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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.

A typical system installation includes a No. 4150 C-COM and up to four No. 4155 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. 4155 Remote Keypad(s) provide full system and individual zone status indication as well as system control. With the No. 4155, the system may be completely armed or just perimeter armed or disarmed. The entry delay may be turned off, zones may be shunted by forced arming, 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 zones, including four burglary zones, one panic zone, and one fire 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, forced arming - 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 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. Fire Test 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

1. Fire Zone - 24 hour operation with trouble on open, alarm on short response. Alarm also activated by FIRE Keys on remote keypad.
2. Panic Zone (Audible or Silent - PROM selectable) - 24 hour operation, activated by a loop short by open circuit (N.O.) momentary switches and by EMERG Keys on console.

### 3. Burglary Zone

Entry/Exit - Controlled operation with alarm on open or short during armed mode. Always has both entry and exit delay.

Perimeter #1 - Controlled operation with alarm on open or short during armed mode. Activated by open (N.O.) or closed (N.C.) circuit contacts.

Perimeter #2 - Controlled operation with alarm on open during armed period. Activated by closed circuit (N.C.) contacts.

Interior - Controlled operation with alarm on open or short during armed mode. Always has exit delay. Has entry delay only if initial entry is through the Entry/Exit zone.

## 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.

## 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, after which it "timesout". The fire zone may be optionally selected to have its alarms **not** timeout, wherein manual shutdown would be required to silence a fire alarm.

## 4. Panic Zone Option

The Panic Zone may be configured as a silent or audible zone by PROM selection.

## 5. Burglary Zones Option

The burglary zones may be configured for silent or audible alarm by PROM selection for all of the burglary zones as a group.

## 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.

**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. Forced Arming

Forced arming allows a user to arm the system even though certain burglary zones are in a faulted condition. Such faulted zones will be shunted by depressing BYPASS to override the fail safe arming during the arming sequence.

## 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"

(3) The act of force arming (one of the burglary zones is violated and fail safe arming is overridden to automatically shunt that violated zone) the system is indicated in extended closing reports by an offset of 4 added to each of the above cited user ID codes. For example, the closing report will be accompanied by a user ID of "5" if secondary security code #1 is used, "6" if secondary security code #2 is used, or "8" if the master security code is used.

#### 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 15 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. However, an opening report will be sent (if PROM enabled), when fire and panic alarms are turned off prior to the system being armed.

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 and cannot be used to force arm the system.

**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 from the time of installation. This option goes into effect at installation time if PROM enabled and if **first** test report is manually initiated. If any other transmission was sent by the system during the prior 24 hour period (e.g. open and closing reports), the Test message report 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, Duress/Panic, Burglary (E/E, Perimeter #1 and #2, Interior), Cancel
- Secondary Phone Number Assignment  
Open, Close, Restore, Low Battery, Fire Trouble, Test

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 1, the fire zone as Code 2, 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

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 15 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 15 minute communicator disable is intended to prevent annoyance calls to the central station for swinging zones.

Entering the security code subsequent to an alarm trip (i.e. to disarm system and/or turn off external sounder) will disable restore reporting for all zones. Central station reporting for fire and panic alarms will be re-enabled 15 minutes after security code is entered to silence these types of alarms (provided that zone is not faulted during 15 minute period).

### III. FUNCTIONAL DESCRIPTION, No. 4155 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 INT(erior) LED. When the CMND key is held depressed in the disarmed state, this LED indicates the state of the INTERIOR Zone, 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. This LED will immediately flash when AC power is lost and the system is operating from its standby battery.

**BYPASS KEY:** When depressed subsequent to entry of the security code and the CMND key, the burglary system will arm with any faulted burglary zones shunted. Refer to the section entitled "INSTALLATION AND WIRING" for comments concerning the bypass of the second perimeter zone.

The TROUBLE LED is lit when one or more zones is shunted by force arming. All shunts are automatically removed when the system is turned off.

**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 turned off. This LED also has a secondary designation as the PER(imeter #1) LED. When the CMND Key is held depressed in the disarmed state, this LED indicates the state of the first PERIMETER Zone, providing current violation status (on steady) as well as memory of alarm (flashing). The latter is not cleared until the system is next armed.

**PRGRM 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 force arming and secondary code change. The other secondary codes permit the performance of all of the functions permitted by the PRUM programmed master code except secondary code change. Repeating digits are permitted in code entries.

**CHIME Key and LED (Yellow):** 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 LED is lit whenever the CHIME mode is in effect. The CHIME mode is in effect during the armed state but is not heard because the entry delay warning sound overrides the other sound. This LED also has a secondary designation as the DEL(ay) LED. When the CMND key is held depressed in the disarmed state, this LED indicates the state of the Entry/Exit DELAY Zone, providing current violation status (on steady) as well as memory of alarm (flashing). The latter is not cleared until the system is next armed.

**READY LED (Green):** The READY LED is lit whenever all 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 second PERIMETER ZONE LED. When the CMND key is held depressed in the disarmed state, this LED indicates the state of the second Perimeter Zone, providing current violation status (on steady), as well as memory of alarm (flashing). The latter 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.

