®ADEMCO INSTALLATION INSTRUCTIONS

No. 4150 C-COM
CONTROL/COMMUNICATOR
Version 3

PRODUCT EXTENSIVELY REVISED.
MARGIN LINES INDICATE PRINCIPAL CHANGES IN THIS 8/87 ISSUE.

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I. GENERAL INFORMATION:

The No. 4150 Control/Communicator is a microcomputer based product which conveniently and economically combines the control panel and digital communicator into one package. This commercial-residential system provides every important feature required for a UL certified household fire/burglary alarm installation. **Note:** The telephone communication portion of the system is **not** part of a UL Listed household system.

A typical system installation includes a No. 4150 C-COM and up to four No. 4156 Remote Keypads.

The No. 4150 C-COM monitors all inputs and generates appropriate output signals for interior and exterior audible warning as well as for remote communication to a central alarm monitoring service.

The No. 4156 Remote Keypad(s) provide full system and individual zone status indication as well as system control. With the No. 4156, the system may be completely armed or just perimeter armed or disarmed. The entry delay may be turned off, zones may be shunted and user security codes may be changed. Two types of emergency alarms may be triggered (fire, silent or audible emergency). A built-in speaker provides audible trouble and annunciator functions.

II. SYSTEM DESCRIPTION

A. SYSTEM CHARACTERISTICS

1. Six independent wired zones, including five programmable zones and one fire zone, plus a seventh keypad activated zone.
2. Keypad individual LED display of the zone identification for alarms, alarm memory, and trouble conditions.
3. Three keypad arm/disarm codes - master code PROM selectable and secondary codes user changeable from keypad (each uniquely reported to central station with open/close reports).
4. Chime mode, user changeable duress code, individual zone shunting - additional keypad functions.
5. PROM variable entry/exit delay and alarm sounder timeout.
6. Alarm Relay output for audible alarms.
7. Arming status outputs with both polarities for memory control of motion detectors.
8. Power LED at the Remote Keypad to indicate that AC power is available and the battery is being charged.
9. TEST/RESET Key on Remote Keypad to check the fire system functions.
10. Multi-format communicator (Ademco Low Speed, SESCOA/Radionics).
11. Pulse dial call placement and data transmission.
12. Dual phone number calling with separate independent subscriber ID.
13. Double transmission message verification.
14. All reporting by zone for alarms, and restores.
15. Low battery reporting.
16. Dual, selectable voltage operation, 6 or 12 volts.

B. ZONE TYPES AND DEFINITIONS

The C-COM has 7 zones. The zones are configured as follows:

ZONE 1: FIRE ZONE - 24 hr. operation with trouble on open, alarm on short response. Pulsed alarm relay output. Alarm may also be activated by FIRE keys on keypad, if PROM enabled.

ZONE 2: PROGRAMMABLE ZONE - Alarm on short only.

ZONE 3: PROGRAMMABLE ZONE - Alarm on open only.

ZONES 4-6: PROGRAMMABLE ZONES - Alarm on open or short.

ZONE 7: PROGRAMMABLE ZONE - Alarm activated by EMERG keys on keypad.

Each programmable zone may be programmed to respond as one of the following zone types:

TYPE 1: AUDIBLE PANIC - Instant, 24. hr alarm with steady alarm relay output.

TYPE 2: SILENT PANIC - Instant, silent, 24 hr. alarm.

TYPE 3: ENTRY/EXIT BURG - Entry and Exit delayed alarm while system is armed. Silent alarm or steady alarm relay output by PROM selection (see note below).

TYPE 4: PERIMETER BURG - Instant alarm while system is armed. Silent alarm or steady alarm relay output by PROM selection (see note below).

TYPE 5: INTERIOR BURG - Exit delayed alarm while system armed. Entry delayed alarm if initial entry is through the entry/exit zone (instant alarm otherwise). Silent alarm or steady alarm relay output by PROM selection (see note below).

A programmable zone may also be programmed to make no response.

NOTE: The burglary zone types are programmable for silent alarm or steady alarm relay output as a group.

C. SYSTEM OPTIONS

The system can be configured in a number of ways. This allows the user to customize the system for his own particular needs. Before actually making the choices which affect how the system operates (See Section V PROM Programming), it is important to understand the options. The discussion that follows broadly divides those options into two categories: control options and communicator options.

Control Options:

1. Entry Delay, Exit Delay

The entry delay is the time between entering the premises and when the system must be disarmed to avoid activating an alarm. The exit delay is the time between arming the system and when the premises must be exited to avoid activating an alarm. The entry and exit delays may be independently PROM selected to be between 0 and 120 seconds in 8 second increments (45 seconds maximum for entry delay and 60 seconds maximum for exit delay when used in a household burglary UL Standard 1023 Listed application).

2. Communicator Delay

The system may be set up to delay the triggering of the communicator for burglary alarms by 15 seconds. This feature may be used to reduce false alarms due to user errors. See Communicator Options section for comments on open/close and trouble report communicator delays.

3. Bell/Siren Timeout

Bell/Siren audible indication may be PROM selected to last between 0 and 15 minutes in 1 minute increments (4 minutes minimum when used in a household burglary UL Standard 1023 Listed application), after which it "times out". The fire zone may be optionally selected to have its alarms **not** time out, wherein manual shutdown would be required to silence a fire alarm (for household fire UL Standard 985 Listed applications, the fire alarm **must not** time out).

4. Panic Zone Option

The system offers two panic zone types - silent panic and audible panic. A programmable zone may be configured as either type by PROM selection.

5. Burglary Zones Option

The system offers three burglary zone types - entry/exit, perimeter and interior. A programmable zone may be configured as any one of these types by PROM selection.

The burglary zones may be configured for silent or audible alarm by PROM selection for all of the burglary zones as a group (silent alarm may **not** be selected when in a household burglary UL Standard 1023 Listed application).

6. Security Code

This 4 digit code restricts the use of the system to only those who know the code. Any digits, including repetitions, may be chosen. There are three such codes (not including the duress code described below). One is PROM programmed at installation and the other codes are user changeable from a keypad at any time, using the master code to enable the change.

7. Duress Code

The duress code is a separate security code. Its purpose is to allow someone to initiate a silent panic condition but still give the impression that the control is working normally. For example, if one code is 1234 **and** the duress code is 1235, entering 1234 will cause the system to disarm, but entering 1235 (assuming one is in a hostage situation) will cause the system to disarm, but will also trigger the communicator to send a silent panic message.

If used with the No. 691 PROM (see Section V PROM PROGRAMMING), a Zone 2 report is transmitted. If used with the No. 696 PROM, a Zone 7 report is transmitted.

NOTE: If the user of the system inadvertently programs a duress code that is the same as the master code, the duress silent panic capability is suppressed to avoid the transmission of false alarms to the central alarm monitoring service.

8. Individual Zone Shunting

Individual zone shunting allows a user to arm the system even though certain burglary zones are faulted or will be later faulted and shouldn't cause an alarm. Such zones can be shunted while the system is disarmed by depressing the CMND and BYPASS keys and by then following with the number of the zone to be shunted. Note that 24 hr zones cannot be shunted.

9. Power Up Arm

The system may be PROM selected to power up in either the armed or disarmed state after an extended power outage during which AC power is lost and the back-up battery is depleted. Upon restoration of AC power, the keypad sounder will sound a steady low level tone for 1 minute. During this 1 minute period, the user may abort the power up arm sequence by pressing any key. At the end of this 1 minute period, the system will shunt any burglary zones which are faulted and will then arm itself. Bypass and closing reports are transmitted (if PROM enabled) to the central station. Code 9 will appear as the user number in extended closing reports to indicate to the central station that the system armed itself.

Communicator Options:

1. Communicator Enables

The system may be PROM programmed to transmit any combination of the following messages:

a) Open/Close Reports

A closing report, if PROM enabled, will be sent whenever the system is completely armed or just perimeter armed (i.e.: STAY mode operation) The communicator delay for closing reports is fixed at 15 seconds. The system may be disarmed during this period without either closing or opening reports being sent to the central station.

b) Extended Reports

If PROM enabled, the system will report additional information to the central station. This information includes:

(1) Zone identification associated with transmission of a Restore.

(2) User identification at the time of closing and opening.

Use of: secondary security code #1 is identified by "1"
secondary security code #2 is identified by "2"
master security code is identified by "4"

NOTE: Code 9 appears as the user # when the system powers up armed after an extended power outage.

c) Fire Trouble Reports

The system will transmit a trouble report, if PROM enabled, whenever a trouble condition is sensed in the fire zone and has been present for at least one minute. When the trouble condition has restored, and remained restored for 1-2 minutes, a restore message will be sent.

d) Cancel Report

If PROM enabled, the cancel report will be sent if a burglary alarm is turned off (cancelled) before the bell/siren times out. If opening reporting is enabled, the cancel report will be followed by an opening report. Cancel reporting does not apply for fire or panic alarms.

e) Duress Report

A duress report, if PROM enabled, will be sent whenever the system is armed or disarmed using secondary security code #3. This system code is reserved for duress alarm activation.

NOTE: Duress reports are not accompanied by either opening or closing reports.

f) Test Report

As delivered,the system has the capability to transmit a manually initiated (CMND+ "5" keys) Test report to the central station if the reporting code for Test is PROM programmed. If it is desired to send the Test report automatically, as a means to verify that the communications link between the protected premises and the central station is operative, a second PROM option is offered - 24 hour test. With this option selected, the system initiates a Test message call every 24 hours, starting 12 hours after the time of installation.

This option goes into effect at installation time if PROM enabled. If any other transmission is sent by the system during the ensuing 24 hour period (e.g. open and closing reports), then the test message is not sent.

2. Report to Secondary (Primary) Phone Number Also

The system allows for the various communicator reports to be divided between two central stations (or two receivers). This is done in some situations where, for example, all alarms may be routed to a primary alarm receiver while non-critical items, such as troubles or

opening and closing reports, might be routed to a secondary receiver.

- **Primary Phone Number Assignment**
  Fire, Zone 2 Alarm, Zone 3 Alarm, Zone 4 Alarm, Zone 5 Alarm, Zone 6 Alarm, Zone 7 (EMERG Keys) Alarm and Cancel.
- **Secondary Phone Number Assignment**
  Open, Close, Restore, Low Battery, Trouble, Test, Bypass

It is possible to PROM select, by specific report, which reports are desired to be sent to the other phone number too (e.g. Restore).

3. Communicator Code Assignment

Each alarm zone in the system may be assigned its own communicator code. How the zones are assigned to codes affects the reports that will be sent. As an example, each zone could be given a different communicator code for unique zone reporting. Or the zones could be grouped by function with duress/silent panic (common reporting code) zones as Code 2, the fire zone as Code 1, and the burglary zones as Code 3 (this would allow the system to be compatible with an existing central station alarm code scheme).

4. Communicator Format

Individually selectable for primary and secondary telephone numbers - Ademco Low Speed or SESCOA/Radionics.

D. ZONE RESTORE/SWINGER SHUTDOWN

Once a zone is faulted, it will be re-enabled for local alarm sounding at timeout or whenever it becomes intact, whichever is later. It will be re-enabled for central station reporting only after it has remained intact for at least 1-2 minutes. A restore message will be sent, if PROM enabled, to the central station at this time.

NOTE: If two or more zones are PROM assigned the same alarm reporting code, then multiple restores using this code will be transmitted.

