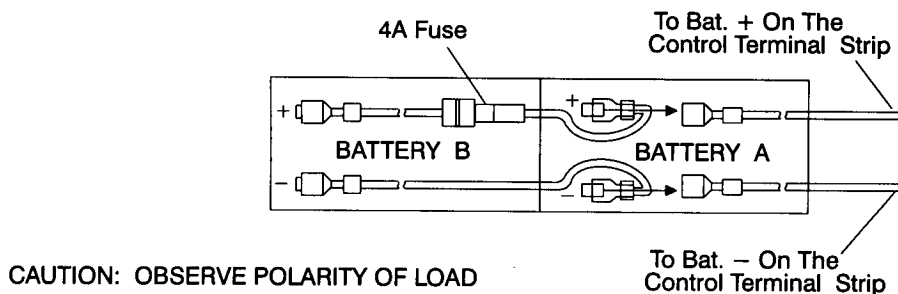


FIGURE 5-3. Connection Of The CR860 Dual Battery Harness

UL And NFPA Requirements

The following figure is an overview of the system power connections.

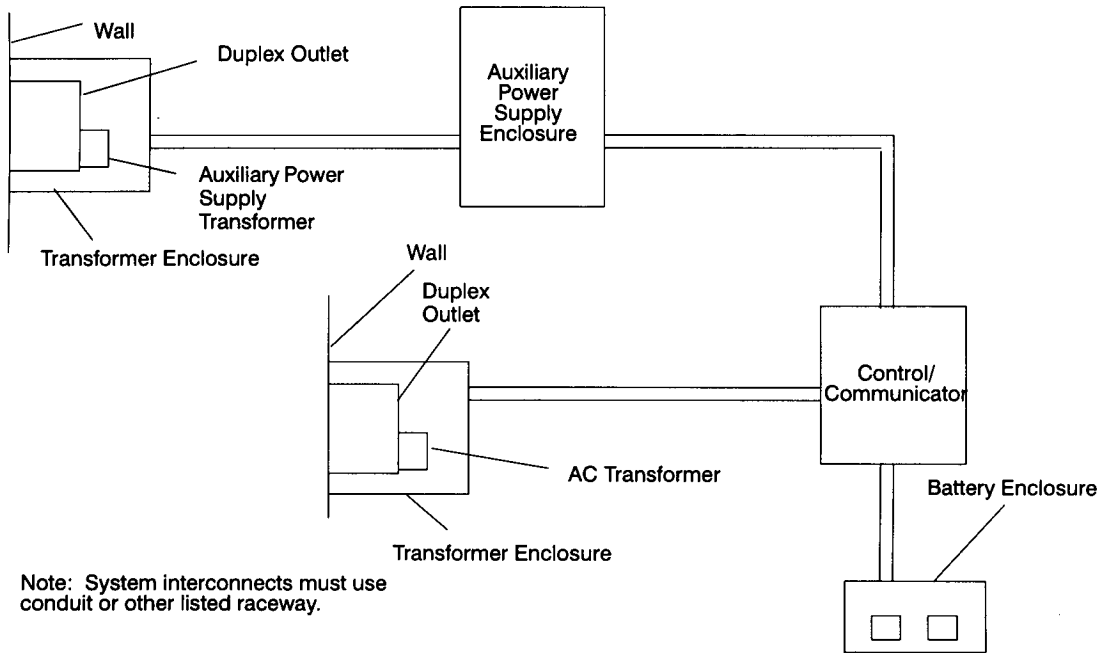


FIGURE 5-4. System Power Connections

UL And NFPA Requirements

Installation of Zone Expanders

The following figure details installation of zone expanders using the EB1511 enclosure. Any NEMA Certified enclosure may be used.