**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).

**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) The burglary system has been force armed with one or more zones shunted.
- (3) 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 FIRE 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 FIRE TEST/RESET command (see below).

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

**FIRE 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 a 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 5 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 or if the burglary system had been force armed, the TROUBLE LED will be lit and a short beep will be heard every 15 seconds. Depression of the CMND and FIRE 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. 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 FIRE 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 10 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.

## **8. Audible Signals**

<b>Invalid Code Entry:</b>	5-6 consecutive brief beep tones
<b>System Armed:</b>	One beep tone
<b>Trouble:</b>	Brief beep tone every 15 seconds for a fire zone trouble, for a forced arm condition, or for a fire or panic zone violation at power-up or after alarm silencing.
<b>Entry Warning:</b>	Steady tone activated during the entry delay period.
<b>Chime Annunciation:</b>	Single beep tone each time Entry/Exit Burglary Zone is faulted when in this mode.
<b>Key Depression Feedback:</b>	Brief beep tone for each key not in the dual key panic section of the keypad.

#### **IV. COMMUNICATOR OPERATION**

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 (PBX) 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 PBX system (only if PBX 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 PBX 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, panic, 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)
- . SESCOA/Radionics (20 pulses per second)

**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 priority order (i.e. fire, panic, burglary - in that order) 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 3*
"Kissoff"
890 6
890 6*
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

#### . Fire 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  
U = User ID number, 1, 2 or 4 (1 = Secondary Code #1, 2 = Secondary Code #2, 4 = Master Code)

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

**Forced Arm Shunted Zone Report**

Message Sent = 890 C  
CCC U'

Where: C = Closing code selected

U' = User ID number with an offset of "4" added (5, 6, or 8, where 5 = Secondary Code #1, Zone Shunted; 6 = Secondary Code #2, Zone Shunted; 8 = Master Code, Zone Shunted)

**AC Power Restoral**

Message Sent = 890 R  
RRR L

Where: L = Low battery/AC loss code selected

R = Restoral code selected

**NOTE:** 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, B-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).

## V. PROM PROGRAMMING

The system employs one PROM integrated circuit for selection of system options. This PROM is ordered separately, Ademco No. 691 if blank and will be programmed by the installer or No. 691P5 if the programming is done by Ademco to customer order. In either case, the following feature charts need to be completed as a record of the system configuration.

CUSTOMER NAME \_\_\_\_\_ CUSTOMER NO. \_\_\_\_\_

CUSTOMER ADDRESS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NOTE: Program the numbers that you write into the boxes except for double boxes where you program the number preprinted in a box next to the box you check.

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 Option: Check one

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 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.

No Delayed Burglary Report, 7 Second Dial Tone Wait:

No Delayed Burglary Report, 25 Second Dial Tone Wait\*:

Delayed Burglary Report, 7 Second Dial Tone Wait\*:

Delayed Burglary Report, 25 Second Dial Tone Wait\*:

\*Note: Follow the procedure given below if it is desired to program less than three PABX digits AND it is desired to program one of these digits (The symbol  $\emptyset$  means leave unprogrammed). 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 (i.e.: 1, 2, or 3).

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):

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):

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):\*

PROM Data Group 6

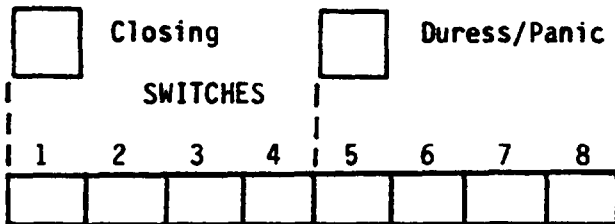
To program, set Phone No. Selector Switch to "Secondary" and Rotary Switch to Position 3 ("Subs ID#").

Secondary Subscriber I.D. (Select from 0 --> 9):\*

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):



Bit Weight      1      2      4      8      1      2      4      8

(ex: 7 = 1+2+4, B = 1+2+8, C = 4+8, D = 1+4+8, see page 21)

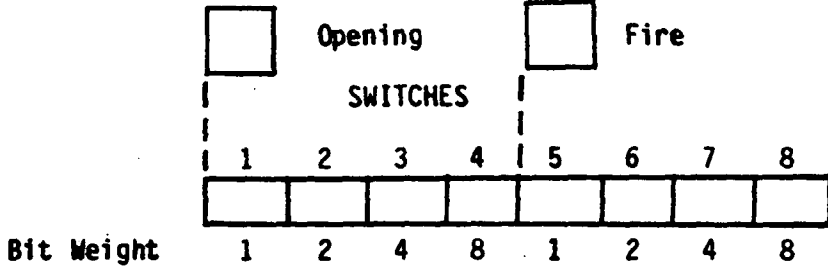
- NOTES:**
- \*1. Leave 4th digit blank if only 3 subscriber I.D. digits are to be reported in the communicator message.
  - 2. Central station reporting of trouble, burglary alarms, fire and panic alarms, etc... can be disabled if the corresponding reporting code is left blank (i.e. unprogrammed).
  - 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.

