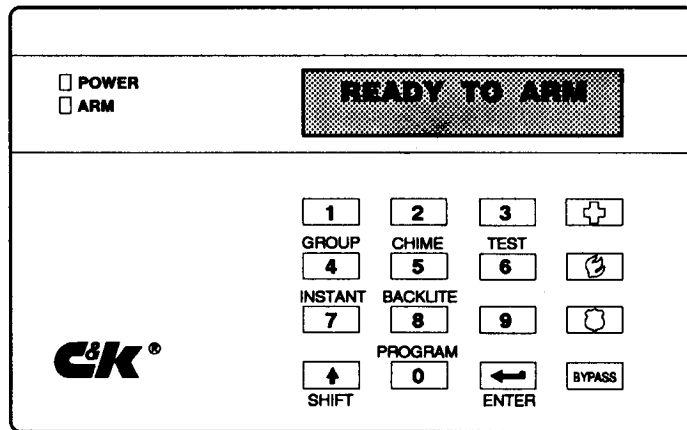# SYSTEM 238

Reference Manual

A Comprehensive Guide for Programming the SYSTEM 238 Digital Control/Communicator

☐ Complete programming Information for the control and ALPHA keypad

☐ Installation Instructions

☐ Valuable marketing tips

Table of Contents

Accuracy

This manual has been carefully checked for accuracy. However, C&K SYSTEMS assumes no liability for inaccuracies or actions resulting from the use of this manual. In addition, C&K reserves the right to modify the SYSTEM 238 hardware, software, and manuals without prior notice.

Programming Conflicts

Some programming options may conflict with other options. For example, you may program each loop to report alarms, but you can also prevent all signals from being reported by programming the SYSTEM 238 to be a local (non-reporting) panel. We try to point out potential programming conflicts throughout this manual. However, it is the technician's responsibility to insure that the panel is programmed and operates as intended.

Authority Having Jurisdiction

Government agencies and insurance companies are called the Authority Having Jurisdiction (AHJ). AHJs may have requirements prohibiting certain programming options. AHJs may also require specific options to be programmed. Example: entry/exit delays may not exceed certain time limits. **If the information contained in this manual conflicts with AHJ requirements, followed the AHJ requirements.**

Underwriters Laboratory Listed

The SYSTEM 238 is in compliance with Underwriters Laboratories, Inc. Standards UL 985, Household Warning System Units; UL 1023, Household Burglar Alarm System Units; and UL 1635, Digital Burglar Alarm Communicator System Units. Some programming options may be required or require specific values, or even be prohibited in UL certificated installations. Installation and programming information pertinent to UL is included in the Terminal drawing on page 4, also in Section 10: How to Install the SYSTEM 238 and Keypads, and Section 11: How to Program for UL Compliance.

Programming Options

Alphabetical Listing

The following is a list of all SYSTEM 238 programming options, including Command Locations and Digit Positions. Digit Positions are inside parentheses ( ).

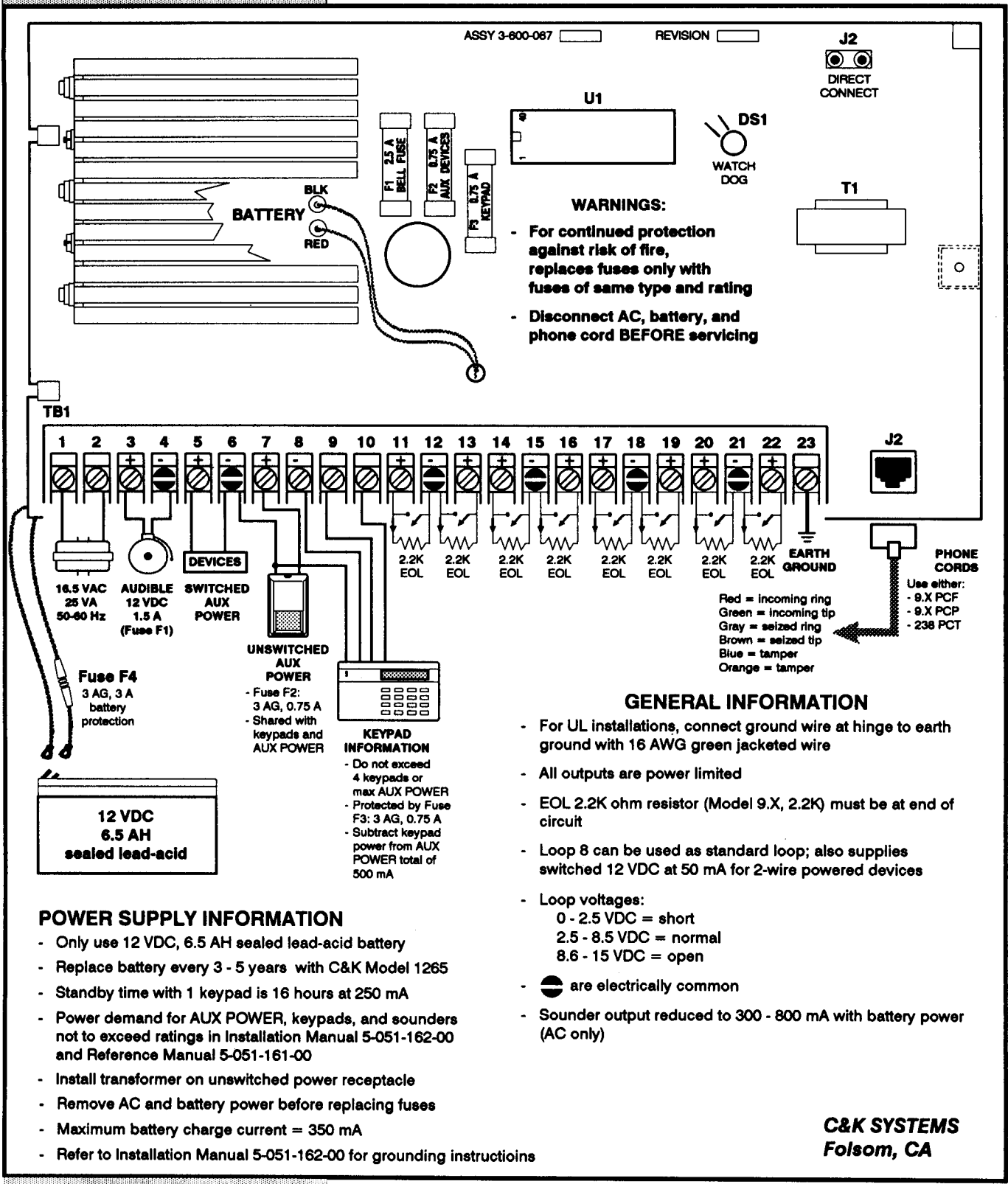| Option	Location
Account #1	0C (1-6)
Account #2	10 (1-6)
Alarm Receiver Select by Loop	1F - 26 (1)
Alarm Code by Loop	17 - 1E (1)
Alarm Loop Shunting by Loop	30 - 37 (2)
Audible Time	2D (5)
Audible Time by Loop	1F - 26(5)
Bell Reverse Operation	2E (3)
Cancel Report Code	2A (5)
Cancel Receiver Select	2A (6)
Closing Report Code	2C (3)
Closing Report Receiver	2C (2)
Combination Command	09 (2)
Daily Battery Test Enable	2F (2)
Installer Combination	00 (1 - 6)
Delay Before Dial by Loop	30 - 37 (4)
Delay Before Dial Time	0B (1)
Dial Type	0B (2)
Dial Attempts	0B (6)
Disable Loop LEDs	2E (5)
Door Chime Enable by Loop	30 - 37 (1)
Duress Report Code	2D (1)
Duress Report Receiver	2D (2)
Entry Delay Time	2D (3)
Entry Pre-alarm Enable	2E (1)
Exit Delay Time	2D (4)
Exit Pre-alarm Enable	2E (2)
Faulted Arming Type	09 (4)
Fire Report Code	28 (1 - 2)
Fire Receiver Select	28 (3)
Fire Bell Type	28 (4)
Four Minute Power Up Delay Enable	2F (3)
Guest Combination	08 (2 - 6)
Guest Combination Time	09 (1)
Installer Combination	00 (1 - 6)
Keypad RPS Enable	0B (3)
Local System Only	2F (1)
Loop Arming Type	1F - 26 (4)
Loop Circuit Type	1F - 26 (6)
Loop Response Time	1F - 26 (2)
Loop Receiver Select	1F - 26 (1)
Loop Audible Type	1F - 26 (5)
Loop Restore Type	1F - 26 (3)
Master Code (User #1)	01 (1 - 6)

Programming Options

Alphabetical Listing

Option	Location
Emergency Report Code	27 (1 - 2)
Emergency Receiver Select	27 (3)
Emergency Bell Type	27 (4)
Opening Report Code	2C (1)
Opening Report Receiver	2C (2)
Police Report Code	29 (1 - 2)
Police Receiver Select	29 (3)
Police Bell Type	29 (4)
Phone Ring Type	0B (5)
Receiver #1 Phone Number	0D - 0E (1 - 6)
Receiver #2 Phone Number	11 - 13 (1 - 6)
Receiver #1 Message Format	0A (2)
Receiver #2 Message Format	0A (4)
Receiver #1 Receive Format	0A (1)
Receiver #2 Receive Format	0A (1)
Restore Receiver Select	2A (2)
Restoral Reporting Code by Loop	17 - 1E (3 - 4)
Ring Back Enable	2E (4)
RPS Enable	0B (4)
RPS Phone Number	14 - 16 (1 - 6)
Set Countdown Timer	0A (1)
Shunt Receiver Select	2A (1)
Shunt Reporting Code	17 - 1E (5 - 6)
Soft Zone Operation Enable	2F (4)
Test Report Code	2B (1 - 2)
Test Report Interval	2B (4)
Test Report Receiver Select	2B (3)
Unit Status Code	2A (3)
Unit Status Receiver	2B (4)
User Arming Type	01 - 08 (1)
User Combinations	01 - 08 (2 - 6)

SYSTEM 238

Terminal Drawing

ASSY 3-600-067 ☐   REVISION ☐

J2
DIRECT CONNECT

U1

DS1
WATCH DOG

T1

F1 2.5 A BELL FUSE
F2 0.75 A AUX DEVICES
F3 0.75 A KEYPAD

BLK
BATTERY
RED

WARNINGS:

- For continued protection against risk of fire, replaces fuses only with fuses of same type and rating

- Disconnect AC, battery, and phone cord BEFORE servicing

TB1

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |

J2

16.5 VAC
25 VA
50-60 Hz

AUDIBLE
12 VDC
1.5 A
(Fuse F1)

SWITCHED
AUX
POWER

DEVICES

2.2K EOL (×8)

EARTH GROUND

PHONE CORDS
Use either:
- 9.X PCF
- 9.X PCP
- 238 PCT

Red = incoming ring
Green = incoming tip
Gray = seized ring
Brown = seized tip
Blue = tamper
Orange = tamper

Fuse F4
3 AG, 3 A
battery protection

UNSWITCHED AUX POWER
- Fuse F2: 3 AG, 0.75 A
- Shared with keypads and AUX POWER

12 VDC
6.5 AH
sealed lead-acid

KEYPAD INFORMATION
- Do not exceed 4 keypads or max AUX POWER
- Protected by Fuse F3: 3 AG, 0.75 A
- Subtract keypad power from AUX POWER total of 500 mA

GENERAL INFORMATION

- For UL installations, connect ground wire at hinge to earth ground with 16 AWG green jacketed wire

- All outputs are power limited

- EOL 2.2K ohm resistor (Model 9.X, 2.2K) must be at end of circuit

- Loop 8 can be used as standard loop; also supplies switched 12 VDC at 50 mA for 2-wire powered devices

- Loop voltages:
    0 - 2.5 VDC = short
    2.5 - 8.5 VDC = normal
    8.6 - 15 VDC = open

- ⏚ are electrically common

- Sounder output reduced to 300 - 800 mA with battery power (AC only)

POWER SUPPLY INFORMATION

- Only use 12 VDC, 6.5 AH sealed lead-acid battery
- Replace battery every 3 - 5 years with C&K Model 1265
- Standby time with 1 keypad is 16 hours at 250 mA
- Power demand for AUX POWER, keypads, and sounders not to exceed ratings in Installation Manual 5-051-162-00 and Reference Manual 5-051-161-00
- Install transformer on unswitched power receptacle
- Remove AC and battery power before replacing fuses
- Maximum battery charge current = 350 mA
- Refer to Installation Manual 5-051-162-00 for grounding instructioins

C&K SYSTEMS
Folsom, CA

Section 1

Introduction to SYSTEM 238 Programming

The SYSTEM 238 is one of a new family of low cost, full-featured digital control/communicators from C&K SYSTEMS. Each model in the series features remote and/or keypad programming. Each model can be programmed using C&K's LED or ALPHA keypad. Once you learn how to program one model, it will be easy to program the others.