The 1 minute communicator disable, in conjunction with automatic shutdown of a zone after it reports 3 alarms within a single armed period, is intended to prevent annoyance calls to the central station for swinging zones. The shutdown of the zone is accomplished by automatic bypass of the zone after the 3rd alarm report, indicated by the BYPASS LED lighting steadily.

Central station reporting for fire and panic alarms will be re-enabled 1-2 minutes after a security code is entered to silence these types of alarms (provided that zone is not faulted during the 1-2 minute period).

III. FUNCTIONAL DESCRIPTION, No. 4156 REMOTE KEYPAD (See Diagram 4)

A. KEYPAD and LEDs:

Keys 0-9: These are used to enter the arm/disarm security code(s) and the duress code.

STAY Key and LED (Yellow): When depressed subsequent to depression of the CMND Key in the disarmed state, shunts the interior burglary zone. The STAY LED is lit then and remains lit when the system is armed. This LED also has a secondary designation as the Zone 2 LED. When the ZONE DISPLAY key is held depressed, this LED indicates the state of Zone 2, providing current violation status (on steady) as well as memory of alarm (flashing). The latter is not cleared until the system is next armed.

POWER LED (Green): This LED indicates the presence of AC power to operate the system. The LED will immediately flash when AC power is lost and the system is operating from its standby battery.

This LED also has a secondary designation as the Zone 6 LED. When the ZONE DISPLAY key is held depressed, this LED is on steady for current violation and flashes for memory of alarm on Zone 6. The latter indication is not cleared until the system is next armed.

BYPASS Key and LED (Yellow): Depression of the CMND and BYPASS keys causes the system to enter the bypass mode. While in this mode, the BYPASS LED will flash as confirmation that the mode is in effect. A flashing zone LED indicates that a zone is faulted and not yet shunted while a steadily lit LED indicates that a zone is shunted. A zone may be shunted or unshunted by depressing the key corresponding to its zone number. Note that zones may be shunted only while the system is disarmed and that 24 hour zones may not be shunted.

The bypass mode is exited by depressing the CMND key. The bypass mode will be exited automatically if no key is depressed for at least 30 seconds. Once the mode is exited, the BYPASS LED will be on steady if one or more zones were shunted. Note that all shunts are removed automatically when the system is disarmed.

A bypass report is transmitted along with a closing report (if PROM enabled) at arm time if one or more zones were shunted. A bypass restore report is transmitted along with an opening report (if PROM enabled) at disarm time if any shunts were in effect.

INSTANT Key and LED (Yellow): When depressed subsequent to entry of the security code and the CMND key, the burglary system will arm with the entry delay disabled on the entry/exit and interior zones, making them instant alarm zones for subsequent entry. The INSTANT LED is lit when the system is in this mode. The entry delay for these zones is restored subsequent to the system being disarmed. This LED also has a secondary designation as the Zone 5 LED. When the ZONE DISPLAY key is held depressed this LED is on steady for current violation and flashes for memory of alarm on Zone 5. The latter indication is not cleared until the system is next armed.

CODE Key: When depressed prior to entry of the master security code, will permit the immediate (within 10 seconds after master code entry) entry of a code designation (1, 2, or 3) and a secondary user changeable 4 digit security code. The code designation of 3 is used for entry of the duress code. The duress code permits the performance of all of the functions of the master code except secondary code change. The other secondary codes permit the performance of all of the functions permitted by the PROM programmed master code except secondary code change. Repeating digits are permitted in code entries.

CHIME Key: When depressed subsequent to depression of the CMND Key during the disarmed state, will cause entry to a mode where any fault in the Entry/Exit Burglary Zone will cause a brief loud tone to be heard at each remote keypad. The mode can be left by subsequent redepression of the CMND and CHIME keys. The CHIME mode is in effect during the armed state but is not heard because the entry delay warning sound overrides the other sound.

READY LED (Green): The READY LED is lit whenever all burglary zones are intact (ready for arming) during the disarmed state. It is off whenever a zone fault is present. This LED flashes as a memory of alarm indication (along with the ARM LED) in the armed state for audible alarms. This memory of alarm indication is removed by entry of the security code. This LED also has a secondary designation as the ZONE 3 LED. When the ZONE DISPLAY key is held depressed, this LED is on steady for current violation and flashes for memory of alarm on Zone 3. The latter indication is not cleared until the system is next armed.

FIRE and FIRE Keys: Simultaneous depression of both keys causes manual activation of the fire alarm (if PROM enabled).

EMERG and EMERG Keys: Simultaneous depression of both keys causes manual activation of a Panic Zone alarm (audible or silent as a function of zone programming) or no action (dependent upon programming).

TROUBLE LED (RED): If one or more of the following conditions has occurred, the TROUBLE LED will be lit steadily and an audible trouble signal (short beep) will be heard every 15 seconds:

(1) An open circuit occurs in the fire zone.
(2) A security code is entered subsequent to a fire or panic zone violation and the zone is still violated.

If one or more of the following conditions has occurred, the TROUBLE LED will flash and no audible trouble signal will be heard:

(1) The fire circuit fails to reset following the silencing of a fire alarm using the TEST/RESET command (see below).
(2) The fire zone remains faulted after the fire alarm has timed out (if time out is PROM enabled).
(3) The audible trouble signal is silenced using the TEST/RESET command but steady LED and intermittent beep may return after 24 hours if the condition remains. (see below).

The TROUBLE LED will turn off as soon as the condition that caused it to be lit is eliminated.

This LED also has a secondary designation as the Zone 4 LED. When the ZONE DISPLAY key is held depressed, this LED is on steady for current violation and flashes for memory of alarm Zone 4. The latter indication is not cleared until the system is next armed.

TEST/RESET Key: If neither a fire alarm or trouble condition exists, depression of this key subsequent to depression of the CMND key will cause fire test to be performed. AC derived power is automatically turned off (POWER LED will flash) so that the alarm sounder is powered for a 2 second test from the standby battery. During the test, the TROUBLE LED will flash for 14 seconds. If TROUBLE LED flashes but alarm sounder fails to sound, battery must be checked as it may be disconnected or may not be fully charged.

If there is trouble on the fire or the panic zones, the TROUBLE LED will be lit and a short beep will be heard every 15 seconds. Depression of the CMND and TEST/RESET keys will silence the beep and cause the TROUBLE LED to flash for 24 hours or until the trouble condition is removed, whichever occurs sooner. In this condition, the alarm sounder will not sound. If the condition remains after 24 hours, the LED will light steadily again, accompanied by the audible trouble beep.

If there is a fire alarm present, depression of the CMND and TEST/RESET keys will silence the alarm and reset the fire circuit. The TROUBLE LED will flash while the fire circuit is being reset. If the flashing indication does not turn off within 14 seconds, the fire circuit has failed to reset. The ARM and READY LEDs will flash as memory of alarm indications until a security code is entered.

4 (INSTALLER TEST) Key: Depression of this key, subsequent to depression of the CMND key during the disarmed state, will place the burglary system into an Installer Test mode. Any violation of a burglary zone will cause the alarm sounder to activate briefly. While the system is in this mode, depression of any key will terminate the mode.

5 (COMMUNICATOR TEST) Key: Depression of this key, subsequent to depression of the CMND key at any time, will cause a test report to be made to the central alarm monitoring service (assuming that the Test Report was PROM enabled).

ARM LED (Red): The ARM LED is lit whenever the burglary system is either completely armed or just perimeter armed (i.e. STAY mode operation). This LED flashes as a memory of alarm indication (applies only for audible alarms). The ARM LED also flashes after arming during the exit delay period. It is off when the system is disarmed except as a memory of alarm indication for fire or audible panic. This LED also has a secondary designation as the Zone 1 (Fire) LED. When the ZONE DISPLAY key is held depressed, this LED is on steady for a current Zone 1 trouble condition and flashes for memory of alarm on Zone 1. The latter indication is not cleared until the system is next armed.

B. AUDIBLE SIGNALS

Invalid Code Entry:	5-6 consecutive brief beep tones.
System Armed:	One beep tone.
Trouble:	Brief beep tone every 15 seconds for a fire zone trouble, or for a fire or panic zone violation at power-up or after alarm silencing.
Entry Warning:	Steady tone activated during the entry delay period.
Chime Annunciation:	Single beep tone each time Entry/Exit Burglary Zone is faulted when in this mode.
Key Depression Feedback:	Brief beep tone for each key not in the dual key panic section of the keypad.
Power Up Arm:	Steady tone sounded for 1 minute when AC power returns following an extended power outage, during which back-up battery was fully depleted.

IV. COMMUNICATOR OPERATION (This portion of the system is not UL Listed.)

The communications capability of the system links it with a monitoring central station using the telephone switched network. When alarm, trouble, or status information is to be communicated, it is translated into a message appropriate to the format selected via the various PROM options described previously. The system then seizes the phone line.

A. LINE SEIZURE

A Double Pole Double Throw relay disconnects all extension phones on this telephone line so that the communicator cannot be blocked by outgoing calls or by a phone left off hook. The system then executes a short hang-up, to insure a disconnect in case an outgoing call was being made, and attempts to establish a communication link. If the system is unsuccessful in establishing the link, an anti-jam procedure is executed (only effective if the telco network used features "called party disconnect").

B. ANTI-JAM

Many U.S. telephone networks will automatically disconnect the calling party if the called party hangs up for a period of time. The system automatically executes a 25 second anti-jam (hang up) **AFTER** the first call attempt and each successive call to prevent any incoming calls from blocking transmission.

The communicator link is established in the following manner. The system checks for a dial tone.

C. DIAL TONE DETECTION

In order to reduce response time, the system senses the **initial** local (PABX) or external (telco) dial tone. If a dial tone is detected, the system dials using the rotary dial format. If a dial tone is not detected within a PROM programmed waiting period, the system will dial anyway, as it assumes that a good connection has been made and that the dial tone is not clear.

The waiting periods for the **initial** dial tone are:

- 7 seconds - for quick disconnect PABX system (only if PABX access code is PROM programmed).
- 7 seconds - for normal response telco systems (PROM selectable).
- 25 seconds - for slow response telco systems (PROM selectable).

NOTE: If a PABX access code is programmed, then a 7 or 25 second pause, whichever is PROM programmed, is executed before the external Telco digits are dialed.

The system dials up to two separate 15 digit telephone numbers. It may be programmed to do this in a number of ways.

D. PROM CALLING OPTIONS

- **Dual Report** - Alternate between first and second number until one sends kissoff and then concentrate on calling the other until the maximum number of attempts is reached.
- **Primary Number Only** - Certain alarm code/channels report only to the primary number (e.g. fire zone alarms, etc...).
- **Second Number Only** - Certain alarm code/channels report only to the second number (e.g. open/close reports).

Successful connections are verified when the system receives an acknowledgment tone from the central station receiver. If this tone is not received within a defined period, the system will disconnect from the line and wait 30 seconds before trying again. The calling procedure will be repeated in varying combinations, as programmed, until a successful link is established or until the maximum number of attempts is reached.

E. ACKNOWLEDGE WAIT

- 60 seconds - standard.

Message transmission will begin when the acknowledgment is received.

F. TRANSMISSION FORMAT PROM OPTIONS

- Ademco Low Speed (10 pulses per second), 1400 Hz ACK/Kissoff.
- SESCOA/Radionics (20 pulses per second), 2300 Hz ACK/Kissoff.

NOTE: Extended reporting from each of the above formats is separately PROM selectable.