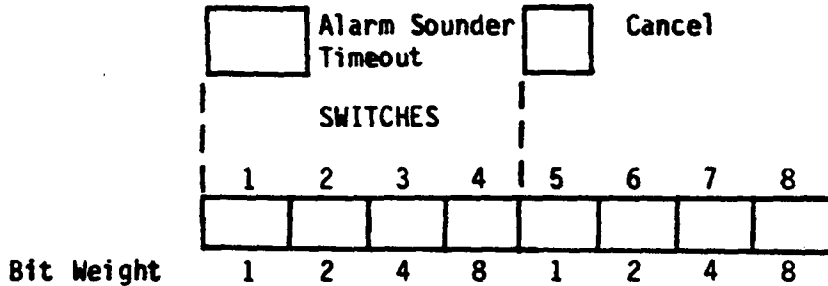
Reporting Codes for Opening and Fire (Select from 0 --> 9, B --> F):



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.

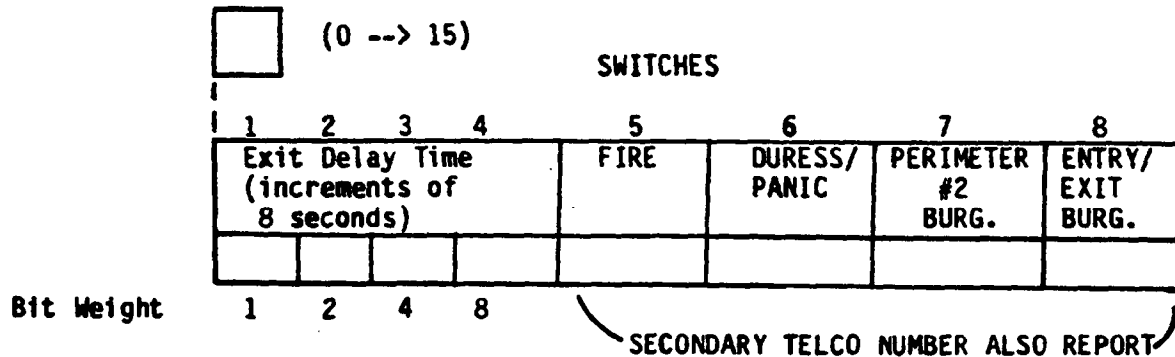
Alarm Sounder Timeout (Select from 0 --> 15 minutes) and Reporting Code for Cancel (Select from 0 --> 9, B --> F):



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 x 8 secs) and Communicator Report to Second Telephone Number ALSO: (Check reports for which desired)



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 x 8 secs) and **Communicator Report to Second Telephone Number ALSO:** (Check reports for which desired)

SWITCHES							
1	2	3	4	5	6	7	8
Entry Delay Time (increments of 8 seconds)				NOT USED	PERIM. #1 BURG.	INTER. BURG.	CANCEL
1	2	4	8				
Bit Weight				SECONDAARY TELCO NUMBER ALSO REPORT			

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	5	6	7	8	
PRIMARY TELCO NUMBER FORMAT	SECONDARY TELCO NUMBER FORMAT	EXTENDED REPORTING	EXTENDED REPORTING	OPEN	CLOSE	RESTORE	LOW BATTERY	
SESCOA RADIONICS	SESCOA RADIONICS	PRIMARY TELCO NUMBER	SECONDARY TELCO NUMBER					
BIT SET (RAISE SWITCH)								
BIT NOT SET (SWITCH DOWN)	ADEMCO	ADEMCO	PRIMARY TELCO NUMBER ALSO REPORT					

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

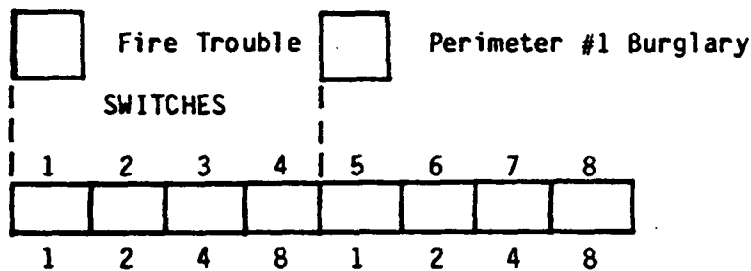
1	2	3	4	5	6	7	8
NOT USED	AUDIBLE BURGLARY ALARM	AUDIBLE PANIC ALARM	FIRE ALARM SOUNDING TIMEOUT	NOT USED	TROUBLE	TEST (MANUAL OR 24 HOUR)	24 HOUR TEST REPORT ENABLE

PRIMARY TELCO NUMBER ALSO REPORT

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.