What you need to get started

This manual explains the different keypad programming options for the SYSTEM 238. The **COMMANDER II/MONITOR II Remote Programming Manual** explains how to program the SYSTEM 238 using a PC-compatible computer, modem, and either the COMMANDER II or MONITOR II Remote Programming Software (RPS).

To keypad program, you will need a SYSTEM 238 digital communicator with one or more keypads wired to it. The panel should be powered by AC.

You can program the SYSTEM 238 using the LED (Light Emitting Diode) keypad or the LCD (Liquid Crystal Display) keypad. We recommend that you use the LCD keypad for programming. The LCD keypad displays programming entries. It also allows you to upload (read) the panel's existing program values.

Before you start programming, you should have a SYSTEM 238 Programming Worksheet with the desired programming values written in. If you choose programming values as you program each entry (i.e., program "on-the-fly"), you should have a blank Programming Worksheet available. Fill in the programming values as you enter them into the panel.

Getting help

Programming the SYSTEM 238 is very easy. You are more likely to have a question about a particular programming option than how to program the system. Throughout this manual, explanations of programming options appear on left hand pages, while all available programming values appear on right hand pages. If a programming option requires more than one page of explanation, its corresponding right hand page will be repeated. You'll be able to tell when a programming values page has been repeated, because its programming blocks will be colored gray.

To make programming even easier, we included three ways to locate specific programming information:

· **We wrote this manual in order of programming addresses.** We started with the lowest numbered address and ended with the highest.

· The **Table of Contents** on page 2 lists programming options by function. For example, the Command Locations that program the arming/disarming combinations are listed under Arming Options.

· All options are listed in the **Programming Options Alphabetical Listing** on page 3.

If you still need help after reading this manual, call your C&K Distributor or the nearest C&K Service Center. Service Centers are listed in Section 12.

Section 1

Introduction to SYSTEM 238 Programming

Icons

Throughout this manual, icons are used to point out items of special interest or to warn you of special precautions. Sections marked with the Money-Bag Icon explain how to increase sales and recurring revenues. Of course, if you are not interested in these marketing tips, the money-bag icon will indicate which sections to skip.

Some alarm dealers are reluctant to charge their clients for additional features because the features are actually built into the system. While this attitude is commendable for some features, it isn't good for others. Options like Duress, Opening and Closing Reports, the EMERGENCY, POLICE, and FIRE soft keys may not cost more in hardware or software, but they do increase your liability, service time, receiver processing time, dispatcher time, customers and employee training time, and computer processing time. To cover your increased costs, we recommend that you charge extra for these services.

The pliers icon indicates technical information that will make your installations quicker and more reliable.

The skull-and-crossbones icon indicates special precautions that will keep you and your customers out of trouble.

Programming addresses

You program the SYSTEM 238 by entering information into **Command Locations**. Command Location addresses are always two digits long.

The SYSTEM 238 has 56 Command Locations: 00 through 37. In some Command Locations, the hexadecimal numbers A, B, C, D, E, and F will be used. All Command Locations are shown on the sample Program Worksheet at the end of this manual.

Each Command Location stores programming information in Digit Positions. Command Locations can have from 1 to 6 Digit Positions, depending on the amount of programming information an option requires.

Example of SYSTEM 238 Memory Location

7
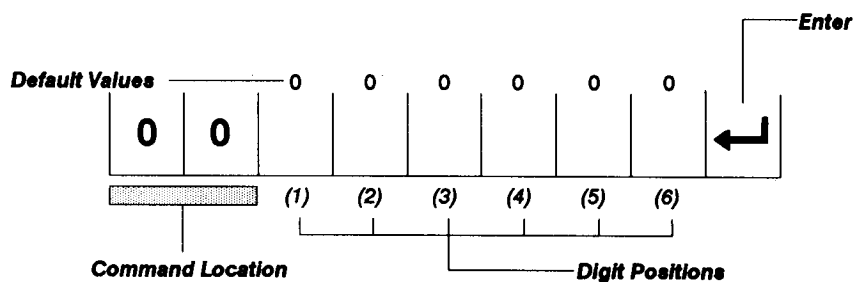
Section 1

Introduction to SYSTEM 238 Programming

The SYSTEM 238 is shipped with a basic alarm system already programmed. We refer to these pre-programmed values as **default values**. In this manual and on the SYSTEM 238 Programming Worksheet, default values are written above the Digit Positions. The default values allow you to power up the SYSTEM 238 and start using it immediately. However, when you install the system at a subscriber's premises, you will want to change some of the default values to suit the application.

How to start programming

You can only keypad program **while the SYSTEM 238 is disarmed**. To start programming, use the following keypad sequence:
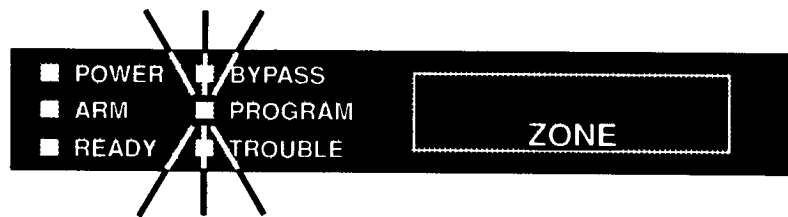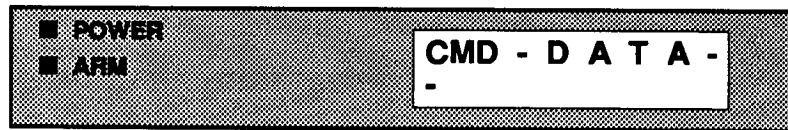
[0] [1] [2] [3] [4] [5] [SHIFT] [0] [ENTER]

$\boxed{\leftarrow\!\!\!\shortmid}$ is the ENTER key on both the ALPHA and LED keypads.

$\boxed{\uparrow}$ is the SHIFT key on both keypads.

0 1 2 3 4 5 is the default Installer Combination. If you have changed this combination, use the current combination. As soon as you press the [ENTER] key, the display will show:

Exiting Program Mode

When you've finished programming, push [SHIFT] [ENTER]. The SYSTEM 238 will exit the Programming Mode and resume normal operations.

> **NOTE:** If you do not press any key for five minutes, the keypad will automatically exit the Programming Mode.

Section 1

Introduction to SYSTEM 238 Programming

Programming keys

The ALPHA and LED keypads have keys numbered [0] through [9], also the following special keys: [EMERGENCY], [FIRE], [POLICE], [BYPASS], [SHIFT], and [ENTER]. Because there are not enough keys for all necessary programming functions, the [SHIFT] key is used to get two functions from some keys.

Programming Keys

NOTE:
The EMERGENCY key will be blank in UL installations
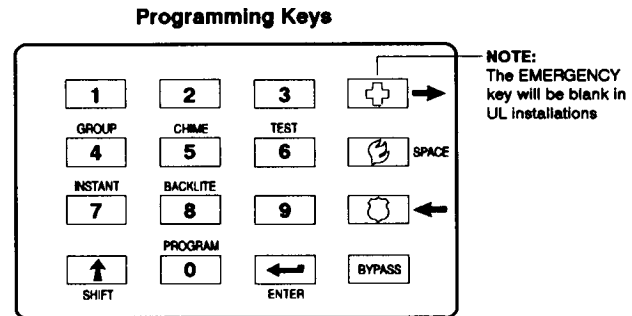
You were supplied with a programming template. The template fits over the keys to show you the alternate functions obtained by using the [SHIFT] key. The template has two sides. For now, we will use the panel programming side (shown below). In Section 7, we'll use the other side of the template to program ALPHA keypad words.

Programming Template
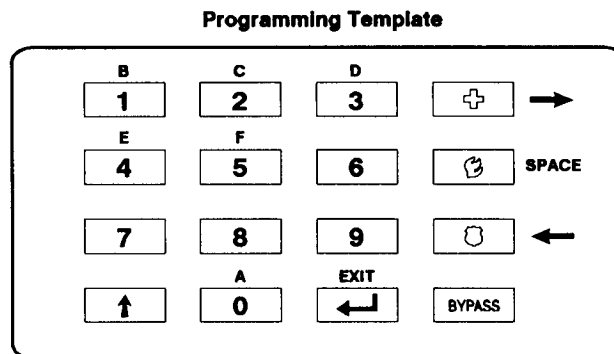
Special key functions while programming

[SHIFT]   The [SHIFT] key is used to switch the 1, 2, 3, 4, 5, 0, and [ENTER] keys to different functions. The new functions are printed in blue on the template, above the keys, and are also shown in the table on the next page.

Programming values A - F

Certain programming options allow you to program the hexadecimal values A=10, B=11, C=12, D=13, E=14, and F=15. To program these values, press and release the [SHIFT] key followed by the correct key, as shown on the programming template.

Section 1

Introduction to SYSTEM 238 Programming

Decimal	Hexadecimal	Keystrokes
10	A	[SHIFT] [0]
11	B	[SHIFT] [1]
12	C	[SHIFT] [2]
13	D	[SHIFT] [3]
14	E	[SHIFT] [4]
15	F	[SHIFT] [5]

Move to the right   Press the [EMERGENCY] key to move the cursor one space to the right. The right arrow is not used when programming with the LED keypad.

Space   Press the [FIRE] key to blank out the current cursor position. The space key is not used when programming with the LED keypad.

Move to the left   Press the [POLICE] key to move the cursor one space to the left. The left arrow is not used when programming with the LED keypad.

[ENTER]   Pressing the [ENTER] key tells the SYSTEM 238 to accept the information just programmed, or to upload data (to the ALPHA keypad) from that memory location.

Exit   To exit the Programming Mode, press [SHIFT] [ENTER]. The SYSTEM 238 will resume normal operations.

What the beeps means

If you enter too many or too few digits in a Command Location, the panel will warn you by beeping the keypad 5 times. It will also warn you if you press two keys at the same time, or incorrectly enter a space in a Digit Position (ALPHA keypad only). The panel does not check for all valid entry values. To exit this Error Mode, just start reprogramming.

Reading the panel program

The ALPHA keypad allows you to read the values already programmed into the SYSTEM 238. Simply move the cursor to the extreme left, type in the two-digit number of the Command Location you want to see, then press the [ENTER] key. The keypad will display the values currently programmed for that Command Location.

Section 1

Introduction to SYSTEM 238 Programming

Automatic command location advance

Once you complete a programming line and press the [ENTER] key, the ALPHA keypad will automatically advance to the next Command Location. You can scroll through the entire program by repeatedly pressing and releasing the [ENTER] key.

REMEMBER: To safeguard the client's security, the SYSTEM 238 cannot be keypad programmed while it is armed. You can get into trouble if you change the combinations, arm the panel, then forget the combinations. You can also get into trouble if you have only one combination and change it to an ARM ONLY combination.

Section 2

How to Program the Arming Options

Command location 00:   installer combination

The correct installer combination must be entered before the panel will allow any keypad or remote programming. The default value is [0] [1] [2] [3] [4] [5]. **The installer combination is not an arming/disarming combination.**

C&K recommends that you change the installer combination. Your client will be safer; your business will be too. Some dealers make the Installer Combination the same for all clients. While this practice makes record-keeping easier, it also reduces your company's security. Employees who leave your company will have keypad programming access to all your accounts. However, they will not be able to remotely access your accounts.

You must program all 6 Digit Positions of the Installer Combination. You may enter any value from 0 - 9 for each position except Digit Position (1). Position (1) must be programmed with a 0 and cannot be changed. **The Installer Combination will always start with 0.**

The SYSTEM 238 is factory programmed to make the Installer Combination revert to the default code when both AC and battery power are removed. Command Location 09 explains how to change this factory programming.

Command locations 01 - 08:   user arming type and combination

The SYSTEM 238 can have up to 8 different User Combinations. Each user must have a combination and Arming Type.