To ensure proper transmission, each message is sent up to four times. As soon as the central station receiver verifies the message, it sends a "Kissoff" tone to the system.

G. MESSAGE VERIFICATION

- Two successive identical messages - Ademco No. 673 and 685 receivers as well as Adcor, Franklin, Radionics, SESCOA, Silent Knight, and Vertex receivers.

If the system does not receive the Kissoff tone, it will disconnect and dial again. It will make up to 8 attempts to obtain kissoff via the primary and secondary phone numbers.

H. ADEMCO LOW SPEED REPORTING FORMAT

This message consists of either 3 or 4 digits (blank unencoded digits are not transmitted) of the subscriber identification number and a single digit alarm code, PROM assigned to that alarm/trouble/status report.

If more than one alarm is triggered, the alarms will report in following order: fire, Zone 2 alarm, Zone 3 alarm, etc. unless the subsequent alarms trigger while one or more alarm messages have **already commenced** transmission. Up to four alarms may be stacked for transmission. Each message must receive kissoff before the next is sent.

Example: If codes 3 and 6 of Subscriber 890 are to be reported, the system will respond as follows:

890 3	890 6
890 3*	890 6*
Kissoff	Final kissoff (system hang- up)

*Reflects that two identical messages verification is used.

Optional Extended Reporting Capabilities

Extended reporting operates as follows for each of the below cited examples:

- **Alarm Restoral**

Message Sent = 890 R
RRR A

Where: R = Restoral code selected
A = Alarm code PROM assigned to restored zone
890 = Sample Subscriber Account Number

- **Trouble Restoral**

Message Sent = 890 R
RRR T

Where: R = Restoral code selected
T = Trouble code selected.

- **User Identification at Open/Close**

Message Sent = 890 C
CCC U

Where: C = Closing code selected
Where: U = User ID number, 1, 2, 4, or 9 (1 = Secondary Code #1, 2= Secondary Code #2, 4 = Master Code, 9 = system powered up in armed state following extended power outage)

NOTE: Similar for Opening report except that Closing Code is replaced by the Opening Code

- **Shunted Zone Report**

Message Sent = 890 B
Where: B = Bypass Code selected

NOTES: 1. This report is sent regardless of whether standard or extended format is PROM selected.
2. This report is not sent if STAY arming is utilized.

- **Shunted Zone Restore Report**

Message Sent = 890 R (standard format)
890 R (extended format)
RRR B

Where: R = Restoral Code selected
B = Bypass Code selected.

- **AC Power Restoral**

Message Sent = 890 R
RRR L

Where: L = Low battery/AC loss Code selected
R = Restoral Code selected

NOTES: The system sends a true low battery report but the restoral report transmitted is for the restoration of AC power.

I. SESCOA/RADIONICS REPORTING FORMAT

The message structure used for this format is similar to that used for the Ademco Low Speed format. However, the full hexadecimal code set (0-9, A-F) can be used. It should be noted that the hexadecimal code set can be used for the Ademco Low Speed format but only on receivers capable of decoding, displaying and printing the message data (the No. 660/673 Receivers can only accommodate the code set of 1-9).

Two options are available (when the No. 696 PROM is used), depending upon the model of SESCOA receiver being used. Current models can utilize fixed interdigit timing, whereas older models require the use of variable interdigit timing (to shrink the overall digit-to-digit time to an acceptable level). See No. 696 PROM Programming Step 21.

It should be further noted that the following report code assignments are required for the Radionics format in order to attain the appropriate English language printout and display at the Radionics No. 6000 receiver. They apply as well to the Ademco Low Speed and Radionics formats for English language printout at the Ademco No. 685 Receiver.

B = Open
C = Close
D = Cancel
E = Restore
F = Trouble

NOTE: If a burglary alarm transmission is in process and the security code is entered at a 4156, the unit will continue the transmission and then send a Cancel report. Any other burglary reports awaiting transmission are cancelled. 24 hour reports (fire, panic) will not be cancelled.

V. PROM PROGRAMMING

The system employs either of two PROM integrated circuits for selection of system options. A No. 696 (blank) or 696P1 (Ademco programmed to customer order) PROM is used if the installer desires to program zone type for each of the programmable zones. The No. 696 PROM may be programmed using a NAPCO PRO 410 Programmer or an Ademco No. 699 Intelligent Programmer.

A No. 691 (blank) or 691P1 (Ademco programmed to customer order) PROM is used if the installer desires the C-COM software to automatically configure the zones as follows:

ZONE 1: FIRE
ZONE 2: PANIC, SILENT or AUDIBLE by PROM selection
ZONE 3: PERIMETER BURG #2
ZONE 4: ENTRY/EXIT BURG
ZONE 5: PERIMETER BURG #1
ZONE 6: INTERIOR
ZONE 7: Same as Zone #2

SILENT or AUDIBLE by PROM selection as a group

Note also that when a No. 691 PROM is used, Trouble and Trouble Restore reports are transmitted in place of Bypass and Bypass Restore reports. The latter can be suppressed (no report for a bypass or its restoral) via a PROM option (see No. 691 PROM programming Data Group 1).

The No. 691 PROM may be programmed using the Ademco No. 690 PROM Programmer.

Fill out the appropriate programming sheets and keep as a record of the system's configuration.

CUSTOMER NAME _____ CUSTOMER NO. _____

CUSTOMER ADDRESS _____

_____

_____

A: No. 691 PROM USED

NOTE: Program the numbers that you write into the boxes.

PROM Data Group 1

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 1 ("Access #") on No. 690 PROM Programmer.

PABX Access Code (Select from 0 - 9): ☐ ☐ ☐

Delay/Panic/Bypass Options:

The standard external Telco dial tone wait period to initiate a telephone connection is 7 seconds. It is possible, however, to optionally select an extended dial tone wait period of 25 seconds for slowly responding Telco systems.

Normal Burglary reporting is instantaneous upon tripping of the alarm. It is possible, however, to optionally select a 15 second delay in the reporting of the burglary alarm to the Central Alarm Monitoring Service so as to give the user an opportunity to turn off the system subsequent to a false alarm prior to alerting the Central Alarm Monitoring Service. All closing reports are automatically delayed by 15 seconds. All trouble reports are automatically delayed by 60 seconds.

The panic zone needs to be programmed for either silent alarm or audible alarm operation.

The transmission of a trouble report at closing time if a zone has been bypassed can be enabled or disabled.

Bit Value		Enter Bit Values Selected
1	Select if 25 second Dial Tone Wait is to be used (Do not select if 7 second Dial Tone Wait is to be used).	_____
2	Select if Burglary Reporting is to be delayed by 15 seconds (Do not select if Burglary Reporting is to be instantaneous).	_____
4	Select if Panic Zone Response is to be Audible (Do not select if Panic Zone Response is to be silent alarm).	_____
8	Select if trouble reporting is to be suppressed when the system is armed with a zone bypassed.	_____
	Add the values selected	*| ____ |

***Notes:** 1. If this total is greater than 9, a two pass programming procedure will be required for this data group. On the first pass, program the PABX Access Code plus the appropriate first pass entry shown below. On the second pass, **repeat** the same PABX Access Code entry and then the second pass entry shown below.

FOR TOTAL:	10	11	12	13	14	15
PROGRAM:						
First Pass:	2	3	4	5	6	7
Second Pass:	8	8	8	8	8	8

2. If it is desired to program fewer than three PABX digits **AND** it is desired to program this number, follow this procedure (for each pass): Program the one or two PABX digits. Press down on the PROM PROGRAMMER's "VIEW" button (labeled "*") and release it when a buzzing sound is heard. Again, press down on the VIEW button, but this time release it only after the display has flashed three times. The programmer is now ready to accept the digit to be programmed. If a second pass is required (per Note 1), repeat this entire step for the second pass entry.

PROM Data Group 2

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 1 ("Access #") on No. 690 PROM Programmer.

Master Security Code (Select from 0 - 9 digit set, repeating digits permitted).

☐☐☐☐

PROM Data Group 3

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 2 ("Main #").

Primary Telco Number (Select from 0 - 9):

(leave unused digits blank)

☐☐☐☐☐☐☐☐☐☐☐☐

PROM Data Group 4

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 2 ("Main #").

Secondary Telco Number (Select from 0 - 9): See Note 3 under PROM Data Group 7 (leave unused digits blank)

☐☐☐☐☐☐☐☐☐☐☐☐

PROM Data Group 5

To program, set Phone No. Selector Switch to "Primary" and Rotary Switch to Position 3 ("Subs ID#").

Primary Subscriber I.D. (Select from 0 - 9): See Note 1 under PROM Data Group 7

☐☐☐☐

PROM Data Group 6

To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 3 ("Subs ID#").

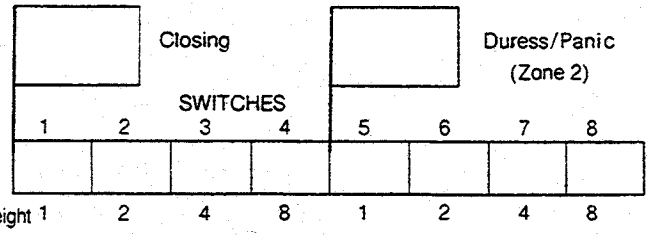
Secondary Subscriber I.D. (Select from 0 - 9): See Notes 1, 3 under PROM Data Group 7

☐☐☐☐

PROM Data Group 7

To program, set Rotary Switch to Position 4 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Reporting Codes for Closing and Duress/Panic (Select from 0 - 9, B -F):



(ex: 7 = 1+2+4, B = 1+2+8, C = 4+8, D = 1+4+8. See chart at end of this section)

NOTES: 1. Leave 4th digit blank if only 3 subscriber I.D. digits are to be reported in the communicator message.

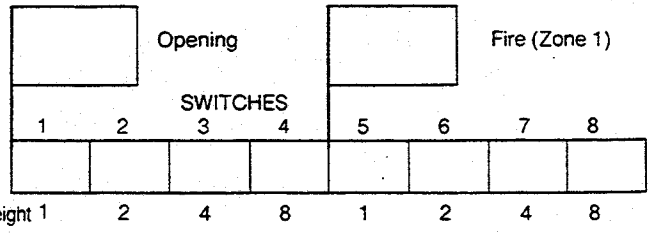
2. Central station reporting of trouble, burglary alarms, fire and panic alarms, etc. can be disabled if the corresponding reporting code is left blank (i.e. unprogrammed).

3. If it is desired to have the communicator report all messages to a single receiver, the secondary telco number and subscriber I.D. should be programmed the same as the primary telco number and subscriber I.D. The PROM locations for primary number only and secondary number only reporting options should be left unprogrammed.

PROM Data Group 8

To program, set Rotary Switch to Position 5 ("Sys Options") and raise switches for checked boxes representing bits set within the hexadecimal code.

Reporting Codes for Opening and Fire (Select from 0 - 9, B - F):



PROM Data Group 9

To program, set Rotary Switch to Position 6 ("Inverted") and raise switches for checked boxes representing bits set within the hexadecimal code.

Alarm Sounder Timeout (Select from 0 - 15 minutes) **and Reporting Code for Cancel** (Select from 0 - 9, B - F):

Note: 4 minutes minimum timeout for household UL Listed applications.

Alarm Sounder Timeout				Cancel			
SWITCHES 1	2	3	4	5	6	7	8
Bit Weight 1	2	4	8	1	2	4	8

PROM Data Group 10

To program, set Rotary Switch to Position 7 ("16 sec Delay") and raise switches for checked boxes representing bits set within the hexadecimal code for switches 1 - 4 and set other switches for checked boxes as indicated.