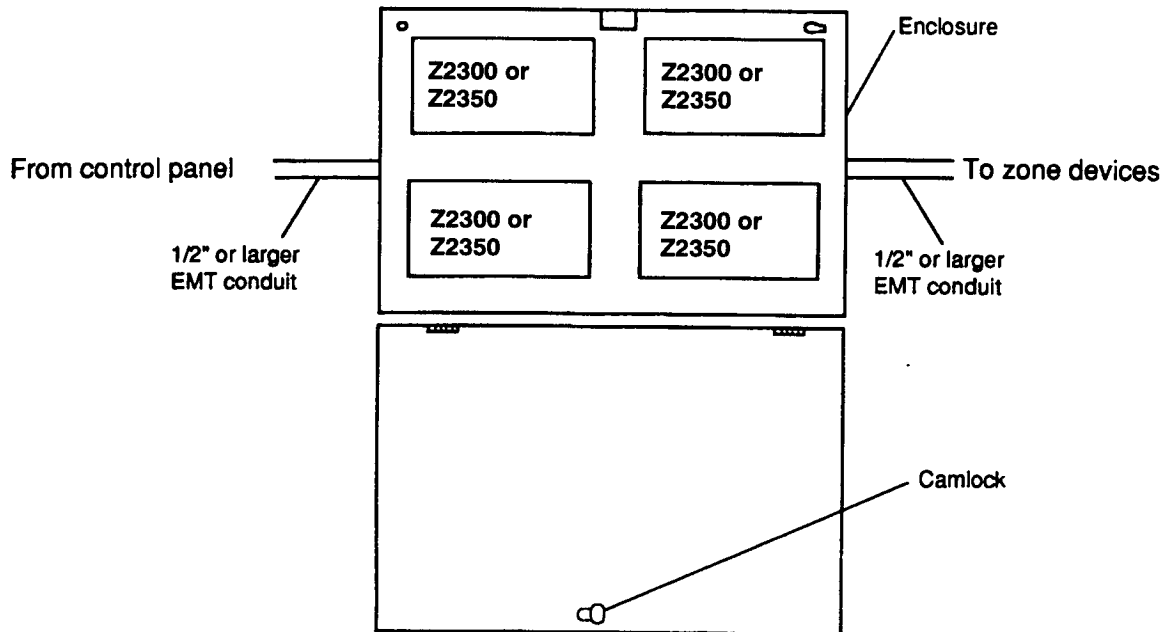


FIGURE 5-5. Installation of Zone Expander(s)

All zone expanders must be mounted using two self-tapping screws in the enclosure and the EB1511 enclosure must be mounted using self-tapping screws into wall studs (or equivalent) or using wall anchors.

NOTE

For all UL Listed burglary applications, the zone expanders must be installed within twenty feet of the control panel with all interconnections in conduit. All conductors must be run in accordance with the National Electric Code.

For all UL Listed commercial burglary applications, the TC1100 Tamper Cover must be used with the EF1414 or E1414 enclosure.

UL And NFPA Requirements

Fire Alarm, Trouble And Supervisory Conditions

Fire Alarm

If an alarm has occurred and has been silenced but a fire alarm is still activated, one of the following situations may be present.

1. A smoke detector may be latched in alarm. Resetting the smoke detector power remedies the situation.
2. A short may exist in the field wiring. A qualified technician must troubleshoot the wiring to determine the location of the short and repair it.

Fire Circuit Trouble

This indicates a problem with a fire detection circuit. The audible can be silenced by pressing **DISPLAY** and entering a valid passcode, but the visual indication remains until the condition is corrected.

Fire Supervisory

This indicates that a sprinkler device has been tampered with or that a problem exists with the sprinkler system. The audible indication of a fire supervisory can only be silenced by entering a valid code at the LCD keypad. The visual indication remains until the condition is corrected.

Fire Supervisory Trouble

This indicates an open in the fire supervisory circuit.

Local Testing

The control panel is equipped with a local test function. Enable the function by pressing the menu key on the LCD keypad until **SYSTEM TEST** is displayed.

Press the soft key beneath **SYSTEM TEST**, then enter a valid code. The following outputs become active for approximately three seconds to test the audible and visual devices:

- | | |
|--------------------|-------------------|
| • Burglar Alarm | • Auxiliary Alarm |
| • Burglar Tamper | • Failed to Comm |
| • Audible Trouble | • Holdup Alarm |
| • Fire Supervisory | • Trouble |
| • Fire Alarm | • Fire Trouble |

The LCD displays:

PROCEED WITH LOCAL TEST	
QUIT	UNTESTED

At the start of the local test, trouble conditions from every zone programmed as Fire, Supervised Fire, or Verified Fire are reported to the central station and recorded in the event log.

Proceed with the test by faulting each zone one at a time. As each zone is tested, the display changes to reflect the number of zones tested and those yet to be tested as:

1 ZONE TESTED	11 LEFT
QUIT	TESTED UNTESTED

Pressing the soft key beneath **TESTED** displays the zones that have been tested. Pressing the soft key beneath **UNTESTED** displays the zones that have not been tested.

UL And NFPA Requirements

During LOCAL TEST, all zones activated are recorded in the Event Log, but are not reported.

After a Fire, Verified Fire or Fire Supervisory zone is tested during LOCAL TEST, a smoke reset is automatically performed for five seconds to reset the zone.

Pressing the soft key beneath QUIT causes the simultaneous display of all the pixels of the LCD for three seconds. Then the LCD returns to the normal status display. At the end of the Local Test, Trouble Restore is reported to the central station and recorded in the event log. All smoke detectors are reset when LOCAL TEST is exited.

5.2 National Fire Protection Association (NFPA) Requirements

Smoke Detector Locations

For residential applications, install smoke detectors in each bedroom and outside each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family living unit including basement and excluding crawl spaces and unfinished attics. In new construction, a smoke detector also should be installed in each sleeping room. For family living units with one or more split levels (i.e., adjacent levels with less than one full story separation between levels), a smoke detector required by the above is sufficient for an adjacent lower level, including basements. **EXCEPTION:** Where there is an intervening door between one level and the adjacent lower level, install a smoke detector on the lower level.

Install ceiling-mounted smoke alarms in the center of the room or hall, not less than 4 inches from any wall. When mounting the detector on a wall, place the top of the detector 4 to 12 inches from the ceiling.

Do not install smoke alarms where normal ambient temperatures are above 100° F. (37.8° C.)