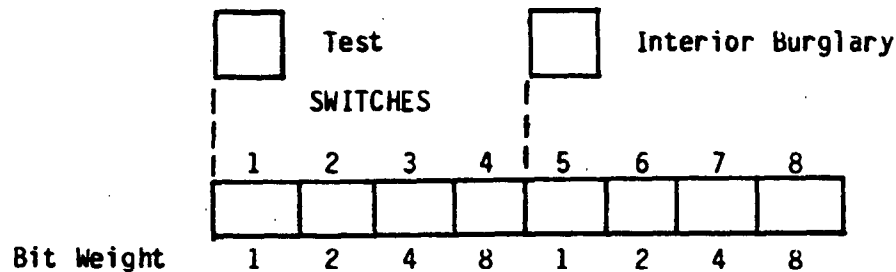
**Reporting Codes for Fire Trouble and Perimeter #1 Burglary (Select from 0 --> 9, B --> F)**



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.

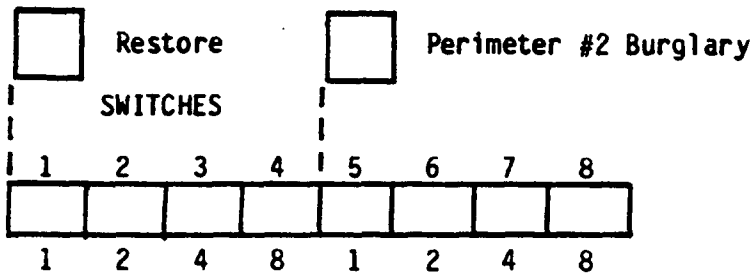
**Reporting Codes for Test and Interior Burglary (Select from 0 --> 9, B --> F)**



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.

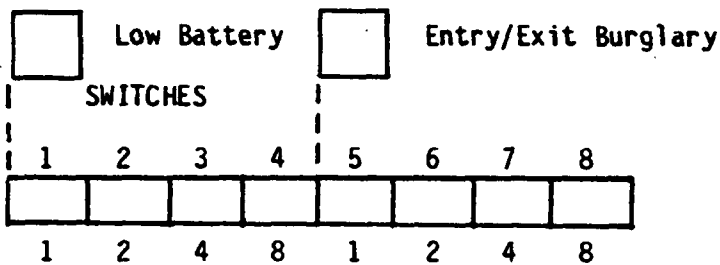
Reporting Codes for Restore and Perimeter #2 Burglary (Select from 0 --> 9, B --> F)



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

	Bit Weight			
Code	1	2	4	8
0(10)		✓		✓
1	✓			
2		✓		
3	✓	✓		
4			✓	
5	✓		✓	
6		✓	✓	
7	✓	✓	✓	

	Bit Weight			
Code	1	2	4	8
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.

## VI. INSTALLATION AND WIRING

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

Do not connect the battery or plug-in transformer until all other wiring has been completed. 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:** 250 MA. MAX. This terminal is one of the four wire connection points (RED) for remote keypads.
  - 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 (Nos. 622-6, 622-12, 623-6, 623-12) or Combustion (No. 632H or 632H12) Detectors** (interruptible by the FIRE 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:

\*Jumper Selectable

SMOKE OR COMBUSTION DETECTOR POWER WIRING			
Maximum distance to farthest detector	Number of 622-6, 622-12, 623-6, 623-12, 632H or 632H12s		
	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.

7(-), **Fire Protection Zone:** Run the supervised fire detection loop from these  
8(+) 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. 633/633-12 Supervisory Module, as shown. Maximum per-  
missible 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 Nos. 622-6,  
622-12, 623-6, 623-12, 632H, or No. 632H12 should be used.  
NFPA Standard No. 74 requires the use of at least one smoke  
or combustion detector in every residential installation.

9(+), **Emergency Protection Zone:** These terminals provide an additional means  
10(-) to activate the EMERGENCY panic alarm that can be triggered by simultaneous  
depression of the two EMERG keys on the remote keypad. Connect open circuit  
momentary switches (e.g. Nos. 219, 273, 4024, 4026) in parallel across  
these terminals. The zone is PROM programmable for either audible or  
silent alarm.

**Second Perimeter Burglary Protection Zone (Zone 6):** 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 panic switches.

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 causes an immediate alarm in response to an intrusion. The  
TROUBLE LED will light if an attempt is made to arm the system while there  
is a short circuit across this terminal pair. If this fault is not removed,  
the system can only be armed using the force arm procedure. As a result  
of force arming, the system will not respond to short circuit faults across  
this terminal pair while it is armed (A panic alarm can still be activated  
by depressing the remote keypad's EMERG keys). Moreover, sounding and  
reporting for the second perimeter zone (open circuit faults) are inhibited  
while the short remains.

The READY LED will be off if an attempt is made to arm the system while  
there is an open circuit in this perimeter loop. If this fault is not  
removed, the system can only be armed using the force arm procedure. As  
a result of force arming, the second perimeter zone will be shunted.  
The panic zone will operate normally, however.

10(-), **Entry/Exit Burglary Protection Zone:** Run a pair of wires from the zone  
11(+) 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 has both entry and exit delay, wherein the delay for each is independently PROM programmed. Use of the INSTANT mode from the keypad eliminates the entry delay while the mode is in effect, causing an immediate alarm upon intrusion into the zone. When the CHIME mode is in effect (during the disarmed state), a violation of this zone causes a single tone audible annunciation at each remote keypad.