Exit Delay Time (Select 0 - 15 times 8 secs) **and Communicator Report to Second Telephone Number ALSO:** (Check reports for which desired)

(0 - 15) **Note:** 7 max. (60 secs. max. allowable) for household burglary UL Listed applications.

	SWITCHES 1	2	3	4	5	6	7	8
Exit Delay Time (increments of 8 seconds)					FIRE (ZONE 1)	DURESS PANIC (ZONE 2)	PERIMETER #2 BURG (ZONE 3)	ENTRY/ EXIT BURG (ZONE 4)
Bit Weight	1	2	4	8	REPORT TO SECONDARY TELCO NUMBER **IN ADDITION** TO PRIMARY NUMBER			

PROM Data Group 11

To program, set Rotary Switch to Position 8 ("Secondary # Only") and raise switches for checked boxes representing bits set within the hexadecimal code for switches 1 - 4 and set other switches for checked boxes as indicated.

Entry Delay Time (Select 0 - 15 times 8 secs.) **and Communicator Report to Second Telephone Number ALSO:** (Check reports for which desired)

(0 - 15) **Note:** 5 max. (45 secs. max. allowable) for household burglary UL Listed applications.

	SWITCHES 1	2	3	4	5	6	7	8
Exit Delay Time (increments of 8 seconds)					PERIM. #1 BURG (ZONE 5)	INTERIOR BURGLARY (ZONE 6)	KEYPAD EMGY KEYS (ZONE 7)	CANCEL
Bit Weight	1	2	4	8	REPORT TO SECONDARY TELCO NUMBER **IN ADDITION** TO PRIMARY NUMBER			

PROM Data Group 12

To program, set Rotary Switch to Position 9 ("Open/Close") and set switches for checked boxes.

Reporting Characteristics and Formats and Communicator Report to Primary Telephone Number ALSO (Check as desired):

SWITCHES	1	2	3	4
	PRIMARY TELCO NO. FORMAT	SECONDARY TELCO NO. FORMAT	EXTENDED REPORTING PRIMARY TELCO NUMBER	EXTENDED REPORTING SECONDARY TELCO NUMBER
	SESCOA RADIONICS	SESCOA RADIONICS		
BIT SET (RAISE SWITCH)				
BIT NOT SET (SWITCH DOWN)				
	ADEMCO	ADEMCO		

	5	6	7	8
	OPEN	CLOSE	RESTORE	LOW BATTERY
BIT SET (RAISE SWITCH).				
	REPORT TO PRIMARY TELCO NUMBER **IN ADDITION** TO SECONDARY NUMBER			

PROM Data Group 13

To program, set Rotary Switch to Position 10 ("Restore") and set switches for checked boxes as indicated.

Miscellaneous Audible Options and Communicator Report to Primary Telephone Number ALSO (Check as desired):

SWITCHES 1	2	3	4
POWER UP ARMED	AUDIBLE* BURGLARY ALARM	DISABLE KEYPAD FIRE KEYS	FIRE** ALARM SOUNDING TIMEOUT

5	6	7	8
TROUBLE (WHEN SENT FOR A BYPASS)	TROUBLE	TEST (MANUAL OR 24 HOUR)	24 HOUR TEST REPORT ENABLE
REPORT TO PRIMARY TELCO NUMBER **IN ADDITION** TO SECONDARY NUMBER			

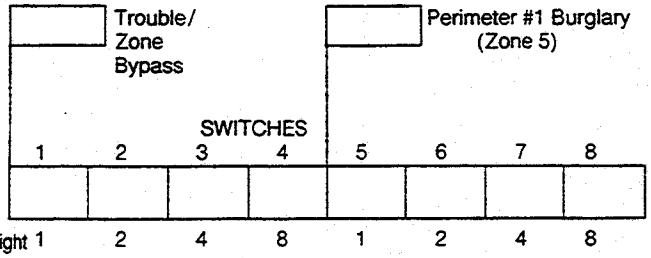
***Must** be audible for household burglary UL Listed applications.
****No** timeout must be selected for household fire UL Listed applications.

PROM Data Group 14

To program, set Rotary Switch to Position 11 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Reporting Codes for Trouble/Zone Bypass and Perimeter #1 Burglary (Select from 0 - 9, B - F)

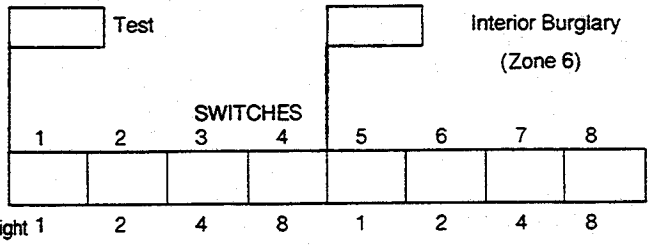
Note: Trouble is transmitted when the system is armed and a zone has been bypassed (as an indication of that bypass).



PROM Data Group 15

To program, set Rotary Switch to Position 12 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

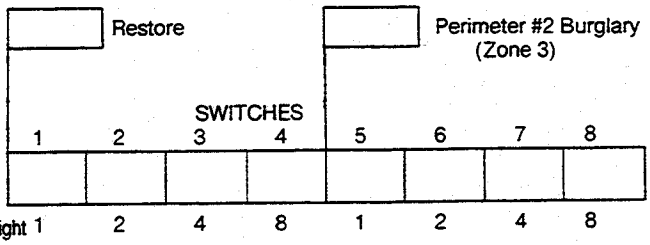
Reporting Codes for Test and Interior Burglary (Select from 0 - 9, B - F)



PROM Data Group 16

To program, set Rotary Switch to Position 13 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

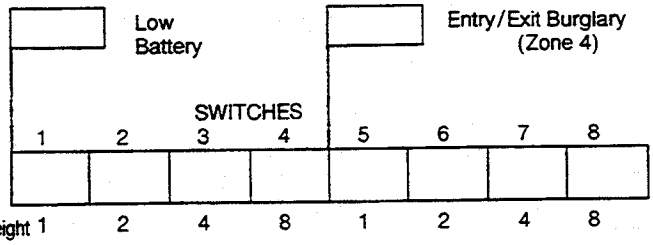
Reporting Codes for Restore and Perimeter #2 Burglary (Select from 0 -9, B - F)



PROM Data Group 17

To program, set Rotary Switch to Position 14 ("Not Used") and raise switches for checked boxes representing bits set within the hexadecimal code.

Reporting Codes for Low Battery and Entry/Exit Burglary (Select from 0 -9, B - F)



Hexadecimal Coding Chart

Code	Bit Weight 1	2	4	8
0 (10)		✓		✓
1	✓			
2		✓		
3	✓	✓		
4			✓	
5	✓		✓	
6		✓	✓	
7	✓	✓	✓	
8				✓
9	✓			✓
B (11)	✓	✓		✓
C (12)			✓	✓
D (13)	✓		✓	✓
E (14)		✓	✓	✓
F (15)	✓	✓	✓	✓

CAUTION: Throughout these reporting selections, the ability to select full Hexadecimal reporting codes is indicated. Make sure that the receiver, into which your signals are being reported, is capable of accommodating such reporting. For example, the Ademco No. 660/673 is only capable of accepting 1 - 9 for all reporting codes.

B. No. 696 PROM USED

If Ademco's No. 699 Intelligent Programmer is used, the instructions for programming the PROM are provided with the No. 695-50 Programming Cartridge.

If NAPCO's PRO-410 Programmer is used, the following instructions apply:

CUSTOMER NAME _____ CUSTOMER NO. _____

CUSTOMER ADDRESS _____

_____

_____

1. **MASTER SECURITY CODE**

LOCATION 000 001 002 003

Select from 0-9
(**NOTE:** first digit location = 000)

2. **SECONDARY TELCO NUMBER**

LOCATION 004 005 006 007 008 009 010 011 012 013 014 015

(**NOTE:** first telco digit location = 004)
Select from 0-9

NOTE: If it is desired to have the communicator report all messages to a single receiver, the secondary telco number should be programmed the same as the primary telco number. PROM locations 060, 061, 062 should not be programmed and only the Bit Value 8 selection in location 063 need be considered.

3. **PRIMARY SUBSCRIBER ID**

LOCATION 016 017 018 019

Select from 0-9, B-F (not Ø)
(**NOTE:** first subs. ID digit location = 016)

NOTE: Leave the 4th digit blank if only 3 subscriber ID digits are to be reported.

4. **REPORTING CODES** (GROUP 1)

	Code	Location
Opening		020
Closing		021
Restore		022
Low Battery		023
Factory Use	F	024
Trouble		025
Test		026

Location 024 must be programmed as 'F' by the installer for proper product operation.

Notes: 1. Select from Closing 0-9, B-F (not Ø)
2. Central station reporting of any of these codes can be disabled if the reporting code is left blank (i.e. unprogrammed)

HEXADECIMAL CONVERSION CHART

If:	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Enter: Ø = blank	Ø	1	2	3	4	5	6	7	8	9	0	B	C	D	E	F

5. **ALARM SOUNDER TIMEOUT** (hex.) LOCATION 027 ____ Select from 1-15 minutes (4 minutes min. for household UL Listed applications)

6. **EXIT DELAY TIME** (hex.) LOCATION 028 ____ Select from 1-15 (x 8 secs.). (60 secs. max. for household burglary UL Listed applications)

7. **ENTRY DELAY TIME** (hex.) LOCATION 029 ____ Select from 0-15 (x 8 secs.). (45 secs. max. for household burglary UL Listed applications)

8. **REPORTING CHARACTERISTICS** (hex.) LOCATION 030 ____

Bit Value		Enter Bit Values Selected
1	**Select** if Primary Telco Number Format is SESCOA/ Radionics (Do not select if Ademco is used)	____
2	**Select** if Secondary Telco Number Format is SESCOA/ Radionics. (Do not select if secondary is not used or if Ademco is used).	____
4	**Select** if Extended reporting to Primary Telco No. of Restores and Open/Close is desired. (Do not select otherwise)	____
8	**Select** if Extended reporting to Secondary Telco No. of Restores and Open/Close is desired. (Do not select otherwise)	____
	Add the Values Selected	____ convert to hex.

9. **MISCELLANEOUS AUDIBLE OPTIONS** (hex.)

LOCATION 031 ____

Bit Value		Enter Bit Values Selected
1	**Select** if it is desired to have the system power-up armed after a total power outage. (Do not select if power up disarmed is desired.	____
2	**Select** if Audible Burglary alarm is desired. (Must select if used in a household burglary UL Listed application).	____
4	**Select** if the Console FIRE panic keys are to be disabled. (Do not select if they are to be enabled).	____
8	**Select** if Fire Alarm Sounder Timeout is desired. (Do not select if indefinite fire sounding is desired or as required by UL for a Listed household fire application.)	____
	Add the Values Selected	____ convert to hex.

10. **PABX ACCESS CODE** LOCATION 032 033 034 ____

Select from 0-9
(**NOTE:** first digit location = 032)

NOTES: 1. Leave blank (unprogrammed) if not used.
2. Leave unused digits blank (if code is 9, enter 9ØØ)

11. **DELAY OPTION** LOCATION 035 ____ Select from Ø 1, 2, or 3

Instant Burglary Report, 7 second Dial Tone Wait = Ø
Instant Burglary Report, 25 second Dial Tone Wait = 1
Delayed (15 sec.) Burglary Report, 7 second Dial Tone Wait = 2
Delayed Burglary Report, 25 second Dial Tone Wait = 3

Closing Reports are automatically delayed by 15 seconds and Trouble Reports are automatically delayed by 60 seconds.