Command Locations 01 - 08 program the Arming Type and combination for each user. If opening, closing, or duress reporting is enabled, the panel will transmit a User ID each time a combination is used to arm or disarm the system. User #1's combination (Command Location 01) is called the Master Combination because it can be used to change any other combination except the Installer Combination.

Digit Position (1) of this Command Location determines the Arming Type. The Arming Type is made up of three options:
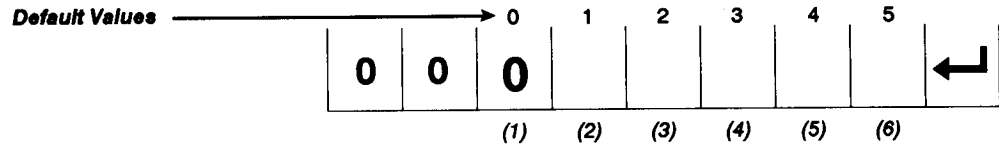
- arming and disarming capability
- opening and closing reporting
- ability to shunt non-priority zones; i.e., zones allowed to be shunted

Select the correct programming value from the programming chart and enter it in Digit Position (1).

Digit Positions (2) - (5) hold the User Combinations. The first number in the combination must be the same as the User's ID number, and is stored in Digit Position (2). For User #1, the hard-coded digit is 1. User #1's combination must always start with the number 1. User #2's combination must always start with the number 2. And so on, up through User #8. You can program any value from 0 - 9 for the remaining 4 Digit Positions.

Command Locations 00 - 08

Command Location 00:   Installer Combination

Default Values ———————————→ 0   1   2   3   4   5

| 0 | 0 | **0** | | | | | | ↵ |

(1)   (2)   (3)   (4)   (5)   (6)

Digit Position (1): First Digit of Installer Combination
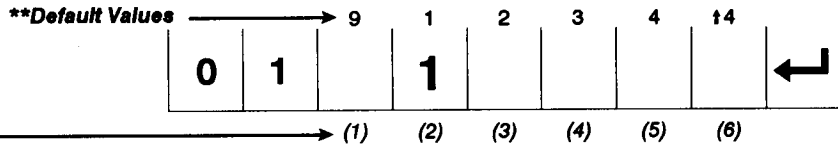Hard-coded to "0". Installer's combination will always start with 0.

Digit Positions (2) - (6): Remaining Digits in Combination
Combination must have 5 digits in addition to Position (1).
Valid entries are 0 - 9.

Command Location 01 - 08:   User Arming Type and Combination

01 = User #1 (Master)   05 = User #5   ****Default Values** ————————→ 9   1   2   3   4   ↑4
02 = User #2   06 = User #6
03 = User #3   07 = User #7
04 = User #4   08 = User #8

| 0 | 1 | **1** | | | | | | ↵ |

Digit Position (1):   Arming Type ————————————→ (1)   (2)   (3)   (4)   (5)   (6)

1 = Arm Only, No Closing (C) Report, No Shunting
2 = Disarm Only, No Opening (O) Report, No Shunting
3 = Arm and Disarm, No O/C Reports, No Shunting

4 = Arm Only, with Closing Report, No Shunting
5 = Disarm Only, with Opening Report, No Shunting
6 = Arm and Disarm, with O/C Reports, No Shunting

7 = Arm Only, No Closing Report, Shunting Allowed
8 = Disarm Only, No Opening Report, Shunting Allowed
9 = Arm and Disarm, No O/C Reports, Shunting Allowed

↑0 = Arm Only, with Closing Report, Shunting Allowed
↑1 = Disarm Only, with Opening Report, Shunting Allowed
↑2 = Arm and Disarm, with O/C Reports, Shunting Allowed

Digit Position (2):   First Digit of Arming Code
Hard-coded to User's PIN. You cannot change this number.

Digit Positions (3) - (6): Remaining Digits in Combination
Comination may have from 1 - 4 digits in addition to Position (2).
Valid entries are 0 - 9.

Program ↑4 (displays "E") after the last number unless the last number is in
Position (6). Fill remaining unused Positions with "0".

***Default Values are different for
each user. Refer to the SYSTEM 238
Programming Worksheet at the end
of this manual for other user default
values.*

Section 2

How to Program the Arming Options

User combinations can be less than 5 digits long, **but must be at least 2 digits long**. If the combination is less than 5 digits long, program an "E" after the last digit by pressing [SHIFT] [4]. Fill remaining Digit Positions with 0.

To disable a User Combination, program a [SHIFT] [4] in the third Digit Position. The ALPHA keypad will display an "E". Fill remaining Digit Positions with 0.

Command Location 08 (User #8) can be used as a temporary Guest Combination. The combination will only operate for the number of days programmed into Command Location 09.

Combination Examples

| 0 | 1 | ↑0 | 1 | 2 | 3 | ↑4 | 0 | ↵ |

In this example, User #1 has a short combination: 1 2 3. The combination will allow the user to Arm Only, with Closing Reports, and shunt zones. Remember, the first digit of the combination will always start with the hard-coded User ID number.

| 0 | 4 | 3 | 4 | 3 | 2 | 1 | ↑4 | ↵ |

In this example, User #4 has a 4-digit combination. The combination will allow the user to Arm and Disarm, without Opening and Closing Reports. The user will not be able to shunt zones.

The ability to track service industry workers like janitors and maids is very saleable. With the SYSTEM 238, you can have one or more combinations report openings and closings, others not. A **Maid-Guard**[1] or **Janitor-Guard**[1] account should generate an additional $5 - $25 per month in recurring revenue.

If your client needs fewer than 8 combinations, you might want to program the unused combinations for future use. Later, should the client request an additional combination, you'll be able to quickly meet his needs. Of course, you won't have to pre-program unused combinations if you have C&K's COMMANDER II or MONITOR II remote programming software. The software will allow you to quickly and easily program combinations without going to the client's premises.

You might want to use one of the unused combinations as a service technician's code. If the combination is programmed for Opening and Closing Reports, your central station will be able to log the time of the technician's departure and arrival...a valuable feature when you're carrying keys to the client's premises.

Arm-only combinations are very useful in preventing maids, janitors, and night clerks from unauthorized re-entry into a protected premises. You can use this feature to increase recurring revenue. After all, you are providing a valuable service. You can also use the feature as a sales closing tool. "Mr. Jones, if you sign the contract today, I'll include our exclusive **Employee-Guard**[1] at no extra charge. With this feature installed, your night employees will be able to arm the system, but not disarm it. You'll save the additional $10 per month on your monthly fees, and increase the security of your store at the same time. Now, should I make the contract out to Mr. Jones, or would Tom Jones be better?"
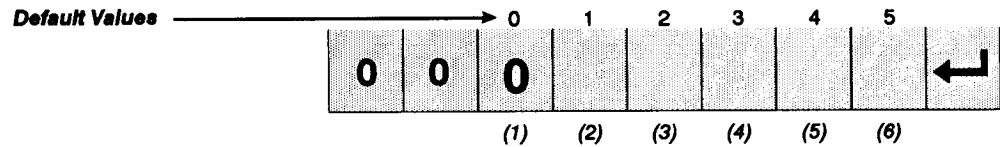
Arm-only combinations will help you sell to the residential market, too. Homeowners can give the combination to baby sitters, allowing them to build an electronical wall of protection around themselves and the children. Unauthorized "visitors" won't be a problem either. Just as important, an unauthorized person can't use the combination to disarm the system.

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[1] Used by permission of The Management Support Group

Command Locations 00 - 08

Command Location 00: Installer Combination

Default Values ──────────────► 0   1   2   3   4   5

| 0 | 0 | 0 | | | | | | ↵ |

(1)   (2)   (3)   (4)   (5)   (6)

Digit Position (1): First Digit of Installer Combination
Hard-coded to "0". Installer's combination will always start with 0.

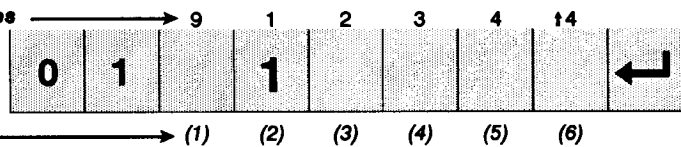### Digit Positions (2) - (6): Remaining Digits in Combination
Combination must have 5 digits in addition to Position (1).
Valid entries are 0 - 9.

Command Location 01 - 08: User Arming Type and Combination

01 = User #1 (Master)   05 = User #5
02 = User #2   06 = User #6
03 = User #3   07 = User #7
04 = User #4   08 = User #8

**Default Values* ──────────────► 9   1   2   3   4   †4

| 0 | 1 | 1 | | | | | | ↵ |

(1)   (2)   (3)   (4)   (5)   (6)

Digit Position (1): Arming Type
1 = Arm Only, No Closing (C) Report, No Shunting
2 = Disarm Only, No Opening (O) Report, No Shunting
3 = Arm and Disarm, No O/C Reports, No Shunting

4 = Arm Only, with Closing Report, No Shunting
5 = Disarm Only, with Opening Report, No Shunting
6 = Arm and Disarm, with O/C Reports, No Shunting

7 = Arm Only, No Closing Report, Shunting Allowed
8 = Disarm Only, No Opening Report, Shunting Allowed
9 = Arm and Disarm, No O/C Reports, Shunting Allowed

†0 = Arm Only, with Closing Report, Shunting Allowed
†1 = Disarm Only, with Opening Report, Shunting Allowed
†2 = Arm and Disarm, with O/C Reports, Shunting Allowed

Digit Position (2): First Digit of Arming Code
Hard-coded to User's PIN. You cannot change this number.

Digit Positions (3) - (6): Remaining Digits in Combination
Comination may have from 1 - 4 digits in addition to Position (2).
Valid entries are 0 - 9.

Program †4 (displays "E") after the last number unless the last number is in
Position (6). Fill remaining unused Positions with "0".

***Default Values are different for
each user. Refer to the SYSTEM 238
Programming Worksheet at the end
of this manual for other user default
values.*

Section 2

How to Program the Arming Options

Command location 09:   arming options

Guest combination

This Command Location programs four different arming options. Digit **Position (1) determines the number of successive days that the Guest Combination will be valid.** If User#8 is to be used as a regular combination instead of a Guest Combination, program a 0 in Digit Position (1). **User #8 is factory programmed as a regular combination.**

If User #8 will be used as a Guest Combination, program in the number of days the combination is to remain valid. You can select from 1 - 15 days. The Countdown Timer starts the first time the Guest Combination is used. When the counter equals the value programmed in Digit Position (1), the Guest Combination will be automatically disabled. To re-enable the combination, reprogram User #8 with a new (or same) combination.

The Master Combination (User #1) can change the Guest Combination; however, it cannot change the number of days the Guest Combination is valid. The installer programs the number of valid days.

The Guest Combination is an excellent marketing tool. You could include it in your sales brochures and presentations. Since most dealers don't discuss this feature, it's the type of 'extra' that could help you close a sale. You could also sell the Guest Combination as an extra option. This would allow you to make more money initially, or to go back in a year and sell it as a system upgrade. **Remember, the Guest Combination will increase the number of false alarms and service calls, so you need to make enough money to pay for the increased overhead.**

Since the Guest Combination Time does not begin counting down until the first time the combination is used, you or the owner could pre-load the Guest Combination for future use. However, this leaves the remote possibility that the combination could be used by the wrong person. It's safer to activate the Guest Combination using the RPS software or the Master Combination.

Combination command

Digit Position (2) is a Yes/No option. It determines whether keypad operations (shunting, one-button arming, group shunting, and tests) will require the entire combination in addition to the speed keys. If you program a Yes, the user must enter a valid combination before pressing the option keys.
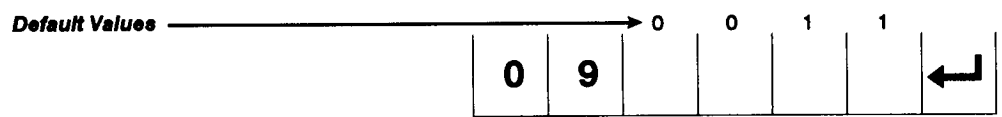
Default installer combination

Digit Position (3) determines whether the Installer Combination will revert to the factory default value [0] [1] [2] [3] [4] [5] when all power is removed from the SYSTEM 238. If you leave the option programmed as Yes, other alarm companies will be able to reprogram your account by removing and restoring power. If you select No, the Installer Combination will not revert to the factory default value when power is removed. We call this important feature **PIRATE-GUARD**™ because it protects you and your customers from unauthorized programming attempts.