- 12(+), **First Perimeter Burglary Protection Zone:** Run a pair of wires from the  
13(-) 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.

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

This zone causes an immediate alarm in response to an intrusion.

- 13(-), **Interior Burglary Protection Zone:** Run a pair of wires from the zone  
14(+) 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 has exit delay subsequent to system arming and has entry delay if there is prior entry through the Entry/Exit Burglary Protection Zone. If that prior entry does not take place, this zone causes an immediate alarm in response to an intrusion. As configured, it permits the use of motion detectors to protect the area between a remote keypad and the entry/exit door. This zone can be shunted by the STAY function from a remote keypad during the disarmed period prior to arming so that perimeter protection can be provided while the premises are occupied and the occupants have freedom of movement within.

## TB2

### Terminals

- 1 **Circuit Ground (-) Return:** Connect this terminal to the cabinet via one of its mounting screws and then connect the cabinet 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).



2(+),  
3(-) **Alarm Bell Voltage:** These terminals provide 6 or 12V.DC (cut jumper selection) during an audible alarm, at a drain of up to 1.5A. This output is steady for burglary and audible panic and pulses for fire.

**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. 1323, 30 VA Transformer.

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

6(-),  
7(+)  
**Continuous 6 or 12V.DC (cut jumper 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.

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 to control the smart options (e.g. alarm memory, day relay disable, night LED disable, etc..) on Ademco motion detectors (e.g. Nos. 650, 652, 760, 850 series) as well as a means to arm No. 1036/1038 Contact Identification Annunciators. 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 to control the smart options (e.g. alarm memory, day delay disable, night LED disable, etc...) on Ademco motion detectors (e.g. Nos. 650, 652, 760, 850 series) as well as a means to arm No. 1036/1038 Contact Identification Annunciators. 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 500 MA, independent of the individual current ratings given for each of these terminals.

## B. INSTALLATION AND WIRING, NO. 4155 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 1 and 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 (e.g. No. 295 cable or 2 No. 289 Twisted Pairs\*).