12. **PRIMARY TELCO NUMBER**

LOCATION 036 037 038 039 040 041 042 043 044 045 046 047 ____

(**NOTE:** first telco digit location = 036)
Select from 0-9

13. **SECONDARY SUBSCRIBER ID** LOCATION 048 049 050 051 ____

Select from 0-9, B-F (not Ø)
(**NOTE:** first subs ID digit location = 048)

NOTES: 1. Leave the 4th digit blank if only 3 subscriber ID digits are to be reported
2. If it is desired to have the communicator report all messages to a single receiver, the secondary subscriber ID should be programmed the same as the primary subscriber ID. PROM locations 060, 061, 062 should not be programmed and only the Bit Value 8 selection in location 063 need be considered.

14. **REPORTING CODES** (Group 2)

	Code	Location	
Zone 1 Alarm		052	
Zone 2 Alarm		053	
Zone 3 Alarm		054	
Zone 4 Alarm		055	
NOT USED		056	**Skip this location**
Zone 5 Alarm		057	
Zone 6 Alarm		058	
Cancel		059	

See Next Page

Notes: 1. Select from 0-9, B-F (not ⌀)
2. Central station reporting of any of these codes can be disabled if the report code is left blank (i.e. unprogrammed)
3 **Location 056 is not to be used.**

15. **ADDITIONAL ROUTING OF REPORTS TO SECONDARY NUMBER** (hex.)

LOCATION 060

Select if it is desired to **also** route these Alarm Reports to the Secondary Phone Number (Dual Report). Do not select otherwise.

Bit Value	Report	Enter Bit Values Selected
1	Zone 1	
2	Zone 2	
4	Zone 3	
8	Zone 4	

Add the Values Selected ____ convert to hex.

6. **ADDITIONAL ROUTING OF REPORTS TO SECONDARY NUMBER** (hex.)

LOCATION 061

Bit Value	Report	Enter Bit Values Selected
1	Zone 5	
2	Zone 6	
4	Zone 7 Console Emgy Keys)	
8	Cancel	

Add the Values Selected ____ convert to hex.

7. **ADDITIONAL ROUTING OF REPORTS TO PRIMARY NUMBER** (hex.)

LOCATION 062

Bit Value	Report	Enter Bit Values Selected
1	Open	
2	Close	
4	Restore	
8	Low Battery	

Add the Values Selected ____ convert to hex.

3. **ADDITIONAL ROUTING OF REPORT TO PRIMARY NUMBER AND 24 HOUR TEST REPORT ENABLE** (hex.)

LOCATION 063

Bit Value	Report	Enter Bit Values Selected
1	Bypass	
2	Trouble	
4	Test	
8	**Select** if **automatic** 24 hour Test Report is desired (Do not select otherwise).	

Add the Values Selected ____ convert to hex.

19. **ZONE TYPE SELECTION**

	Type	Location
Zone 2		064
Zone 3		065
Zone 4		066
Zone 5		067
Zone 6		068
Zone 7		069

Select from the following types:
⌀ = No Action
1 = Audible Panic
2 = Silent Panic
3 = Entry/Exit Burglary
4 = Perimeter Burglary
5 = Interior Burglary
Note: Zone 7 is activated by the Console EMERG Keys and by the Duress Code.

NOTE: In using the NAPCO PRO-410 Programmer, make sure that address locations 070 and 071 are skipped before the next codes are programmed.

20. **REPORTING CODES** (GROUP 3)

	Code	Location
Zone 7 Alarm		072
Bypass		073

NOTES: 1. Select from 0-9, B-F (not ⌀)
2. Central station reporting of any of these codes can be disabled if the reporting code is left blank (i.e. unprogrammed)

21. **SESCOA FIXED INTERDIGIT FORMAT SELECTION**

LOCATION 080

Do not select if is desired to communicate in SESCOA/Radionics format to newer (post 1981) SESCOA receivers or to Radionics receivers. Select for older (1981 and earlier) SESCOA receivers.

Bit Value		Enter Bit Values Selected
1	Not Used	.....
2	Primary Telco No.	
4	Secondary Telco No.	
8	Not Used	.....

Add the Values Selected ____ convert to hex.

VI. INSTALLATION AND WIRING

A. INSTALLATION AND WIRING, NO. 4150 C-COM

To insure proper system checkout with a charged battery, connect the battery to the red and black wires on the control's circuit board and then connect the transformer to the control and to a 110V outlet (see Diagram 5). Control need not be mounted but should be grounded. Do not insert PROMs or connect console at this time. Battery will charge while the installation is being wired. REMOVE ALL POWER, AC AND BATTERY, BEFORE CONNECTIONS ARE MADE TO CONTROL TERMINALS as instructed below. **Use of twisted wiring is** recommended for all runs, for greater immunity to unwanted induced voltages.

TERMINALS (See Diagram 5)

TB1

Terminals

1 **Circuit Ground (-) Return**

2 **12 Volt Continuous Power (+) for Powering Remote Keypads:** This terminal is one of the four wire connection points (RED) for remote keypads. The current drain from the terminal must not exceed 250mA (see SPECIFICATIONS).

3 **Circuit Ground (-) Return:** This terminal is one of the four wire connection points (BLACK) for remote keypads.

4 **Keypad Clock Output:** This terminal is one of the four wire connection points (GREEN) for remote keypads and controls the flow of data to and from these units.

5 **Keypad Data Input/Output:** This terminal is one of the four wire connection points (YELLOW) for remote keypads. Data entered at the keypads is fed into the C-COM at this terminal and data fed back to LEDs and audible warning sounders at the keypads is routed out from this terminal.

6(+) 7(-) **6V.DC* or 12V.DC Power for Smoke (BRK Nos. BK-2806, BK2806TH, BK-2812, BK-2812TH) or Combustion (BK-1806 or BK-1812) Detectors** (interruptible by the TEST/RESET key on the remote keypad). **Observe polarity.** Use wire sizes in accordance with the following tabulation and connect the power terminals of the detectors in parallel:

The current drain from these terminals must not exceed 250mA (see SPECIFICATIONS).

*Cut RED jumper for 6V selection.

SMOKE OR COMBUSTION DETECTOR POWER WIRING

Maximum distance to farthest detector	Number of BK-2806, BK2806TH, BK-2812, BK-2812TH, BK-1806 or BK1812s		
	1 or 2	3 to 6	7 to 10
100 Feet	#22	#22	#20
200	#22	#20	#18
300	#22	#18	#16
500	#20	#16	**

**Use separate power runs for up to 6 detectors each.

CAUTION: Do not use Pyrotector Phoenix Series smoke detectors.

7(-) **Circuit Ground (-) Return:** Connect this terminal to a good earth ground (cold water pipe or electrical box ground is frequently satisfactory for this usage, but in some locales is not). **This connection is critical** to enhancing the immunity of the system to unwanted induced transients (lightning and electrostatic discharge).

7(-), 8(+) **Zone 1 (Fire Protection Zone):** Run the supervised fire detection loop from these two terminals to all U.L. Listed thermostats, smoke detectors, combustion detectors or other detection devices to be used. Runs of up to 500 feet may be made with #20 wire. Run one continuous loop (no branches) through all devices, connecting any trouble relay contacts in series with the loop and normally open alarm contacts across the loop's two wires. At the last device, terminate the loop with the furnished 2000 ohm End-of-Line Resistor and a No. BK-A7771600/BK-A7771601 Supervisory Module, as shown in the instructions with the smoke or combustion detector. Maximum permissible resistance in the zone is 600 ohms (plus the 2000 ohm End-of-Line Resistor). The fire zone will detect trouble for an open in the zone and alarm for a short across the zone. A separate keypad LED annunciates a fire trouble.

NOTE: Low current smoke and/or combustion detectors such as the BRK Nos. BK-2806, BK-2806TH, BK-2812, BK-2812TH, BK-1806 or BK-1812 should be used. NFPA Standard No. 74 requires the use of at least one smoke or combustion detector in every residential installation.

9(+), 10(-) **Zone 2:** Connect open circuit momentary switches (e.g. Nos. 219, 273, 4024, 4026) or contacts in parallel across these terminals. The zone is PROM programmable for either audible or silent 24 hour panic alarm or for entry/exit, perimeter, or interior burglary.

Zone 3: Run a pair of wires from the zone terminals to all closed circuit (N.C.) protection points in the zone and terminate the loop with the furnished 2000 ohm End-of-Line Resistor. This termination is required even if these terminals are only used for connection of open circuit momentary switches or contacts.

Maximum permissible resistance in the zone is 600 ohms (plus the 2000 ohm End-of-Line Resistor). This zone has a **normal response** (200 msec) to closed circuit devices such as magnetic or mechanical contacts, foil, piezo-electric glass break sensors, etc.

This zone is PROM programmable for either audible or silent 24 hour panic alarm or for entry/exit, perimeter or interior burglary.

10(-), 11(+) **Zone 4:** Run a pair of wires from the zone terminals to all protection points in the zone and terminate with a 2000 ohm End-of-Line Resistor (supplied).

The zone has a **normal** (200 MSEC) **response** to open and closed circuit devices such as magnetic or mechanical contacts.

Maximum permissible resistance in the zone: 600 ohms (plus 2000 ohm End-of-Line Resistor).

This zone is PROM programmable for either audible or silent 24 hour panic alarm or for entry/exit, perimeter, or interior burglary.

12(+), 13(-) **Zone 5:** Run a pair of wires from the zone terminals to all protection points in the zone and terminate with a 2000 ohm End-of-Line Resistor (supplied).

The zone has a **normal** (200 MSEC) **response** to open and closed circuit devices such as magnetic or mechanical contacts, foil, piezo-electric glass break sensors, etc. or **fast** (15 MSEC) **response** to fast acting (normally closed) devices, such as glass break or vibration (e.g. No. 11) sensors (cut jumper selectable for fast response - WHITE jumper).

Maximum permissible resistance in the zone: 600 ohms (plus 2000 ohm End-of-Line Resistor).

This zone is PROM programmable for either audible or silent 24 hour panic alarm or for entry/exit, perimeter, or interior burglary.

13(-), 14(+) **Zone 6:** Run a pair of wires from the zone terminals to all protection points in the zone and terminate with a 2000 ohm End-of-Line Resistor (supplied).

The zone has a **normal** (200 MSEC) **response** to open and closed circuit devices such as magnetic or mechanical contacts, mats, motion detectors, etc.

Maximum permissible resistance in the zone: 600 ohms (plus 2000 ohm End-of Line Resistor).

This zone is PROM programmable for either audible or silent 24 hour panic alarm or for entry/exit, perimeter, or interior burglary.

TB2

Terminals

1 **Circuit Ground (-) Return:**

2(+), 3(-) **Alarm Bell Voltage:** These terminals provide 6 or 12V.DC (cut RED jumper for 6V selection) during an audible alarm. This output is steady for burglary and audible panic and pulses for fire. (See SPECIFICATIONS for current drain.)

NOTE: This output will be produced in both the Burglary System Test and the Fire Test Modes.