If you select No (i.e., don't revert to default Installer Combination on power loss), it **is critical that you record the new Installer Combination in your office records.** If you lose the combination, you will not be able to program the panel or access it remotely. Once the Installer Combination has been changed, the only way to access programming is by using the current Installer Combination, or by sending the panel back to C&K SYSTEMS. The Installer Combination should be associated with the SYSTEM 238 circuit board, not the account or panel location. That way, the Installer Combination will not be lost should the circuit board be changed out or sent in for repairs.

Command Locations 09

Command Location 09:   Arming/Combination Options

Default Values ⟶ | 0 | 0 | 1 | 1

| 0 | 9 | | | | ↵ |

Digit Position (1):   Guest Combination Time ⟶ (1) (2) (3) (4)

0 = Guest Time Disabled	5 = 5 days	⥮ 0 = 10 days
1 = 1 day	6 = 6 days	⥮ 1 = 11 days
2 = 2 days	7 = 7 days	⥮ 2 = 12 days
3 = 3 days	8 = 8 days	⥮ 3 = 13 days
4 = 4 days	9 = 9 days	⥮ 4 = 14 days
		⥮ 5 = 15 days

Digit Position (2):   Combination Command ⟶

0 = No
1 = Yes; requires combination for Bypass, Group Bypass, Instant Arm,
keypad activated RPS, and Test (central station and bell)

Digit Position (3):   Default Installer Combination ⟶

0 = No
1 = Yes; combination changes back to factory value on power loss

Digit Position (4):   Faulted Arming Type ⟶

1 = Goof-Proof: zones must be normal or shunted to arm
2 = Force Arm: faulted zones will be shunted at end of Exit Delay
3 = Chirp Alert: delay zones faulted at end of Exit Delay will chirp bell during Entry delay

Section 2

How to Program the Arming Options

PIRATE-GUARD is one of the SYSTEM 238's most valuable features. For the first time, there's a digital communicator capable of protecting you and your customers. Unauthorized persons cannot program the panel. This protection extends from keypad programming through remote programming. Because you are providing a much higher level of security, you're entitled to a higher installation and monitoring fee.

Faulted arming type

Digit Position (4) determines what state the loops must be in before the panel will arm. If you select **Goof-Proof arming**, the user will not be able to arm the panel until all non-24 hour loops are normal (not faulted). Goof-Proof arming prevents false alarms from occurring when the system is armed with zones faulted. If the user wants to arm with zones faulted, the faulted zones must be bypassed.

Force arming allows the user to arm the system even when zones are faulted. Loops still faulted at the end of the Exit Delay are automatically shunted. If shunt reporting is enabled, the shunted zones are reported to the central station. If closing reports are enabled, the ID number of the user force arming the system is also reported (after the closing code).
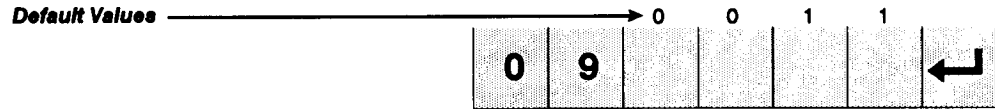
If a priority (non-shuntable) loop is faulted, the user will not be able to force arm the system. The faulted loop will have to be restored, or the system left disarmed.

Chirp alert allows the user to arm with zones faulted, but expects the zones to be restored before the end of the Exit Delay. If the loop(s) are still faulted when the Exit Delay times expires, the audible will chirp during the Entry Delay time. If the panel is not disarmed before the end of the Entry Delay, it will go into an alarm condition. The sounder will change to the audible type programmed for the faulted loop(s).

Command Locations 09

Command Location 09:   Arming/Combination Options

Default Values ————————————————————→ 0   0   1   1

[0 | 9 | | | | ↵]

Digit Position (1):   Guest Combination Time ————————————→ (1)   (2)   (3)   (4)

0 = Guest Time Disabled	5 = 5 days	†0 = 10 days
1 = 1 day	6 = 6 days	†1 = 11 days
2 = 2 days	7 = 7 days	†2 = 12 days
3 = 3 days	8 = 8 days	†3 = 13 days
4 = 4 days	9 = 9 days	†4 = 14 days
		†5 = 15 days

Digit Position (2):   Combination Command ———————————————

0 = No
1 = Yes; requires combination for Bypass, Group Bypass, Instant Arm,
keypad activated RPS, and Test (central station and bell)

Digit Position (3):   Default Installer Combination ———————————

0 = No
1 = Yes; combination changes back to factory value on power loss

Digit Position (4):   Faulted Arming Type —————————————————

1 = Goof-Proof: zones must be normal or shunted to arm
2 = Force Arm: faulted zones will be shunted at end of Exit Delay
3 = Chirp Alert: delay zones faulted at end of Exit Delay will chirp bell during Entry Delay

Section 3

How to Program the Communications Options

Command location 0A: communications formats

Digital communicators transmit in one of three transmission types: pulsed, DTMF, or FSK. Pulsed formats are a series of chirps followed by a short period of silence. DTMF transmits the information as a series of DTMF (Touch Tone[2]) tones. FSK (Frequency Shift Keyed) signals consist of a carrier tone that changes frequency during data transmission.

Pulsed formats

Different pulsed formats have different data frequencies, time between digits, and time between rounds. Since there are no industry standard names for the different formats, we've titled them "A" and "B". Page 22 contains a compatibility chart for different digital receivers and formats.

> Note: Many digital receivers can be customized using switches or software. Also, manufacturers may use the same model number for receivers with different characteristics. Use the Receiver Compatibility Chart as a guideline, not as an absolutely correct source of receiver information.

When programming pulsed formats, you must also select the type of error checking and handshake frequency the receiver will use. Transmission errors are detected in one of two ways: dual round comparison or SumCheck.

If the **dual round comparison** method is used, the communicator will transmit the account number and alarm code twice so that the receiver can compare them bit by bit.

If the **SumCheck** method is used, the communicator will transmit the account number, alarm code, and an error detecting SumCheck digit in a single round.
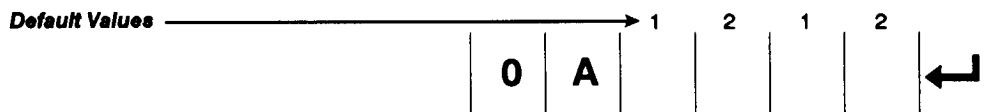
The receiver tells the SYSTEM 238 when to start transmitting data by sending a handshake tone to the communicator. Different receivers have different handshake frequencies. The two most common frequencies are 1400 Hz and 2300 Hz. **You will need to select the frequency of your receiver.**

The SYSTEM 238 can report to any two different digital receivers. You must program the formats to send to the receivers. **Digit Position (1)** determines the handshake frequency and data format for receiver 1. **Digit Position (3)** determines the handshake frequency and data format for receiver 2. Many modern receivers can be set to transmit either a 1400 Hz or 2300 Hz tone. Receivers that can process Radionics signals can also handle the SumCheck format. You can use the Ademco 4/9 DTMF format for receivers that can receive the Ademco High Speed Expanded format. Ademco Model 685 receivers with 4.4 revision firmware can also receive the 4+2 SumCheck DTMF format.

Digit Positions (2) and **(4)** determine the message format. The message format includes the number of digits in the account number, as well as the length of the data message. The number before the slash mark (/) is the length of the account number. The number after the slash mark is the length of the data message.

Command Locations 0A

Command Location 0A: Communications Formats

Default Values ──────────────────────────► 1   2   1   2

```
┌───┬───┬───┬───┬───┬───┐
│ 0 │ A │   │   │   │ ↵ │
└───┴───┴───┴───┴───┴───┘
```

Digit Position (1):   Receiver #1 Receiver Format ──────────► (1)   (2)   (3)   (4)

1 = Fast "A", 2300 Hz
2 = Slow "B", 1400 Hz
3 = SumCheck, 1400 Hz
4 = SumCheck, 2300 Hz
5 = CFSK III
6 = DTMF, 1400 Hz

Digit Position (2):   Receiver #1 Message Format ────────────

1 = 3/1 single
2 = 3/1 extended
3 = 4/2 (2-digit reporting code)
4 = 4/1
5 = CFSK III
6 = Ademco 4/9 DTMF
7 = 4+2 SumCheck (DTMF)

Digit Position (3):   Receiver #2 Receiver Format ────────────

1 = Fast "A", 2300 Hz
2 = Slow "B", 1400 Hz
3 = SumCheck, 1400 Hz
4 = SumCheck, 2300 Hz
5 = CFSK III
6 = DTMF, 1400 Hz

Digit Position (4):   Receiver #2 Message Format ────────────

1 = 3/1 single
2 = 3/1 extended
3 = 4/2 (2-digit reporting code)
4 = 4/1
5 = CFSK III
6 = Ademco 4/9 DTMF
7 = 4+2 SumCheck (DTMF)

Section 3

How to Program the Communications Options

CFSK

One of the fastest and most reliable formats available is the C&K CFSK format. The speed of most pulsed formats is 10 or 20 baud, **while CFSK transmits at 300 baud.** You can receive CFSK on almost any PC-compatible computer, running Windows[3] and C&K's MONITOR II software[4]. MONITOR II turns your computer into a sophisticated alarm receiver, at an extremely low cost.

Receiver Compatibility Chart

C = Compatible; it's worked in our tests, but receiver modifications could change that

I = Incompatible   NT = Not tested

* Sumcheck format column covers both SumCheck 1400 and SumCheck 2300

Receiver	Slow A	Fast A	Slow B	Fast B	Sum-Check	Ademco DTMF	3/1	3/1 Ext.	4/2	4/1	4/9	4+2 DTMF
Acron	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Ademco 660	I	I	C	C	I	I	C	I	I	I	I	I
Ademco 685	C	C	C	C	C	C	C	C	C	C	C	C
FBI CP-220	C	C	C	C	C	C	C	C	C	NT	C	NT
Franklin	C	C	I	I	I	I	C	C	I	I	I	I
ITI CS-4000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Osborne-Hoffman	C	C	C	C	C	C	C	C	C	C	C	C
Radionics 6000	C	C	C	C	C	I	C	C	I	I	I	I
Radionics 6500	C	C	C	C	C	NT	C	C	NT	NT	NT	NT
Sescoa 3000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Sescoa 3210	C	C	I	I	I	I	C	C	I	I	I	I
Sescoa 3240	C	C	I	I	I	I	C	C	I	I	I	I
Silent Knight 8510	I	I	C	C	I	I	C	I	I	I	I	I
Silent Knight 8520	I	I	C	C	I	I	C	I	C	I	I	I
Silent Knight 9000	C	C	C	C	C	NT	C	C	C	C	C	NT
Varitech	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Vertex	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	I

[3] Windows is a registered trademark of Microsoft, Inc.
[4] Monitor is a trademark of C&K SYSTEMS, Inc.

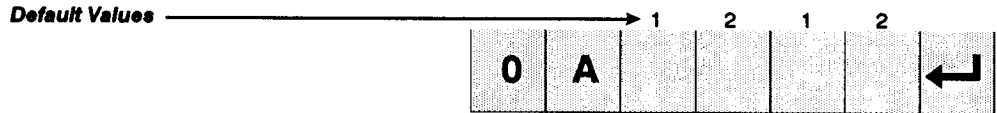# Section 3

How to Program the Communications Options

Receiver Format Compatibility Chart

The SYSTEM 238 is compatible with the receiver and message format combinations shown below.