**\*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.

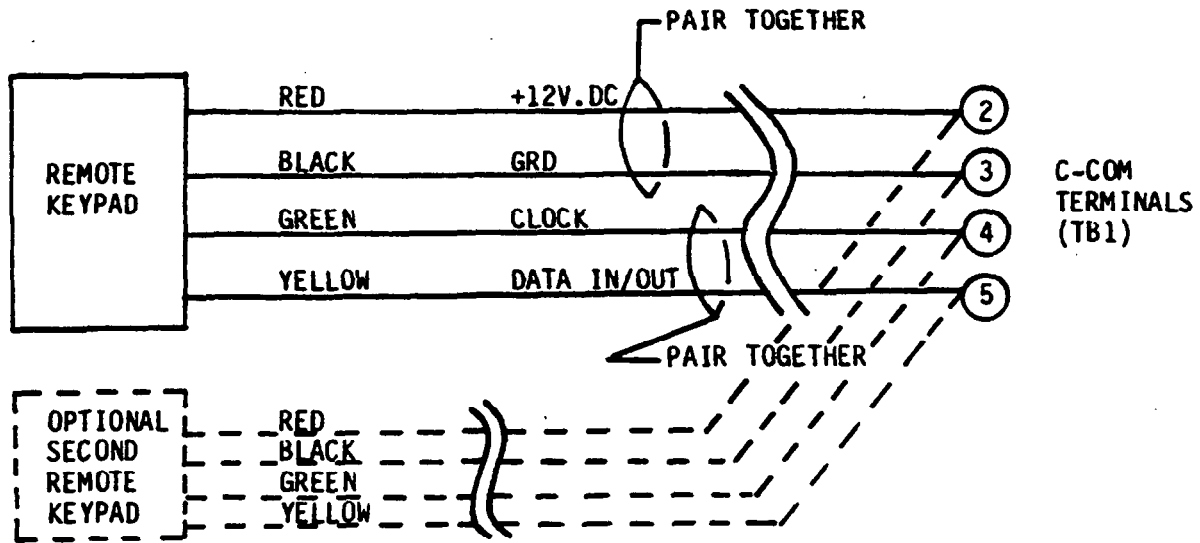


DIAGRAM 1: KEYPAD CONNECTIONS

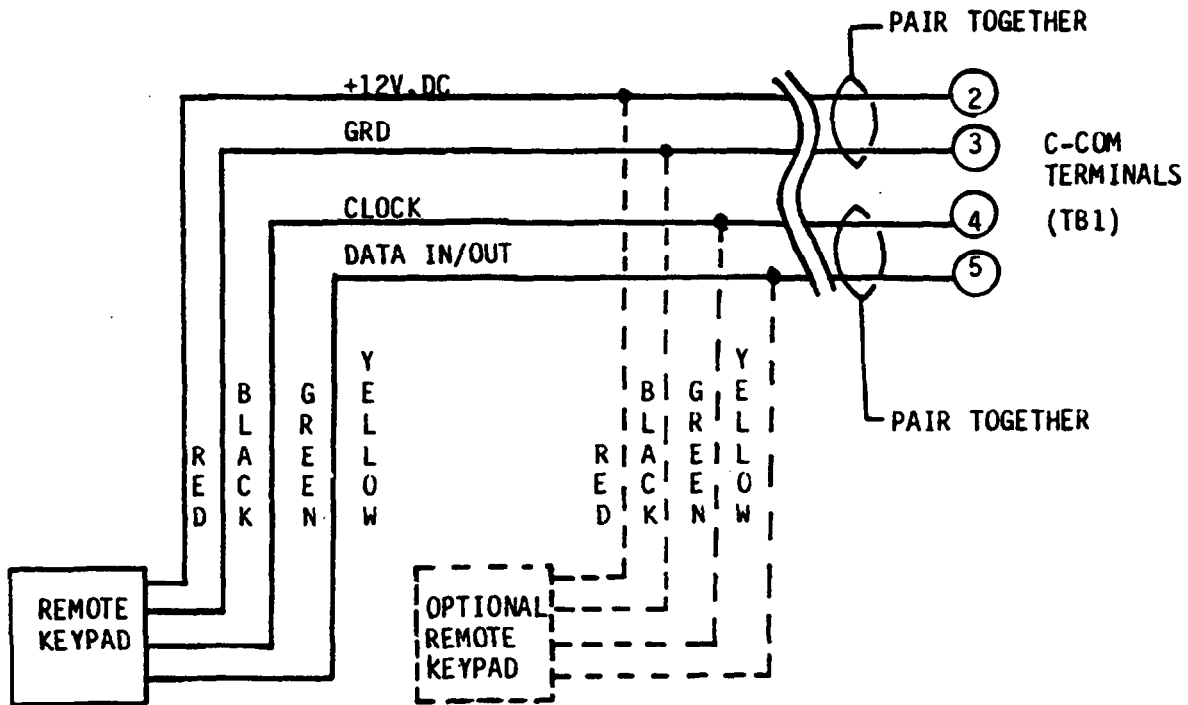


DIAGRAM 2. KEYPAD CONNECTIONS

## 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) 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 burglary zones momentarily, one at a time. The appropriate zone LED should light on the keypad while the zone is open (and the CMND key is depressed).**
  - b. **Short each of the burglary zones (except the second perimeter zone) momentarily, one at a time. The appropriate zone LED should light on the keypad while the zone is shorted (and the CMND 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 FIRE 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 FIRE 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 the panic circuit** by momentarily shorting terminals TB1-9 and 10, by operating an external, zone connected panic switch, or by depressing both of the EMERG keys on the keypad. If the 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 15 minute delay.

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

9. **Force arm the system**, automatically shunting any purposely faulted burglary zone, from a keypad by entering the security code followed by CMND and the depression of BYPASS. The TROUBLE LED on the keypad will light and a single tone beep will be produced every 15 seconds. Turn the system off by keying the disarm code.
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 of 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 1/2 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 procedure 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 CMND key to get display). A faulted zone indication denotes a fault (burglary contacts or panic switches) which must be cleared or the zone shunted during arming by the special automatic shunting forced arming sequence, in order to arm the system. 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 STATUS 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.

**Sequentially depress the CMND and the FIRE 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.

### **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 the 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 the 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 15 minute delay.

#### **To Enter Secondary Security Code(s)**

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

1. Depress PRGRM 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 PRGRM key and by entering the master security code, followed by the ID number of the 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 PRGRM 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 and forced arming. 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 PRGRM 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 OWNERS 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 their own zone problems when arming the system. Show the user how to force arm the system in the presence of a bad zone.

**X. GENERAL SPECIFICATIONS**

**A. No. 4150 Control/Communicator**

See Diagrams 4 and 6.

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

**2. Electrical:**

Voltage: 18 VAC (from No. 1323 30VA Plug-in Transformer)

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

Zone Response: 200 msec

Bell Relay (Wet) Output: SPST, Maximum Output: 1.5A @6 or 12V.DC

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

Arm/Disarm Status Output: Armed: 0V  
Disarmed: +12V.DC, 6mA OR +12V.DC 0V

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

Standby: 12V Gel Lead Acid Rechargeable Battery,  
4 AH (No. 486)

MAXIMUM STANDBY TIMES WITH VARIOUS AUXILIARY, SMOKE/COMBUSTION DETECTOR, AND KEYPAD CONTINUOUS LOAD (assumes at least one keypad)										
MA.	0	50	100	150	200	250	300	350	400	450
HRS.	8	7	6.25	5.5	5.0	4.5	4.25	3.75	3.5	3.25

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:** A96919 - 13665-AL - R  
Ringer Equivalence 0.0.B.