4, 5 **Power Input, 18V.AC:** Connect these terminals to the secondary output terminals of the No. 1349, 40 VA Transformer.

Do not plug in the Transformer yet, or connect the battery.

6(-), 7(+) **Continuous 6 or 12V.DC** (cut RED jumper for 6V selection) **Auxiliary Power for Accessories: Observe polarity.** These terminals provide power for accessories such as space protection devices, e.g. ultrasonic or passive infrared detectors, photoelectrics, etc. Devices connected to these terminals should be UL Listed and (when output is programmed for 12V.DC) should be rated for operation at 13.5V.DC.

The current drain from these terminals must not exceed 350 mA (See SPECIFICATIONS).

8 **Arm/Disarm Status Output (LO= Armed, HI =Disarmed):** This output provides a voltage that can be used for miscellaneous control functions. The maximum output from this terminal is 12V.DC with a 2K Ohm current limiting resistor.

9 **Arm/Disarm Status Output (HI= Armed, LO =Disarmed):** This output provides a voltage that can be used for miscellaneous control functions. The maximum output from this terminal is 12V.DC with a 2K Ohm current limiting resistor.

10 **Dialer Active Output (HI = Active):** This output provides a maximum of 12V.DC through a 1K Ohm current limiting resistor while the line seize relay is activated. It can be used to activate a remote LED indicating that communication is underway.

11, 12 **Internal Handsets:** Connect TB2-11 to the BROWN lead and TB2-12 to the GRAY lead on the No. 620 RJ31X Direct Connect Cord.

13, 14 **Incoming Telco Line Pair:** Connect TB2-13 to the RED lead and TB2-14 to the GREEN lead on the No. 620 RJ31X Direct Connect Cord. **Do not connect** the latter cord **to the RJ31X jack** until all wiring in the system has been completed.

NOTE: The total combined continuous current drain from terminals TB1-2, TB1-6, and TB2-7 cannot exceed 500mA, independent of the individual current ratings given for each of these terminals.

B. INSTALLATION AND WIRING, NO. 4156 REMOTE KEYPAD(S)

1. **Select a location for the keypad** that will be convenient for the entering of system commands and the receiving of the various visual and audible system signals.
2. **Run wiring for connection of the keypad to the Control/Communicator.** Use a 4 wire run (See Diagrams 1and 2). Additional keypads may be connected in parallel with the first, as indicated in Diagram 1, with a separate wiring run from the Control/Communicator or on the same wiring run (See Diagram 2). Up to the maximum wiring run of 200 feet, 4 #22 conductors may be used.

   NOTE: Twisted pairs are recommended for greater immunity to unwanted induced voltages.

3. **Mount the keypad as follows:** Snap off the front cover of the keypad after pushing in the lower tab. Move up the keypad retaining tab above the keypad to free the keypad and PC board assembly. Remove the assembly. Slide out the Zone data drawer to expose one of the mounting holes and use the back of the keypad as a template to locate the 3 screw mounting holes (2 keyslot) and the wiring access hole. Drill the necessary holes, route the wiring in the wall through the access hole and mount the back of the keypad. Splice the wire run to the keypad's wires and push the interface wiring back into the wall. Snap in the keypad and PC board assembly. Snap on the front cover.

   Alternatively, if mounting with only **two** screws via the keyslot holes on the back of the unit is acceptable, the mounting template supplied with the unit may be used to locate the two holes and the wiring access hole. In this case, the PC board need not be removed.

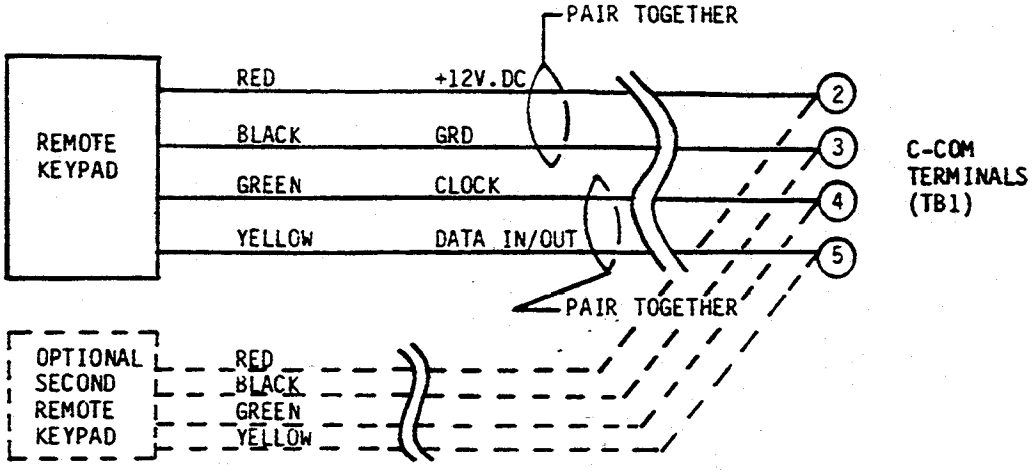


Diagram 1: KEYPAD CONNECTIONS

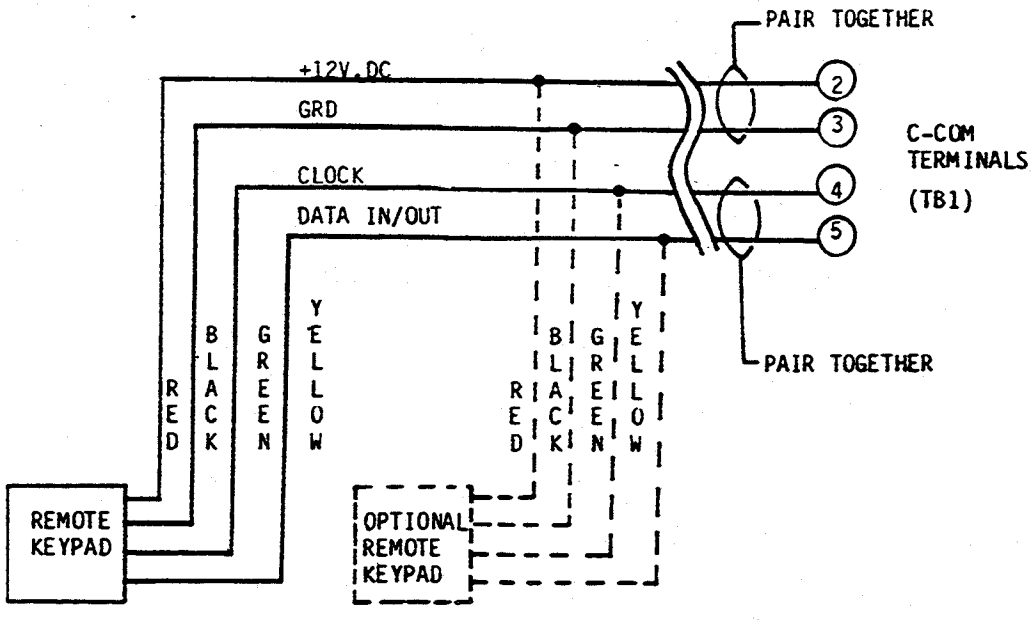


Diagram 2: KEYPAD CONNECTIONS

VII. SYSTEM CHECKOUT

Perform these tests after the wiring and option selections desired in the previous sections have been completed.

1. **Install the PROM** (No. 691 or No. 696) into its socket (see Diagram 5) after making certain that there is no power going to the system. Take care to align the PROM orientation marks. Install the PROM using the No. 692 Insertion Tool.
2. **Connect the telephone line and handsets via a No. 620 Direct Connect Cord** (See Diagram 5).
3. **Connect the battery** by connecting the insulated FAST-ON terminals at the end of the black and red wires coming from the circuit board to the male push-on terminals on the battery. **Failure to observe polarity will cause a large cylindrical light bulb (located to the left of the point where the black and red wires are attached to the circuit board) to be lit. Failure to correct the polarity wiring error within a few minutes will cause damage to the C-COM. This light bulb will also be dimly lit when the battery voltage falls to a low level, with the intensity increasing as the voltage falls more.**
4. **Plug the transformer into a 110V.AC outlet that is ON 24 hours a day.** The POWER LED will light on the Remote Keypad.
5. **Observe the READY LED on the Remote Keypad.** It will light (GREEN) if the protective loops are properly wired and all contacts are properly set.
6. **With no alarm or trouble being indicated.** Do the following and observe the response:
   a. **Open each of the closed circuit burglary zones momentarily,** one at a time. The appropriate zone LED should light on the keypad while the zone is open (and the ZONE DISPLAY key is depressed).
   b. **Short each of the open circuit burglary zones momentarily,** at a time. The appropriate zone LED should light on the keypad while the zone is shorted (and the ZONE DISPLAY key is depressed).
7. **If the fire zone has been set up,** do the following:
   a. **Observe the TROUBLE LED on any Remote Keypad.** It should be off if the protective loop and detector power circuits are properly wired.
   b. **Disconnect one wire of the fire zone.** The TROUBLE LED on the keypad should light. A tone should be heard from the Remote Keypad once every 15 seconds.
   c. **Silence the trouble sounding** by pressing the CMND and TEST/RESET keys on the keypad. The sound should stop but the visual LED indication should continue, but as a flashing indication.
   d. **Reconnect the fire zone wire.** The visual fire trouble indication should go out.
   e. **Short the fire zone for 3 seconds.** A fire alarm should be triggered, accompanied by a pulsed bell output.

   Silence the alarm by pressing the CMND and the TEST/RESET keys on the keypad.

NOTE: The battery may not be fully charged. **If this test is tried with a low battery there will not be enough power to ring bells or operate sirens.** Let the battery charge (transformer plugged in) for at least one-half hour if the battery is low.

8. **Test panic circuits** by momentarily shorting panic zone terminals, by operating an external, zone connected panic switch, and by depressing both of the EMERG keys on the keypad (if programmed). If a panic zone is programmed for audible alarm, exterior siren or bell should sound. If bells are used, a steady bell sound will be produced. These conditions continue after the short is removed. A message will be transmitted to the central station. Reset the system by entering the security code at a keypad. Panic alarm reporting will be re-enabled after a 1 minute delay.

   If the zone is programmed for silent operation, the above mentioned sounds will not be heard.

9. **Shunt any purposely faulted BURGLARY Zone** by first depressing the CMND and BYPASS keys to enter the bypass mode. The BYPASS LED will flash to indicate that this mode is in effect. Then press the key corresponding to the number of the zone to be shunted. The Zone LED will be on steady. Exit the bypass mode by depressing the CMND key. The BYPASS LED will now be on steady. This zone may now be faulted without causing an alarm.
10. **Arm the system from a keypad and** immediately **follow** the security code entry **by sequential depression of the CMND and INSTANT keys.** The INSTANT LED on the keypad should light. After allowing for the exit delay to expire, any fault introduced in the entry/exit zone will cause an immediate alarm. Disarm the system and note that the INSTANT LED will go out.
11. **Turn on the Chime Mode** by depression of the CMND key followed by depression of the CHIME key during the disarmed state. Open and close any contact in the entry/exit zone and a single tone will be produced at any keypad for each fault, announcing the entry of someone. Remove the Chime Mode by depressing the CMND key followed by depression the CHIME key.
12. **Conduct a burglary system test** by depression of the CMND and "4" keys during the disarmed state. The system is now in the Test Mode.