Programming Value	Receiver Formats	Programming Value	Message Formats
1	Fast A, 2300 Hz	1	3/1 Single
1	Fast A, 2300 Hz	2	3/1 Extended
1	Fast A, 2300 Hz	3	4/2
1	Fast A, 2300 Hz	4	4/1
2	Slow B, 1400 Hz	1	3/1 Single
2	Slow B, 1400 Hz	2	3/1 Extended
2	Slow B, 1400 Hz	3	4/2
2	Slow B, 1400 Hz	4	4/1
3	SumCheck, 1400 Hz	1	3/1 Single
3	SumCheck, 1400 Hz	2	3/1 Extended
4	SumCheck, 2300 Hz	1	3/1 Single
4	SumCheck, 2300 Hz	2	3/1 Extended
5	CFSK III	5	CFSK III
6	Ademco DTMF	6	4/9 Ademco DTMF
6	Ademco DTMF	7	4+2 SumCheck DTMF

Command Locations 0A

Command Location 0A: Communications Formats

Default Values

		1	2	1	2	
0	**A**					↵
		(1)	(2)	(3)	(4)	

Digit Position (1):   Receiver #1 Receiver Format

1 = Fast "A", 2300 Hz
2 = Slow "B", 1400 Hz
3 = SumCheck, 1400 Hz
4 = SumCheck, 2300 Hz
5 = CFSK III
6 = DTMF, 1400 Hz

Digit Position (2):   Receiver #1 Message Format

1 = 3/1 single
2 = 3/1 extended
3 = 4/2 (2-digit reporting code)
4 = 4/1
5 = CFSK III
6 = Ademco 4/9 DTMF
7 = 4+2 SumCheck (DTMF)

Digit Position (3):   Receiver #2 Receiver Format

1 = Fast "A", 2300 Hz
2 = Slow "B", 1400 Hz
3 = SumCheck, 1400 Hz
4 = SumCheck, 2300 Hz
5 = CFSK III
6 = DTMF, 1400 Hz

Digit Position (4):   Receiver #2 Message Format

1 = 3/1 single
2 = 3/1 extended
3 = 4/2 (2-digit reporting code)
4 = 4/1
5 = CFSK III
6 = Ademco 4/9 DTMF
7 = 4+2 SumCheck (DTMF)

Section 3

How to Program the Communications Options

Command location 0B: communications control

This Command Location programs some of the communication functions that affect the entire control. **Digit Position (1) determines the Delay Before Dial Time**, that is, the time that loops programmed for Delay Before Dial will delay before calling the receiver. If no loops are programmed to delay before dialing, the program value for this position does not matter. We explain how Delay Before Dial operates in Command Locations 30 - 37.

Digit Position (2) programs the Dial Type. You can program in Touch Tone at 5 or 10 tones per second, or pulse dial at 10 pulses per second.

While dialing speed is important, insuring that the signal will reach the central station is even more important. To properly test dialing speed, the SYSTEM 238's central station transmission should be tested during normal business hours. Monday through Friday, 9:00 am to 5:00 pm, the phone system is operating under heavy traffic conditions. If the phone company can process the call under these conditions, your programming is probably correct.

If the SYSTEM 238 cannot break dial tone (i.e., silence the dial tone while dialing), it's either dialing incorrectly for the switch system (DTMF instead of pulse or pulse instead of DTMF), or the subscriber's phone system is ground start. If dial tone breaks when you momentarily short tip or ring to earth ground during dialing, the communicator is installed on a ground start phone system. **The SYSTEM 238 is designed to operate only on loop start phone systems**.

If the SYSTEM 238 causes busy signals before it's even finished dialing the phone number, it is dialing too fast for the phone system. Either change to a slower dialing type, or program pauses as described in Command Location 0D.

Program the value 1 in **Digit Position (3) to enable keypad RPS**. If this option is enabled, the user can initiate remote programming by pressing [SHIFT] [0] [2] [ENTER] at the arming station. The SYSTEM 238 will dial the RPS phone number programmed in Command Locations 14 - 16, and attempt to establish a remote programming link with COMMANDER II or MONITOR II.

> **Note:** If the Combination Command has been enabled in Command Location 09, the user will have to enter a valid combination before pressing [SHIFT] [0] [2] [ENTER].

RPS Enable determines if you can initiate SYSTEM 238 remote programming by calling into the panel from a PC-compatible computer, modem, and RPS software. If you are going to remotely access the account, you must program a 1 in **Digit Position (4)**.
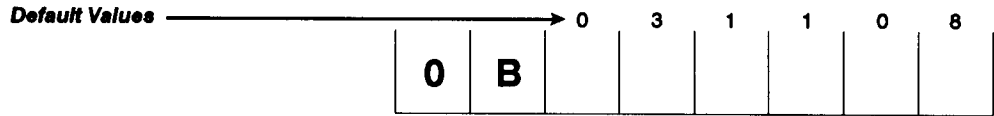
COMMANDER II and MONITOR II software allow you to remotely program and control the SYSTEM 238. COMMANDER II is free with a minimum purchase of SYSTEM 238 panels. The low cost MONITOR II software converts your computer into an alarm receiver and remote programmer. Contact your distributor, C&K Service Center, or C&K Sales Representative for additional information.

RPS software is a real money-maker. You can use it to help close sales. You can sell remote services like remote arming or zone shunting. You can offer economical system upgrades by remotely activating such features as openings, closings, and duress.

Command Location 0B

Command Location 0B: Communications Control

Default Values ⟶ 0 3 1 1 0 8

| 0 | B |

(1) (2) (3) (4) (5) (6)

Digit Position (1): Delay Before Dial Time ⟶ (1)

0 = 0 secs	4 = 40 secs	8 = 80 secs	↑2 = 120 secs
1 = 10 secs	5 = 50 secs	9 = 90 secs	↑3 = 130 secs
2 = 20 secs	6 = 60 secs	↑0 = 100 secs	↑4 = 140 secs
3 = 30 secs	7 = 70 secs	↑1 = 110 secs	↑5 = 150 secs

Digit Position (2): Dial Type

1 = DTMF - Touch Tone (10/sec)   2 = DTMF (5/sec)   3 = Pulse (10/sec)

Digit Position (3): Enable Keypad Activated RPS

0 = No
1 = Yes; allows remote programming to start from on-site keypad command

Digit Position (4): RPS Enable

0 = No
1 = Yes; allows remote programming to start from off-premise location

Digit Position (5): Phone Ring Type

0 = Single ring
1 = Double ring

Digit Position (6): Dialing Attempts

1 = 1 try	5 = 5 tries	9 = 9 tries	↑3 = 13 tries
2 = 2 tries	6 = 6 tries	↑0 = 10 tries	↑4 = 14 tries
3 = 3 tries	7 = 7 tries	↑1 = 11 tries	↑5 = 15 tries
4 = 4 tries	8 = 8 tries	↑2 = 12 tries	

PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

How to Program the Communications Options

Answering machine intercept

The SYSTEM 238 has an exclusive feature called **Answering Machine Intercept**. The panel is programmed to answer the phone on the first ring of the second phone call. The second call must occur within 30 seconds after the second ring of the first call. The first call cannot ring more than twice. The COMMANDER II and MONITOR II software are designed to automatically make the correct phone call sequence. This call sequence allows you to bypass most answering machines.

> If the subscriber's answering machine is set to answer on the second ring, you will not be able to remotely program the SYSTEM 238 by calling the account. The answering machine will always answer on the second ring, while the SYSTEM 238 requires two rings on the first phone call. If you experience this problem, ask your customer to set the answering machine ring count to a number higher than two.

Ring detection

The normal way to remotely access the SYSTEM 238 is by calling the account. The panel counts the number of rings. If there are two rings on the first call, and the second call occurs within 30 seconds of the second ring, the panel will answer. If it hears the proper signal from the RPS computer, it will hang up and call the computer back. If the panel does not hear the correct recognition signal, it will simply hang up.

Some phone systems use two short rings instead of one long ring. This can confuse the SYSTEM 238 ring detector. Instead of **ring** ....**ring**, you hear **ring** .... **ring** .... **ring** .... **ring**. You must program **Digit Position (5)**, the **Phone Ring Type**, with the value 1 (double ring) for the panel to properly answer the phone.
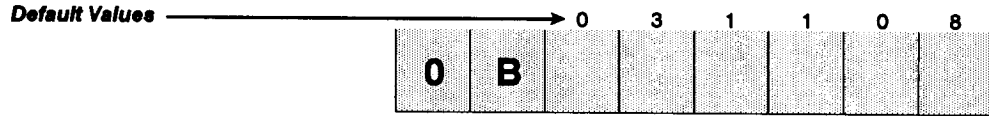
Dial attempts

You can program the number of dialing attempts from 1 - 15. This is the number of attempts the dialer will make to report alarms or events. If the SYSTEM 238 is unable to report after the last dialing attempt, it will go into a Failed-to-Communicate mode and shut down.

Some countries require you to program a specific number of dialing attempts. Check with your C&K distributor for the number of dialing attempts required in your country.

Command Location 0B

Command Location 0B: Communications Control

Default Values ━━━━━━━━━━━━━▶ 0   3   1   1   0   8

| 0 | B | | | | | | |

(1) (2) (3) (4) (5) (6)

Digit Position (1): Delay Before Dial Time ━━━━━━━━▶ (1)

0 = 0 secs	4 = 40 secs	8 = 80 secs	↑2 = 120 secs
1 = 10 secs	5 = 50 secs	9 = 90 secs	↑3 = 130 secs
2 = 20 secs	6 = 60 secs	↑0 = 100 secs	↑4 = 140 secs
3 = 30 secs	7 = 70 secs	↑1 = 110 secs	↑5 = 150 secs

Digit Position (2): Dial Type

1 = DTMF - Touch Tone (10/sec)   2 = DTMF (5/sec)   3 = Pulse (10/sec)

Digit Position (3): Enable Keypad Activated RPS

0 = No
1 = Yes; allows remote programming to start from on-site keypad command

Digit Position (4): RPS Enable

0 = No
1 = Yes; allows remote programming to start from off-premise location

Digit Position (5): Phone Ring Type

0 = Single ring
1 = Double ring

Digit Position (6): Dialing Attempts

1 = 1 try	5 = 5 tries	9 = 9 tries	↑3 = 13 tries
2 = 2 tries	6 = 6 tries	↑0 = 10 tries	↑4 = 14 tries
3 = 3 tries	7 = 7 tries	↑1 = 11 tries	↑5 = 15 tries
4 = 4 tries	8 = 8 tries	↑2 = 12 tries	

| PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Section 3

# How to Program the Communications Options

Command location 0C: account number 1

Command Location 0C stores the account number for receiver 1. The SYSTEM 238 can transmit up to 6 digits for the account number. The last digit of the account number must be programmed into **Digit Position (6)**. You can program any value from 0 - F in each position. Any unused left hand positions should be programed with 0.
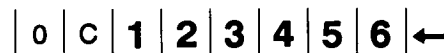
3-digit account number

| 0 | C | 0 | 0 | 0 | 1 | 2 | 3 | ↵ |
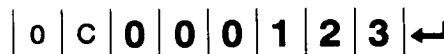
4-digit account number

| 0 | C | 0 | 0 | 1 | 2 | 3 | 4 | ↵ |
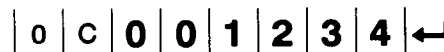
6-digit account number

| 0 | C | 1 | 2 | 3 | 4 | 5 | 6 | ↵ |

Some receivers like C&K's MONITOR II can receive the hexadecimal numbers A - F. These additional numbers greatly increase the number of accounts you can receive. Hexadecimal numbers can also be used to warn the dispatcher of accounts requiring special handling.

Command locations 0D - 0F: receiver 1 phone number

Receiver 1's phone number can be up to 18 digits long. Command Location 0D stores the first 6 digits to be dialed. Command Location 0E stores digits 7 - 12. Command Location 0F stores digits 13 - 18.

Write Receiver 1's phone number on the programming worksheet. Write the first digit to be dialed in Command Location 0D, Digit Position (1). Fill in the remaining Digit Positions. If the phone number is longer than 6 digits, go to Command Location 0E. If you fill CL 0E, go to Command Location 0F. After you've programmed the last number, program a [SHIFT] [4] in the next Digit Position. This will tell the SYSTEM 238 that the phone number is complete. Fill any unused Digit Positions after the phone number with 0. The extra 0's will not be dialed.
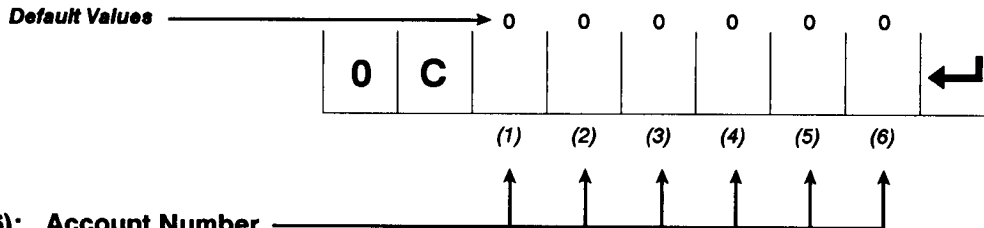
If necessary, you can program special dialing functions, like detecting a second dial tone, DTMF characters * and #, and 5-second pauses.