B. **No. 4155 Security Console**  
See Diagram 4.

1. **Physical:**
  - Width: 6-1/2" (17.7 cm)  
requires additional 3" (7.6 cm) clearance at right, if opening of zone data drawer is desirable.
  - Height: 4-3/8" (11.1 cm)
  - Depth: 1-3/8" ( 3.5 cm)

2. **Electrical:**

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

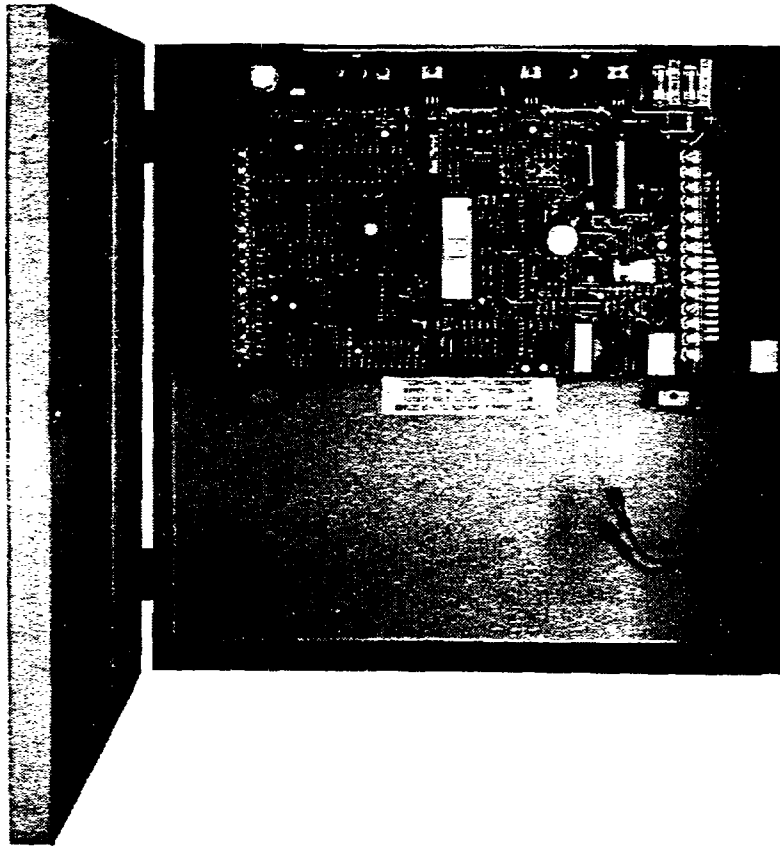


Diagram 3: No. 4150 CONTROL/COMMUNICATOR

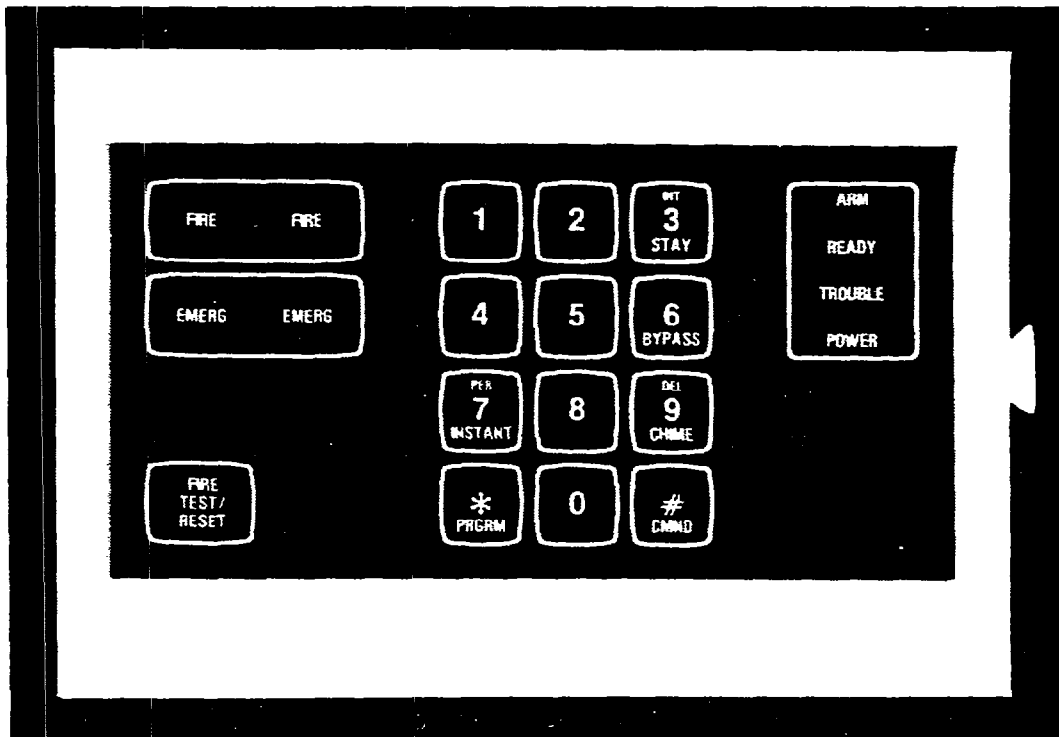
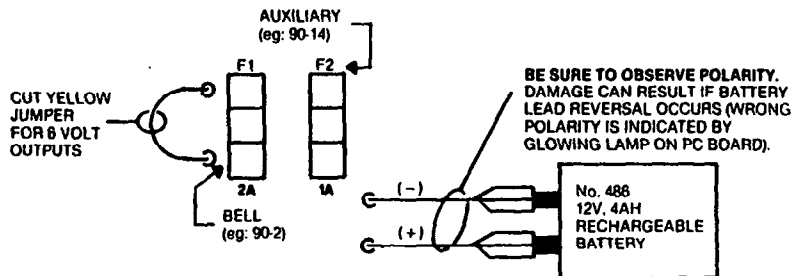