Do not position smoke detectors in front of air conditioners, heating registers, or other locations where normal air circulation will keep smoke from entering the detector.

Heat from a fire rises to the ceiling, spreads out across the ceiling surface and begins to bank down from the ceiling. Corners where the ceiling and walls meet create air spaces into which heat has difficulty penetrating. Usually, these dead air spaces measure about 4 inches (0.1m) along the ceiling from the corner and 4 inches (0.1m) down the wall. Do not place heat or smoke detectors in these dead air spaces.

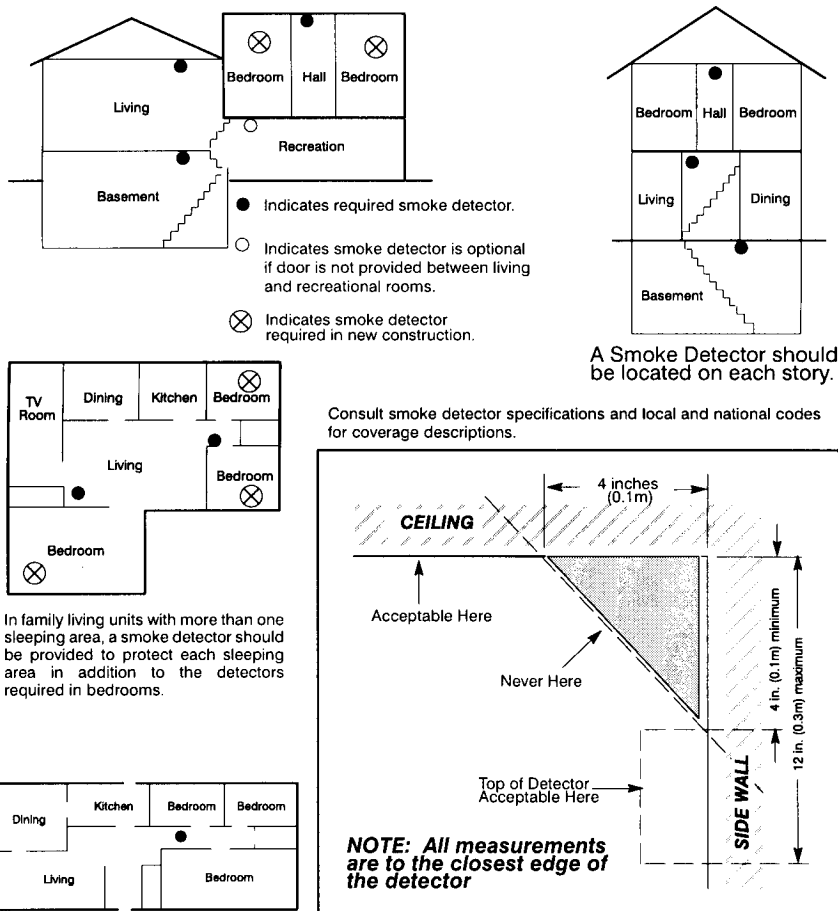


FIGURE 5-6. Smoke Detector Placement

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NOTES

FCC COMPLIANCE

PART 68 NOTIFICATION

This equipment complies with Part 68 of the Federal Communications Commissions (FCC) rules. All connections to the telephone network must be made through standard telephone company plugs and jacks, RJ31-X or equivalent, in such a manner as to allow for easy and immediate disconnection of the equipment. If the connecting cord is unplugged from the jack there shall be no interference to the telephone equipment still connected to the telephone network.

The FCC registration number and Ringer Equivalence Number (REN) can be found printed on the wiring connection label located inside the Control Box Enclosure. If requested, provide this information to your telephone company. The REN is useful to determine the quantity of devices that may be connected to your telephone line and still have all of those devices ring when your number is called. In most, but not all areas, the sum of the RENs of all devices should not exceed five (5.0).

In the unlikely event that the equipment should ever fail to operate properly, it should be disconnected from the telephone jack to determine if the problem is with the telephone network or with the equipment. If a problem is found with the equipment, leave disconnected until it is repaired or replaced.

In the unlikely event that the equipment should ever cause harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance. However, if advance notice isn't practical, the telephone company may temporarily discontinue service without prior notification. In the case of temporary discontinuance, the telephone company shall promptly notify the telephone subscriber who will be given the opportunity to correct the situation. The customer also has the right to bring a complaint to the FCC if he feels the disconnection is not warranted.

Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper operation of your equipment. If they do, you will be given advance notice so as to give you an opportunity to maintain uninterrupted service.

You should notify the telephone company if this equipment is removed from the premises and the telephone jack is no longer needed.

The FCC prohibits the connection of this equipment to party lines and the use of this equipment in conjunction with coin-operated telephone service.

An AC surge arrestor should be installed in the system's AC power outlet.

PART 15 NOTIFICATION

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

CANADIAN NOTICE

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction. Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations. Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment. Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The **LOAD NUMBER** (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all the devices does not exceed 100.

This equipment is a Class B Digital apparatus which complies with the radio interference regulations, CRC c. 1374.