Order in which numbers will be dialed

| (1) (2) (3) (4) (5) (6) | (1) (2) (3) (4) (5) (6) | (1) (2) (3) (4) (5) (6) |
| CL 0D | CL 0E | CL 0F |
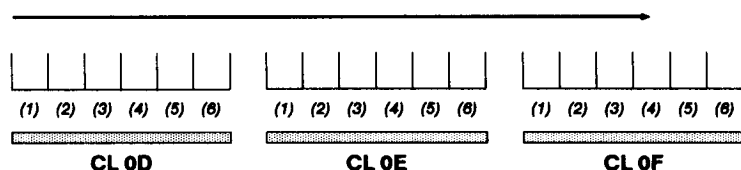
Command Locations 0C - 0F

Command Location 0C: Account Number 1

Default Values ⟶ 0 0 0 0 0 0

| 0 | C | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

Digit Positions (1) - (6): Account Number

Valid entries are 0 - F.
Entries 0 and A both transmit 10 pulses.
The Account Number is right justified. The last digit must be in Position (6).
The SYSTEM 238 will use Digit Positions:
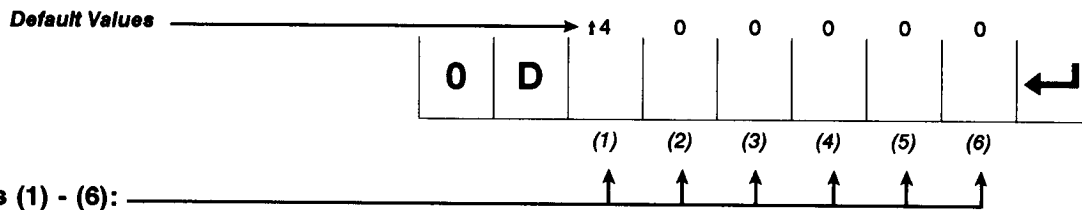 Digit Positions (4) - (6) in 3-digit accounts
  Digit Positions (3) - (6) in 4-digit accounts
  Digit Positions (1) - (6) in 6-digit accounts
Fill left hand unused portions with any digit values. They will not be used by the system.

PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Command Location 0D: Receiver #1 Phone Number (digits 1 - 6)

Default Values ⟶ ↑4 0 0 0 0 0

| 0 | D | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

Digit Positions (1) - (6):

0 - 9 = dialing digits
↑0 = dial tone detect
↑2 = * (DTMF dialing only, not used in pulse dialing)
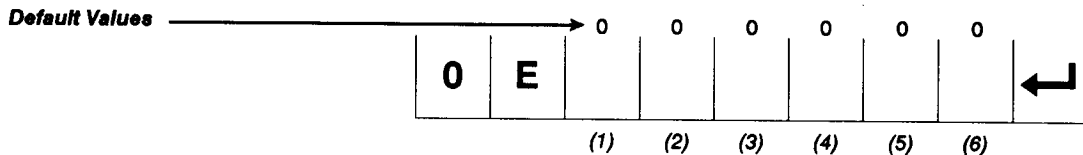↑3 = # (DTMF dialing only, not used in pulse dialing)
↑4 = end of number
↑5 = 5 second delay

Digit (1) is dialed first.
You must place a ↑4 (EON) after the last digit to be dialed. Fill in remaining positions with "0". The zeroes will not be dialed.

Command Location 0E: Receiver #1 Phone Number (digits 7 - 12)

Default Values ⟶ 0 0 0 0 0 0

| 0 | E | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

Command Location 0F: Receiver #1 Phone Number (digits 13 - 18)

Default Values ⟶ 0 0 0 0 0 0

| 0 | F | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)
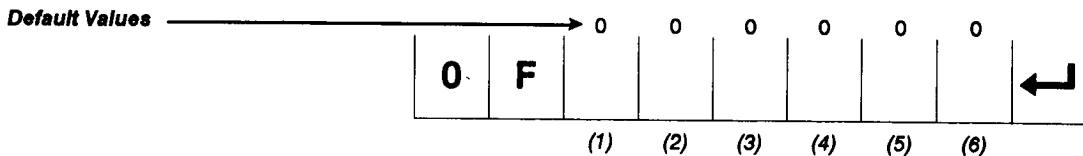
Section 3

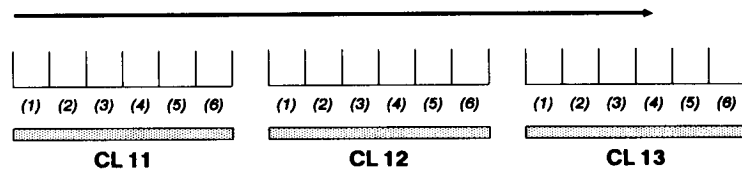# How to Program the Communications Options

Command location 10:   account number 2

The SYSTEM 238 can transmit to two different receivers. The account number for Receiver 2 can be different from Receiver 1. You can program up to 6 digits for the account number. The last digit of the account number must be programmed in **Digit Position (6)**. You can program any value from 0 - F in each position. Any unused left hand positions should be programmed with 0.

Command locations 11 - 13:   receiver 2 phone number

Receiver 2's phone number can be up to 18 digits long, and is programmed in Command Locations 11 - 13. Follow the same programming rules for Receiver 1 (CL 0D - 0F).

Order in which numbers will be dialed


```
(1) (2) (3) (4) (5) (6)    (1) (2) (3) (4) (5) (6)    (1) (2) (3) (4) (5) (6)
        CL 11                      CL 12                      CL 13
```

Dual reporting

When the SYSTEM 238 is programmed for Dual Reporting, all reports are transmitted first to Receiver 1 and then Receiver 2. If you are using a contract central station, Dual Reporting provides you with duplicates of all signals. The SYSTEM 238 will attempt to contact each receiver up to the programmed number of dialing attempts. If it fails to contact one receiver, but successfully transmits to the other, it will only send a Failed-to-Communicate message to the failed receiver. Additional information on the Failed-to-Communicate feature can be found in Command Location 2A.

Back-up reporting

If programmed for Back-up Reporting, the SYSTEM 238 will try to send all reports to Receiver 1. If successful, the panel will shut down without trying Receiver 2. If the panel cannot report to Receiver 1 after two dialing attempts, it will try Receiver 2. After that, the panel will alternate between Receiver 1 and Receiver 2 every two dialing attempts, until the number of programmed dialing attempts (CL 0B) is reached. At the end of the last dialing attempt, the SYSTEM 238 will automatically signal a Failed-to-Communicate message and shut down.

Split reporting

Split Reporting sends some reports to Receiver 1 and other reports to Receiver 2. If programmed for Split Reporting, the SYSTEM 238 will not be able to transmit the SAME report to both receivers. If the panel cannot transmit to a receiver, it will shut down after the last dialing attempt.

Dual and Split Reporting are excellent ways to increase your recurring revenue. If you use Split Reporting to send Opening and Closing Reports to your office, you'll get the additional O/C revenue without the higher cost contract monitoring fees. With MONITOR II, you can receive the reports on your office computer. You can also sell proprietary alarm systems, where the client directly monitors alarms, while you provide back-up monitoring. The ways to use Dual and Split Reporting are endless, just like the income they can generate for you.

Command Locations 10 - 13

Command Location 10: Account Number 2

Default Values ──────────────→ 0   0   0   0   0   0

| 1 | 0 | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

↑   ↑   ↑   ↑   ↑   ↑
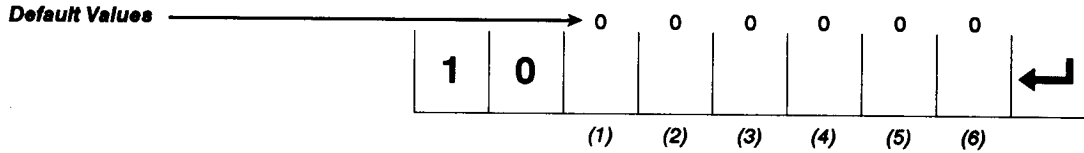
Digit Positions (1) - (6): Account Number 2 ──────────

Valid entries are 0 - F.
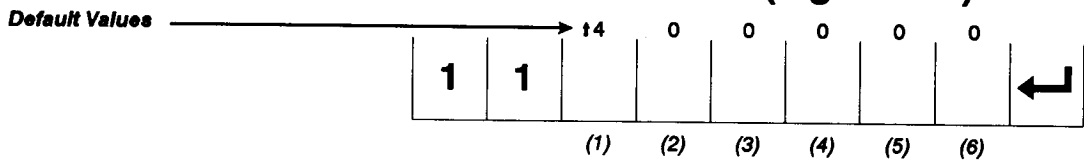Entries 0 and A both transmit 10 pulses. The Account Number is right justified.
The last digit must be in Position (6). The SYSTEM 238 will ignore unused Digit Positions:
   Digit Positions (1) - (3) in 3-digit accounts
   Digit Positions (1) & (2) in 4-digit accounts
Fill left hand unused portions with any digit values. They will not be used by the system.

Command Location 11: Receiver #2 Phone Number (digits 1 - 6)

Default Values ──────────────→ ↑4   0   0   0   0   0

| 1 | 1 | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

↑   ↑   ↑   ↑   ↑   ↑

Digit Positions (1) - (6): ──────────────

0 - 9 = dialing digits
↑0 = dial tone detect
↑2 = * (DTMF dialing only, not used in pulse dialing)
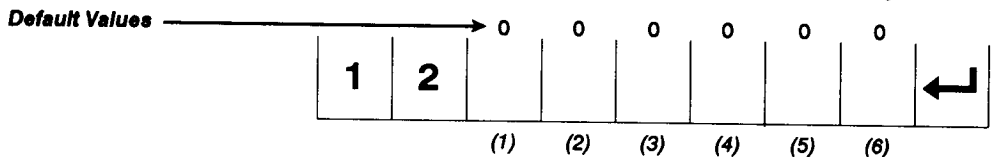↑3 = # (DTMF dialing only, not used in pulse dialing)
↑4 = end of number
↑5 = 5 second delay

Digit (1) is dialed first.
You must place a ↑4 (EON) after the last digit to be dialed. Fill in remaining positions with "0". The zeroes will not be dialed.

Command Location 12: Receiver #2 Phone Number (digits 7 - 12)

Default Values ──────────────→ 0   0   0   0   0   0

| 1 | 2 | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

Command Location 13: Receiver #2 Phone Number (digits 13 - 18)
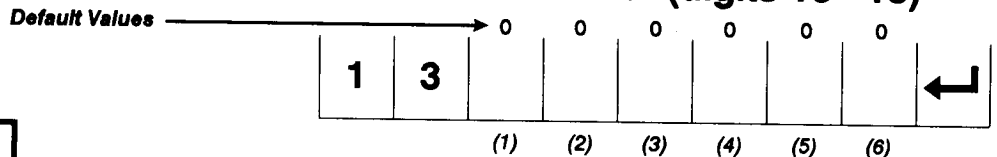
Default Values ──────────────→ 0   0   0   0   0   0

| 1 | 3 | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

PROGRAMMING CONVERSIONS

Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Section 3

How to Program the Communications Options

Command locations 14 - 16: RPS phone number

When you command the SYSTEM 238 to initiate remote programming, it automatically dials the pre-programmed RPS phone number. C&K SYSTEMS pioneered this call-back feature to give you greater remote programming security. The RPS phone number can be up to 18 digits long. Command Location 14 stores the first 6 digits to be dialed. Command Location 15 stores digits 7 - 12. Command Location 16 stores digits 13 - 18.

Write the RPS phone number on the programming worksheet. Write the first digit to be dialed in Command Location 14, Digit Position (1). Fill in the remaining Digit Positions. If the phone number is longer than 6 digits, go to Command Location 15. If you filled CL 15, go to Command Location 16. After you've programmed the last number, program a [SHIFT] [4] in the next Digit Position. This will tell the SYSTEM 238 that the RPS phone number is complete. Fill any unused Digit Positions after the phone number with 0. The extra 0's will not be dialed.

If necessary, you can program special dialing functions, like detecting a second dial tone, DTMF characters * and #, and 5-second pauses.