Diagram 4: No. 4155 REMOTE KEYPAD

FOR COMPLETE INFORMATION, SEE TEXT AND OPERATOR'S MANUAL P9987. 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. A96919-13665-AL-R RINGER EQUIVALENCE: 0.0B

INDEX MARK AT UPPER LEFT PROM



627-36  
675

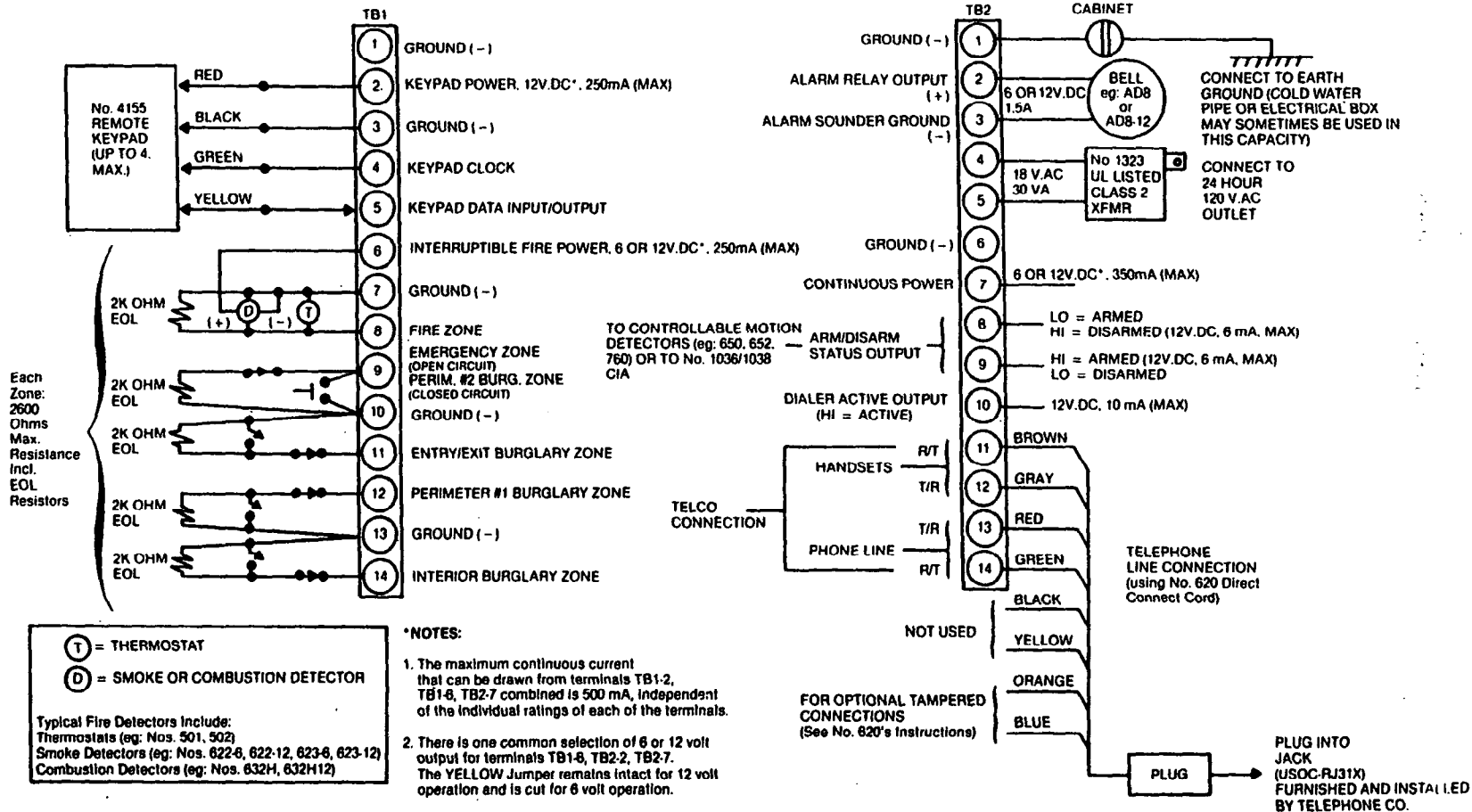


Diagram 5: SUMMARY OF CONNECTIONS

## 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.

## 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 control/communicator and 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 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/RJ32X 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 must 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.