    In this mode, a momentary fault in any burglary zone will cause a **loud** ½ second alarm sound from the exterior siren or bell.
13. **All the zone contacts may now be checked** by disturbing each contact in each zone and listening for the short siren and/or bell sound (whichever is used).
14. **Remove the Test Mode** by depression of any key to restore the system to normal functioning.
15. **Disconnect AC power to the system.** The POWER LED on the keypad should immediately flash but the system should remain operable. After a number of hours of operation (depending upon load), a low battery report will be communicated to the central station.

    Restore AC power to the system.
16. **Arm the system and simulate leaving the premises** by following the procedures in the OPERATION Section.
17. **Simulate entering the premises and disarm the system** by following the procedures given in the OPERATION Section.

VIII. OPERATION

AC POWER LED ON EACH REMOTE KEYPAD SHOULD BE LIT STEADY AT ALL TIMES. If flashing, AC failure is indicated and the system is operating on battery. Check plug-in transformer or for power failure.

TO ARM BURGLARY SYSTEM:

1. **Make sure the POWER LED is lit.**
2. **The READY LED** on the remote keypad **should be lit** to indicate that all zones are properly closed.

   If the READY LED is not lit, check the Burglary Zone I.D. Display on the keypad (depress and hold ZONE DISPLAY key to get display). A faulted zone indication denotes a fault which must be cleared or the zone shunted prior to arming. Make sure that the exit door is closed!
3. **Determine if staying or leaving.**
   a.) **If remaining on the premises after arming,** first sequentially press the CMND and STAY keys. Interior zone should now be turned OFF and the STAY LED should be lit. Enter the security code and the rest of the burglary zones in the system should now be armed (entry/exit zone after exit delay timeout — denoted by the flashing of the ARM LED). This is indicated at the keypads by one brief tone and the steady lighting of the ARM LED.
   b.) **If leaving the premises after arming,** just enter the security code. All burglary zones should now be armed (entry/exit zones after exit delay timeout — denoted by the flashing of the ARM LED). This is indicated at keypads by one brief tone and the steady lighting of the ARM LED.

   Depart before the exit delay period ends, via an entry/exit door.

   NOTE: Failure to arm is indicated by a failure to obtain the single tone at the keypad and by failure to turn on the ARM LED. If the failure to arm was because the wrong code was entered, the situation is indicated by 5-6 rapid beeps from the keypad.

TO DISARM BURGLARY SYSTEM:

1. **When entering the premises, enter only via the entry/exit door.** A steady tone will be heard from keypads during the entry delay period.

   If already within premises, go directly to the nearest keypad.

   NOTE: If both the ARM and READY LEDs are flashing, it is an indication of the memory of an alarm that took place previously. The user

should immediately leave the premises and call the police from a safe location.

2. **Before the entry delay period (if any) ends, enter the security code.**

NOTE: While the system is disarmed, the READY LED will go on and off as the protected zones open and close during normal operation of doors, windows, PIRs, etc..

TO TEST FIRE SYSTEM:

The fire system should be tested at least every week.

IMPORTANT: The test described below does **not** cause any communicator transmission to the central station. If such communication is desired, alert the central station first before conducting the test and use the FIRE keys on the console to initiate an alarm (if programmed for operation).

Sequentially depress the CMND and the TEST/RESET keys on the keypad. The fire alarm will sound for two seconds.The AC driven power supply is interrupted, thus checking the battery by sounding the alarm from battery alone. Alarm sounding will **not** take place if the battery is disconnected or not fully charged.

Any smoke detector(s) installed with the system should be tested weekly in accordance with the smoke detector manufacturer's instructions.

TO TEST BURGLARY SYSTEM:

The burglary system should be tested as follows every week:

1. **Put the system in the BURGLARY SYSTEM TEST Mode** by sequentially depressing CMND and "4" keys.
2. **Open windows or other sensors in any burglary zone.**
3. **The alarm sounder will be activated immediately** for a very brief interval.
4. **Leave the System Test Mode by depression of any key.**

TO ACTIVATE AN EMERGENCY ALARM:

1. a. **Depress both EMERG keys** simultaneously at a keypad.

   b. **Depress a momentary switch** connected to the Emergency Zone.
2. **If a zone is programmed for audible alarm,** the alarm sounder will commence immediately and the communicator will transmit a message to the central station.
3. **If a zone is programmed for silent alarm,** the communicator will transmit a message to the central station.
4. **To reset, enter the security code** at a keypad. Panic alarm reporting will be re-enabled after a 1 minute delay.

TO ENTER SECONDARY SECURITY CODE(S):

This action may be done while the system is armed or disarmed.

1. **Depress CODE key and key master security code** (in PROM) at a keypad.
2. **Immediately follow with** entry of the **ID number of the code (1 or 2) and the 4 digit secondary code.**

   This secondary code can permit every function that the master security code can allow except changing of secondary security codes.
3. **Removal of the secondary code** is accomplished by depressing the CODE key and by entering the master security code, followed by the ID number of tne code (1 or 2), with no subsequent entry at the keypad for at least 10 seconds.

TO ACTIVATE THE CHIME FEATURE

This mode may only be entered during the disarmed state.

1. **Press the CMND key followed by CHIME depression** at a keypad.
2. **Any opening in the Entry/Exit Zone will result in a loud single tone** being produced at keypads, annunciating entry.
3. **End the mode by depressing the CMND key followed by CHIME depression.**

TO ENTER DURESS CODE:

This action may be done while the system is armed or disarmed.

1. **Depress CODE key and key master security code** (in PROM) at a keypad.
2. **Immediately follow with entry of the ID number of the duress code (3) and the 4 digit duress code.**

   The duress code can permit every function that the master security code can allow except changing of secondary security codes. It causes the transmission of a duress (silent hold-up) code unless that code is not PROM programmed.
3. **Removal of the duress code** is accomplished by depressing the CODE key and by entering the master security code, followed by the ID number of the code (3) with no subsequent entry at the keypad for at least 10 seconds.

TO MANUALLY INITIATE A COMMUNICATION TEST TRANSMISSION:

Press the CMND key followed by depression of the "5" key to cause a Test Code (if PROM programmed) to be transmitted to the central station.

IX. TURNING THE SYSTEM OVER TO USER

1. **Fully explain the operation of the system to the user** by going through each of the features as well as the USER'S MANUAL supplied.
2. **Describe the operation of each zone.** Clarify which contacts or devices are used in the perimeter and which are used in the interior.
3. **Encourage the user to find and remedy zone problems that may occur when arming the system.** Show the user how to bypass a bad zone.

X. GENERAL SPECIFICATIONS

A No. 4150 CONTROL/COMMUNICATOR

See Diagrams 3 and 5.

1. **Physical:** **Width:** 12" (30.5 cm)
   Height: 12" (30.5 cm)
   Depth: 3" (7.6 cm)
2. **Electrical:**

   Voltage: 18 VAC (from No. 1349 40VA Plug-in Transformer)

   Maximum Permissible Resistance (per zone): 600 Ohms (plus end-of-line resistor: 2000 Ohms)

   Zone Response: 200 msec for all zones except Zone 5 which has cut jumper selectable closed circuit response, 200 msec (intact) or 15 msec (cut).

   6 or 12V.DC Regulated Output:

   Continuous Power for Accessories: 350 mA
   Interruptible Power for Smoke Detectors: 250 mA
   Continuous Power for Keypads: 250 mA

   Maximum Combined Power for All of the Above (accessories, smoke detectors, keypads) = 500 mA

   Bell Relay (Wet) Contact: SPST, 6 or 12 VDC
   Maximum Current = 1 Amp (less total smoke + aux+ keypad current) for U.L. Listed Installations

   = 1.5 Amp (in addition to the maximum smoke + auxiliary + keypad current allowed) for Non-UL Listed Installations

   Arm/Disarm Status Output:

   Armed: 0V + 12V.DC, 6 mA
   Disarmed: + 12V.DC, 6mA **OR** 0V

   Fuses: Two fuses -
   No. 90-2: 2A for sounder (bell or siren) power
   No. 90-14: 1A for auxiliary current

   Standby: 12V Sealed Lead Acid Rechargeable Battery, 5.4 AH (2 ea. No. 465-654)

   Battery standby time is at least 4 hours provided that the total current drawn from terminals TB1-2, TB1-6 and TB2-7 does not exceed 500 mA.

   Battery normally need not be replaced for at least 5 years.
3. **Transmission Format:** Low Speed Ademco (and Silent Knight) SESCOA/Radionics
4. **FCC Registration No:** CFS8DL-71924-AL-R
   Ringer Equivalence O.OB.

B. No. 4156 SECURITY CONSOLE

See Diagram 4.

1. **Physical:** **Width:** 6-½" (17.7 cm)
   requires additional 3" (7.6 cm) clearance at right, if opening of zone data drawer is desirable.
   Height: 4-⅜" (11.1 cm)
   Depth: 1-⅜" (3.5 cm)

2. **Electrical:**

Current Drain: 55 mA @ 12V.DC from C-COM.
Interface: 4-wire connection to C-COM.

3. **Compatibility:** Can be used with Nos. 4150LB and 4150 Version 2 as well as with No. 4150 Version 3.

TO THE INSTALLER

Regular maintenance and inspection (at least annually) by the installer and frequent testing by the user are vital to continuous satisfactory operation of any alarm system.
The installer should assume the responsibility of developing and offering a regular maintenance program to the user as well as acquainting the user with the proper operation and limitations of the alarm system and its component parts. Recommendations must be included for a specific program of frequent testing (at least weekly) to insure the system's proper operation at all times.