Order in which numbers will be dialed

(1) (2) (3) (4) (5) (6)   (1) (2) (3) (4) (5) (6)   (1) (2) (3) (4) (5) (6)

CL 14   CL 15   CL 16
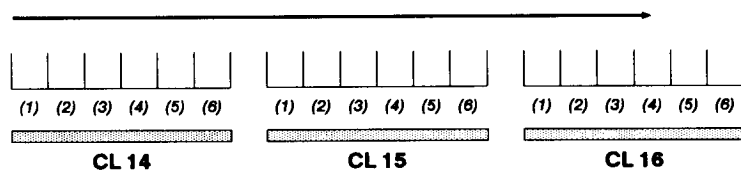
C&K has the highest remote programming security available. The dialer must dial the pre-programmed RPS phone number as part of the security design. If you do not program in an RPS phone number, **you will not be able to remotely program or control the SYSTEM 238 until you return to the client's premises and reprogram the panel.** Why make the extra trip, when you can activate remote programming during the system installation?

Even if you are not planning to remotely program, program in an RPS phone number. Since the SYSTEM 238 will not call this number unless commanded, you can use your office or home phone number. Then, when you're ready to program remotely, just connect your RPS computer to the phone line and call your accounts. If you've installed an RPS phone number, you'll be able to quickly and easily remotely reprogram accounts to call a new RPS number.

You can install the panel directly out of the box **without programming the RPS phone number.** Refer to the COMMANDER II/MONITOR II Remote Programming Manual for details on First-Time Installer Programming.

You will also need to program CL 0B, Digit Positions (3) and (4) with a Yes value. Position (3) allows the user to activate remote programming from a keypad. Position (4) permits you to remotely initiate the remote programming process.

Command Locations 14 - 16

Command Location 14: RPS Phone Number (digits 1 - 6)
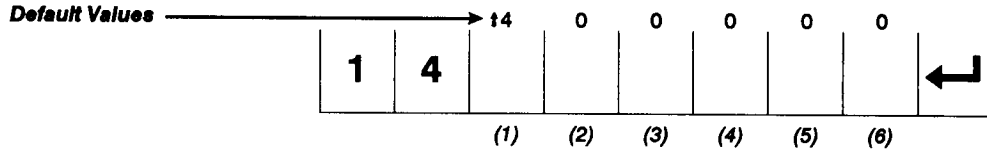
Default Values ——————————————→ ↑4　0　0　0　0　0

| 1 | 4 | (1) | (2) | (3) | (4) | (5) | (6) | ↵ |

Digit Positions (1) - (6):

0 - 9 = dialing digits
↑ 0 = dial tone detect
↑ 2 = * (DTMF dialing only, not used in pulse dialing)
↑ 3 = # (DTMF dialing only, not used in pulse dialing)
↑ 4 = end of number
↑ 5 = 5 second delay

Digit (1) is dialed first.
You must place a ↑4 (EON) after the last digit to be dialed. Fill in remaining positions with "0". The zeroes will not be dialed.

Command Location 15: RPS Phone Number (digits 7 - 12)

Default Values ——————————————→ 0　0　0　0　0　0

| 1 | 5 | (1) | (2) | (3) | (4) | (5) | (6) | ↵ |
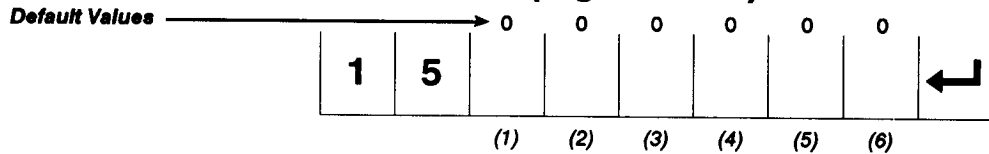
Command Location 16: RPS Phone Number (digits 13 - 18)
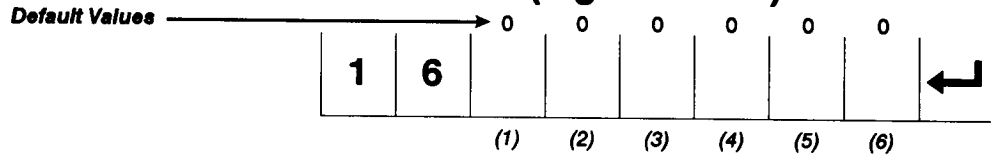
Default Values ——————————————→ 0　0　0　0　0　0

| 1 | 6 | (1) | (2) | (3) | (4) | (5) | (6) | ↵ |

PROGRAMMING CONVERSIONS

Decimal	Hexadecimal	Keys
10	A	↑ 0
11	B	↑ 1
12	C	↑ 2
13	D	↑ 3
14	E	↑ 4
15	F	↑ 5

Section 4

How to Program the Loop and Soft Zone Options

Command locations 17 - 1E: loop reporting codes

Each of the eight hardwired loops and three soft zones have a number of options that must be programmed. The first options programmed are the alarm, restoral, and shunt reporting codes. Command Locations 17 - 1E program these codes for loops 1 - 8.

Digit Positions (1) and **(2) program the Alarm Reporting Code.** Both digits are transmitted for 3/1 Extended, 4/2 and CFSK formats. Only Digit Position (1) is transmitted for 3/1 and 4/1 formats. The programming value does not matter when transmitting in Ademco DTMF 4/9, as long as it is not 00. Program 00 to disable central station reporting for this loop.

Digit Positions (3) and **(4) program the Restoral Reporting Code.** Command Locations 1F - 26 (Loop Control) program when the loop will restore, and under what electrical conditions. Both digits are transmitted for 3/1 Extended, 4/2 and CFSK formats. Only Digit Position (3) is transmitted for 3/1 and 4/1 formats. The programming value does not matter when transmitting in Ademco DTMF 4/9, as long as it is not 00. Program 00 to disable central station reporting for this loop. Restorals are also sent after shunted loops are restored to service (unshunted).

Digit Positions (5) and **(6) program the Shunt Reporting Code.** The Shunt Code is transmitted when the loop is manually shunted or force armed. Both digits are transmitted for 3/1 Extended, 4/2 and CFSK formats. Only Digit Position (5) is transmitted for 3/1 and 4/1 formats. The programming value does not matter when transmitting in Ademco DTMF 4/9, as long as it is not 00. Program 00 to disable central station reporting for this loop.
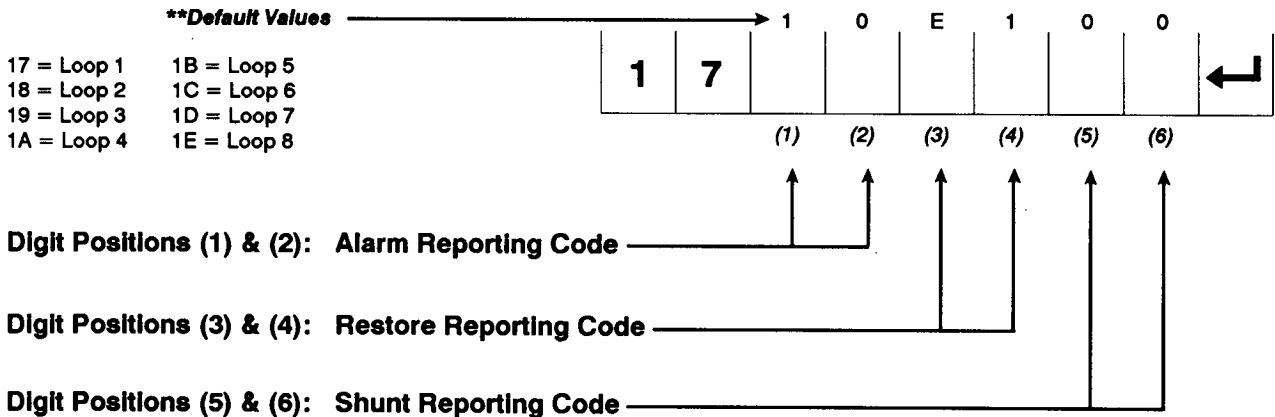
Reporting priority

It is possible for different loops or conditions to be triggered at approximately the same time. The SYSTEM 238 stores these events in an Event Reporting Buffer, in the order in which they occurred. The panel will report events in order, with the oldest event reported first. If the panel is reporting a Failed-to-Communicate condition, it will report the condition(s) that tried to report, followed by a Unit Status Failed To Communicate signal.

If the reporting buffer fills up, the SYSTEM 238 will discard the oldest events as it needs room for new events. While this is an unlikely occurrence, it could happen if previous events fail to communicate, and a large number of new events occur. Loops programmed for Restoral Reporting will fill the buffer up twice as fast, since an alarm is likely to be followed by a restoral.

If you have programmed the SYSTEM 238 for Back-up Reporting, it will make two dialing attempts to report all information to Receiver 1 before trying Receiver 2.

Command Locations 17 - 1E

Command Locations 17 - 1E: Loop Reporting Codes

Default Values ————————————→ 1 0 E 1 0 0

| 1 | 7 |

(1) (2) (3) (4) (5) (6)

17 = Loop 1   1B = Loop 5
18 = Loop 2   1C = Loop 6
19 = Loop 3   1D = Loop 7
1A = Loop 4   1E = Loop 8

Digit Positions (1) & (2): Alarm Reporting Code

Digit Positions (3) & (4): Restore Reporting Code

Digit Positions (5) & (6): Shunt Reporting Code

Only Position (1) is sent for 3/1 and 4/1 formats.
Positions (1) and (2) are sent for 3/1 Extended , 4/2,
and CFSK formats.
Program 00 to disable Event Reporting for a loop.
If 3/1 or 4/1, fill unused positions with any digit value.

***Default Values are different
for each loop. Refer to the
SYSTEM 238 Programming
Worksheet at the end of this
manual.*

PROGRAMMING CONVERSIONS		
Decimal	**Hexadecimal**	**Keys**
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Section 4

How to Program the Loop and Soft Zone Options

Command locations 1F - 26:   loop control

Command Locations 1F - 26 program the operational characteristics of the hardwired loops. **Digit Position (1) programs the Alarm Receiver Select.** This determines where the SYSTEM 238 will send alarm reports. The panel can send alarms from each loop to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). It can send alarms to Receiver 1 or Receiver 2 (Split Reporting). Or it can send alarms to both receivers (Dual Reporting).

Digit Position (2) programs the Loop Response Time. This is the time the loop must be faulted before the SYSTEM 238 will declare the loop violated. Use the 5 ms (millisecond) time for fast acting devices like vibration detectors and glass-breaks. Use 750 ms for foil, screens, and lacing. Use 250 ms or 500 ms for most other detectors. The faster the loop response time, the greater the chance of swinger false alarms caused by marginal electrical connections.

Be sure to test each loop to insure that all detectors will trip an alarm. You can mistakenly program the loop response time to be slower than the detector's alarm time. If this happens, the device can fault and restore so rapidly that the panel will not "see" the fault.

Digit Position (3) determines the Loop Restore Type. This is the time when the Restoral Report will be sent. If you program a 0, no restoral will be sent for a specific loop. To prevent any loop from sending a Restoral Report, program the Restoral Report Code for each loop (CL 17 - 1E) with a value of 00.

Digit Position (4) programs the Loop Arming Type.
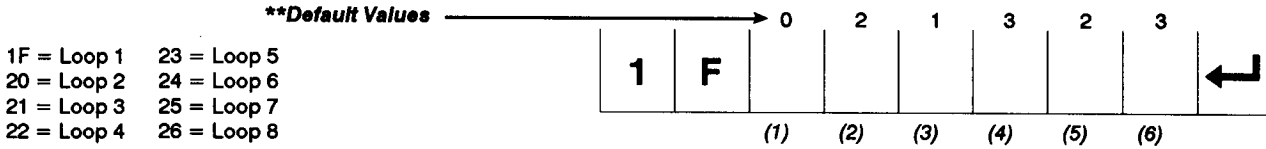
When the system is armed:

· **Interior** loops are delayed during the Exit Delay time;

· if a **delay** loop is violated first, interior loops are also delayed for the Entry Delay time;

· interior loops become **Instant** loops if they are faulted first;

· an **Instant** loop will go into immediate alarm when faulted.

After the panel is armed, **delay** loops are delayed immediately for the programmed Exit Delay time. Delay loops can be faulted during the Exit Delay, as long as they are restored before the end of the delay time. At the end of the Exit Delay, delay loops arm. The next time they're faulted, they start the programmed Entry Delay time. If the panel is not disarmed before the end of the Entry Delay, it will alarm.