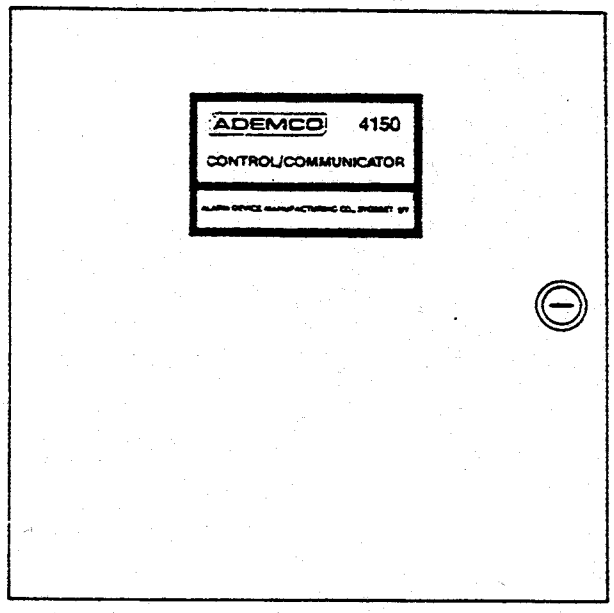


Diagram 3: No. 4150 CONTROL/COMMUNICATOR

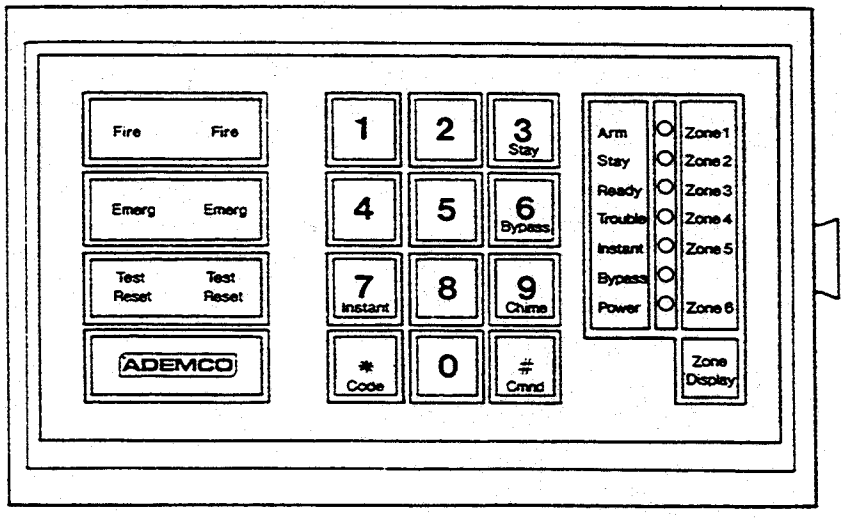
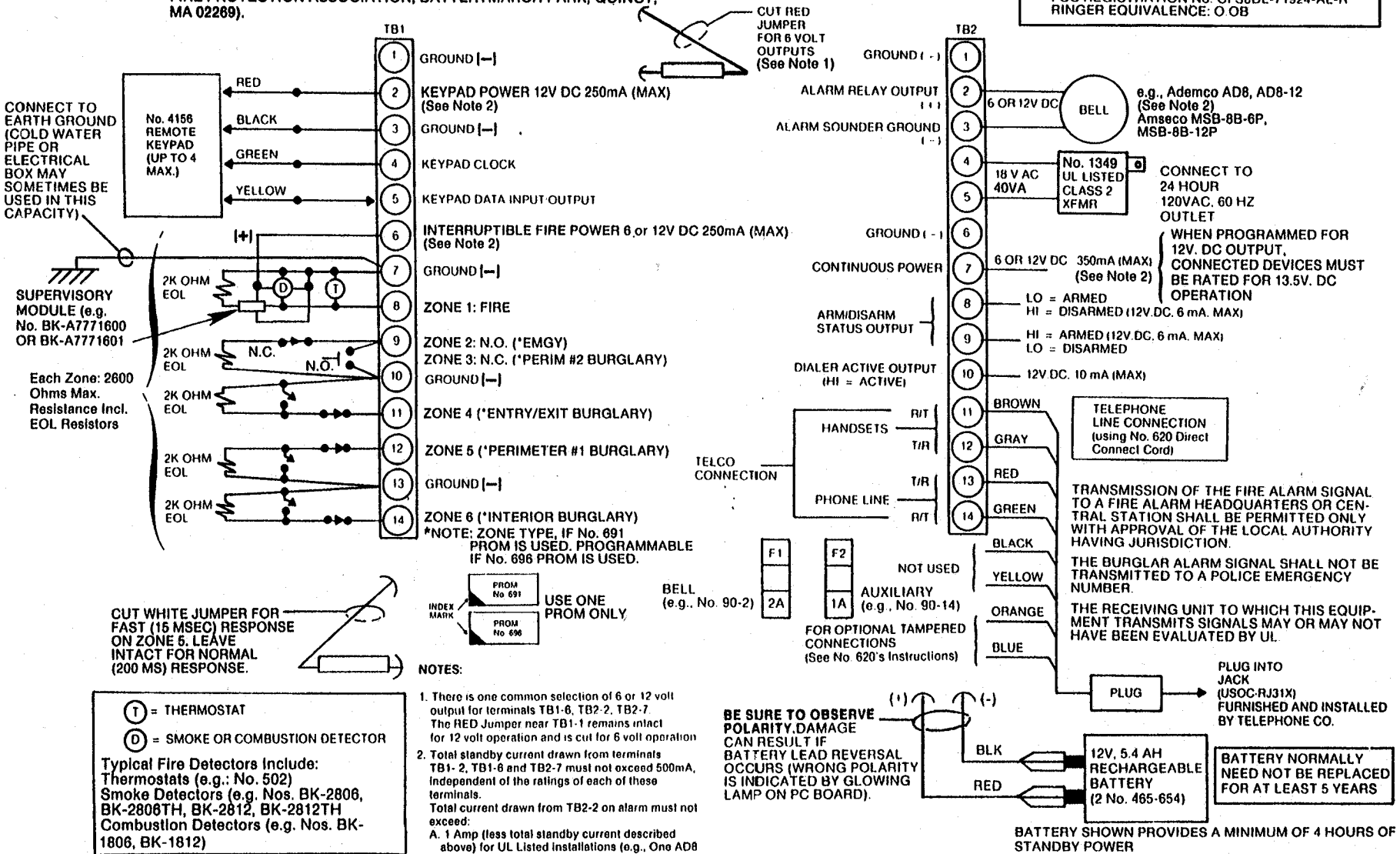


Diagram 4: No. 4156 REMOTE KEYPAD

FOR COMPLETE INFORMATION SEE TEXT AND USER'S MANUAL P9987-2V1. ALL INTERCONNECTIONS MUST BE MADE USING UL LISTED LIMITED ENERGY CABLE. FIRE PROTECTION INSTALLATION MUST FOLLOW REQUIREMENTS OF NFPA STANDARD NO. 74 (NATIONAL FIRE PROTECTION ASSOCIATION, BATTERYMARCH PARK, QUINCY, MA 02269).

COMPLIES WITH FCC RULES, PART 68
FCC REGISTRATION No. CFS8DL-71924-AL-R
RINGER EQUIVALENCE: 0.0B



(T) = THERMOSTAT

(D) = SMOKE OR COMBUSTION DETECTOR

Typical Fire Detectors Include:
Thermostats (e.g.: No. 502)
Smoke Detectors (e.g. Nos. BK-2806, BK-2806TH, BK-2812, BK-2812TH
Combustion Detectors (e.g. Nos. BK-1806, BK-1812)

WARNING: OWNER'S INSTRUCTION NOTICES NOT TO BE REMOVED BY ANYONE EXCEPT OCCUPANT.

NOTES:

1. There is one common selection of 6 or 12 volt output for terminals TB1-6, TB2-2, TB2-7. The RED Jumper near TB1-1 remains intact for 12 volt operation and is cut for 6 volt operation
2. Total standby current drawn from terminals TB1- 2, TB1-6 and TB2-7 must not exceed 500mA, independent of the ratings of each of these terminals.
   Total current drawn from TB2-2 on alarm must not exceed:
   A. 1 Amp (less total standby current described above) for UL Listed installations (e.g., One AD8 or AD8-12 Bell may be used if total standby current is limited to 250mA).
   B. 1.5 Amps (in addition to the total standby current described above) for non-UL Listed installations.

Diagram 5: SUMMARY OF CONNECTIONS

WARNING
THE LIMITATIONS OF THIS ALARM SYSTEM

While this system is an advanced design security system, it does not offer guaranteed protection against burglary or fire. Any alarm system, whether commercial or residential, is subject to compromise or failure to warn for a variety of reasons, such as:

- Intruders may gain access through unprotected openings or have the technical sophistication to bypass an alarm sensor or disconnect an alarm warning device.
- Intrusion detectors (e.g., passive infrared detectors), smoke detectors, and many other sensing devices will not work without power. Battery operated devices will not work without batteries, with dead batteries, or if the batteries are not put in properly. Devices powered solely by AC will not work if their AC power supply is cut off for any reason, however briefly.
- Alarm warning devices such as sirens, bells or horns may not alert people or wake up sleepers if they are located on the other side of closed or partly open doors. If warning devices are located on a different level of the residence from the bedrooms, then they are less likely to waken or alert people inside the bedrooms. Even persons who are awake may not hear the warning if the alarm is muffled by noise from a stereo, radio, air conditioner or other appliances, or by passing traffic. Finally, alarm warning devices, however loud, may not warn hearing-impaired people.
- Telephone lines needed to transmit alarm signals from a premises to a central monitoring station may be out of service or temporarily out of service. Telephone lines are also subject to compromise by sophisticated intruders.
- While smoke detectors have played a key role in reducing residential fire deaths in the United States, they may not activate or provide early warning for a variety of reasons in as many as 35% of all fires, according to data published by the Federal Emergency Management Agency. Some of the reasons smoke detectors used in conjunction with this System may not work are as follows. Smoke detectors may not sense fires that start where smoke cannot reach the detectors, such as in chimneys, in walls, or roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level of a residence or building. A second floor detector, for example, may not sense a first floor or basement fire. Finally, smoke detectors have sensing limitations. No smoke detector can sense every kind of fire every time. In general, detectors may not always warn about fires caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches, or arson.
- This equipment, like other electrical devices, is subject to component failure. Even though this equipment is designed to last as long as 10 years, the electronic components could fail at any time.

The most common cause of an alarm system not functioning when an intrusion or fire occurs is inadequate maintenance. This alarm system should be tested weekly to make sure all sensors are working properly.

Installing an alarm system may make one eligible for lower insurance rates, but an alarm system is not a substitute for insurance. Homeowners, property owners and renters should continue to insure their lives and property.

LIMITED WARRANTY

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

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

Seller does not represent that its product may not be compromised or circumvented; that the product will prevent any personal injury or property loss by burglary, robbery, fire or otherwise; or that the product will in all cases provide adequate warning or protection. Buyer understands that a properly installed and maintained alarm may only reduce the risk of a burglary, robbery or fire without warning, but it is not insurance or a guarantee that such will not occur or that there will be no personal injury or property loss as a result. CONSEQUENTLY, SELLER SHALL HAVE NO LIABILITY FOR ANY PERSONAL INJURY, PROPERTY DAMAGE OR OTHER LOSS BASED ON A CLAIM THE PRODUCT FAILED TO GIVE WARNING. However, if Seller is held liable, whether directly or indirectly, for any loss or damage arising under this Limited Warranty or otherwise, regardless of cause or origin, Seller's maximum liability shall not in any case exceed the purchase price of the product, which shall be fixed as liquidated damages and not as a penalty, and shall be the complete and exclusive remedy against Seller.

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

TO THE USER

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

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- If using an indoor antenna, have a quality outdoor antenna installed.
- Reorient the receiving antenna until interference is reduced or eliminated.
- Move the receiver away from the control/communicator.
- Plug the control/communicator into a different outlet so that it and the receiver are on different branch circuits.
- Move the antenna leads away from any wire runs for control/communicator (in particular wire runs to any Remote Keypad).
- If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

"How to Identify and Resolve Radio-TV Interference Problems."

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402. Stock No. 004-000-00345-4.

In the event of telephone operational problems, disconnect the control/communicator by removing the plug from the RJ31X jack. We recommend your certified installer demonstrate disconnecting the phones on installation of the system. Do not disconnect the phone connection inside the control/communicator. Doing so will result in the loss of your phone lines. If your regular phone works correctly after the control/communicator has been disconnected from the phone lines, the control/communicator has a problem and should be returned for repair. If, upon disconnection of the control/communicator, there is still a problem on your line, notify the telephone company that they have a problem and request prompt repair service. The user may not under any circumstances (in or out of warranty) attempt any service or repairs on the system. It mus be returned to the factory or an authorized service agency for all repairs.

NOTE: When the system is communicating with the central alarm monitoring service, the phone line is seized and the user phones are disconnected. Under normal circumstances, the phone line seize should only be 1-2 minutes. However line seize could last up to 15 minutes if trouble exists. If this occurs regularly, contact your installer.

ADEMCO
ALARM DEVICE MANUFACTURING CO.
A DIVISION OF PITTWAY CORPORATION
165 Eileen Way, Syosset, New York 11791
P9988-2V1 8/87