Long Delay loops have twice the entry delay time of delay loops. If a delay loop and long delay loop are faulted during the same period, the panel will use the delay time for the first delay loop faulted.

Command Locations 1F - 26

Command Locations 1F - 26: Loop Control

Default Values

1F = Loop 1	23 = Loop 5
20 = Loop 2	24 = Loop 6
21 = Loop 3	25 = Loop 7
22 = Loop 4	26 = Loop 8

Default Values → 0 2 1 3 2 3

| 1 | F | | | | | | | ↵ |

(1) (2) (3) (4) (5) (6)

Digit Position (1): Alarm Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2): Loop Response Time

0 = 5 milliseconds	2 = 500 milliseconds
1 = 250 milliseconds	3 = 750 milliseconds

Digit Position (3): Loop Restore Type

0 = No Restoral	2 = Restored when loop normal and bell silences
1 = Restored when loop normal	3 = Restored when loop normal and system disarmed

Digit Position (4): Loop Arming Type

1 = Interior: delayed during E/E delays	6 = Day/Delay: buzzer on day fault
2 = Instant	7 = Day/Instant with bell
3 = Delay	8 = Day/Delay with bell
4 = Long Delay: entry delay two times as long	9 = 24 Hours: always armed
5 = Day/Instant: buzzer on day fault	

Digit Position (5): Loop Bell Type

1 = Pulsing	3 = Chirp	5 = Silent with LED
2 = Steady	4 = Silent with no LED	

Digit Position (6): Loop CircuitType

1 = Normally Open Circuit	3 = End Of Line (EOL)	5 = Supervised, bell not latched
2 = Normally Closed Circuit	4 = Supervised, bell latched	

Default Values are different for each user. Refer to the SYSTEM 238 Programming Worksheet at the end of this manual for other user default values.

Section 4

How to Program the Loop and Soft Zone Options

If a **day/instant** loop is faulted when the panel is disarmed, the loop will sound the keypad buzzers, but it will not report alarms. Entering a valid combination will silence the buzzers. If a day/instant loop is faulted when the panel is armed, the loop will trigger an instant alarm.

If a **day/delay** loop is faulted when the panel is disarmed, the loop will sound the keypad buzzers, but it will not report alarms. Entering a valid combination will silence the buzzers. If a day/delay loop is faulted when the panel is armed, the loop will operate as a delay loop.

If a **day/instant with bell** loop is faulted when the panel is disarmed, the loop will sound the keypad buzzers and audibles, but it will not report alarms. The audibles will sound for the programmed Bell time. Entering a valid combination will silence the buzzers and audibles. If a day/instant with bell loop is faulted when the panel is armed, the loop will trigger an instant alarm.

If a **day/delay with bell** loop is faulted when the panel is disarmed, the loop will sound the keypad buzzers and audibles, but it will not report alarms. The audibles will sound for the programmed Bell time. Entering a valid combination will silence the buzzers and audibles. If a day/delay with bell loop is faulted when the panel is armed, it will operate as a delay loop.

24-hour loops are armed 24 hours per day. Typical 24-hour loops are fire, holdup, emergency, and environmental.

Digit Position (5) programs Audible Type. This determines how the audible will sound when the loop goes into alarm. If loops with different Bell Types are tripped at the same time, the audible priority will be: pulsing, steady, chirp, silent with no LED, silent with LED.

Digit Position (6) programs the Loop Circuit Type. This determines the electrical characteristics of each loop.

Open Circuit
(shown in non-alarm state)

Voltage across terminals:
12 VDC = normal
0 VDC = alarm

SYSTEM 238 Loop Terminals
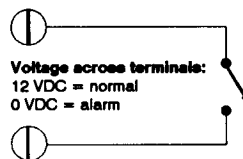
Open circuit loops use normally-open switches. A switch closure (short) causes an alarm condition. Foreign grounds cannot be detected. Open circuit faults are not detected. **C&K recommends that you do NOT wire detection devices using this configuration.** An open circuit fault will prevent any detectors located electrically after the fault from being detected.

Closed Circuit
(shown in non-alarm state)

Voltage across terminals:
0 VDC = normal
12 VDC = alarm

SYSTEM 238 Loop Terminals
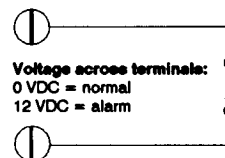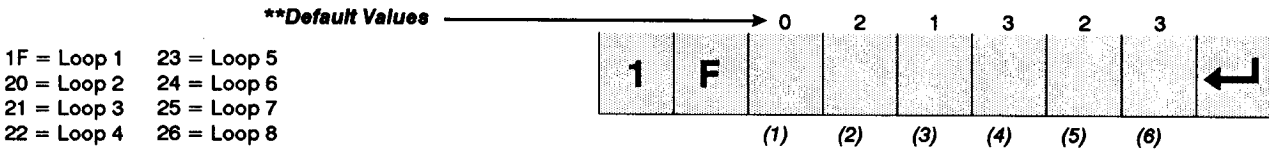
Closed circuit loops use normally-closed switches. Electrically opening a switch causes an alarm condition. Short circuit faults across the circuit are not detected. Foreign grounds are not detected. **C&K recommends that you do NOT wire detection devices using this configuration.** A short circuit fault will prevent any detectors located electrically after the fault from being detected.

Command Locations 1F - 26: Loop Control

Default Values

1F = Loop 1	23 = Loop 5
20 = Loop 2	24 = Loop 6
21 = Loop 3	25 = Loop 7
22 = Loop 4	26 = Loop 8

Default Values: 0 2 1 3 2 3

`1 F | 0 | 2 | 1 | 3 | 2 | 3 | ↵`

(1) (2) (3) (4) (5) (6)

Digit Position (1): Alarm Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2): Loop Response Time

0 = 5 milliseconds   2 = 500 milliseconds
1 = 250 milliseconds   3 = 750 milliseconds

Digit Position (3): Loop Restore Type

0 = No Restoral   2 = Restored when loop normal and bell silences
1 = Restored when loop normal   3 = Restored when loop normal and system disarmed

Digit Position (4): Loop Arming Type

1 = Interior: delayed during E/E delays   6 = Day/Delay: buzzer on day fault
2 = Instant   7 = Day/Instant with bell
3 = Delay   8 = Day/Delay with bell
4 = Long Delay: entry delay two times as long   9 = 24 Hours: always armed
5 = Day/Instant: buzzer on day fault

Digit Position (5): Loop Bell Type

1 = Pulsing   3 = Chirp   5 = Silent with LED
2 = Steady   4 = Silent with no LED

Digit Position (6): Loop CircuitType

1 = Normally Open Circuit   3 = End Of Line (EOL)   5 = Supervised, bell not latched
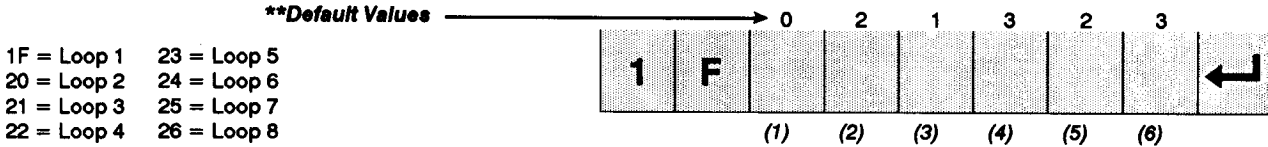2 = Normally Closed Circuit   4 = Supervised, bell latched

Default Values are different for each user. Refer to the SYSTEM 238 Programming Worksheet at the end of this manual for other user default values.

Arming Flow Chart

```
ZONE
FAULTED
   │
   ▼
◇ 24-HOUR ───YES──────────────────────────────────────────────────┐
  LOOP?                                                            │
   │ NO                                                            │
   ▼                                                               │
◇ INSTANT ──YES──► ◇ ARMED? ──NO──► [NO CHANGE]                    │
  LOOP?              │ YES                                         │
   │ NO              └────────────┐                               │
   ▼                              ▼                               │
◇ DELAY ──YES──► ◇ ARMED? ──NO──► [NO CHANGE]                     │
  LOOP?            │ YES                                          │
   │ NO            └──► ◇ COMBO ──NO──► ◇ DELAY ──YES──► ALARM     │
   ▼                     ENTERED?        OVER?                    │
◇ DAY/ ──YES──► ◇ ARMED? ──NO──► ◇ WITH DAY   │ YES               │
  INSTANT         │ YES            BELL?       ▼                  │
  LOOP?           │                            [DISARM]           │
   │ NO           │              [SOUND BUZZERS]                  │
   ▼              │              [SOUND BELLS]                    │
◇ DAY/ ──YES──► ◇ ARMED?  ──NO──► ◇ WITH DAY ── [SOUND BUZZERS]   │
  DELAY           │ YES             BELL?        [SOUND BELLS]     │
  LOOP?           │                                               │
   │ NO           ◇ COMBO ──NO──► ◇ DELAY ──YES──► ALARM          │
   ▼              ENTERED?        OVER?                           │
[INTERIOR ──► ◇ ARMED? ──YES──► ◇ DELAY ──NO──► ALARM             │
 LOOP?]          │ NO             ZONE                            │
                 ▼               TRIPPED?                         │
              [NO CHANGE]         │ YES   ◇ END OF ──YES──► ALARM │
                          [DISARM]        DELAY TIME?             │
                                  ◇ COMBO                         │
                                   ENTERED?                       │
```

ALARM CONDITION

Command Locations 1F - 26:   Loop Control

Default Values ⟶   0   2   1   3   2   3

```
1F = Loop 1    23 = Loop 5
20 = Loop 2    24 = Loop 6
21 = Loop 3    25 = Loop 7
22 = Loop 4    26 = Loop 8
```

```
1  F  |  |  |  |  |  |  ↵
      (1) (2) (3) (4) (5) (6)
```

Digit Position (1):   Alarm Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2):   Loop Response Time

0 = 5 milliseconds   2 = 500 milliseconds
1 = 250 milliseconds   3 = 750 milliseconds

Digit Position (3):   Loop Restore Type

0 = No Restoral sent   2 = Restored when loop normal and bell silences
1 = Restored when loop normal   3 = Restored when loop normal and system disarmed

Digit Position (4):   Loop Arming Type

1 = Interior: delayed during E/E delays   6 = Day/Delay: buzzer on day fault
2 = Instant   7 = Day/Instant with bell
3 = Delay   8 = Day/Delay with bell
4 = Long Delay: entry delay two times as long 9 = 24 Hours: always armed
5 = Day/Instant: buzzer on day fault

Digit Position (5):   Loop Bell Type

1 = Pulsing   3 = Chirp   5 = Silent with LED
2 = Steady   4 = Silent with no LED

Digit Position (6):   Loop CircuitType

1 = Normally Open Circuit   3 = End Of Line (EOL)   5 = Supervised, bell not latched
2 = Normally Closed Circuit   4 = Supervised, bell latched

**Default Values are different for
each user. Refer to the SYSTEM 238
Programming Worksheet at the end
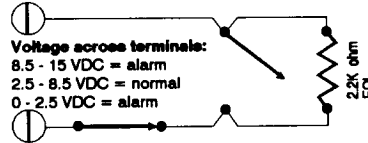of this manual for other user default
values.**

Section 4

How to Program the Loop and Soft Zone Options

EOL Circuit
(shown in non-alarm state)

SYSTEM 238 Loop Terminals

Voltage across terminals:
8.5 - 15 VDC = alarm
2.5 - 8.5 VDC = normal
0 - 2.5 VDC = alarm

2.2K ohm EOL

End-of line (EOL) loops used a 2.2K ohm resistor at the end of the detection circuit. When the loop is armed, an open or short in the circuit will cause an alarm. Foreign grounds will cause a faulted circuit when the panel is disarmed, and an alarm when the panel is armed. **C&K recommends this configuration for burglar alarm circuits. UL requires this loop type for burglar detection devices.**

EOL Circuit
(shown in non-alarm state)

SYSTEM 238 Loop Terminals
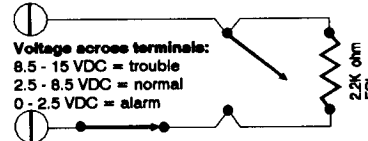
Voltage across terminals:
8.5 - 15 VDC = trouble
2.5 - 8.5 VDC = normal
0 - 2.5 VDC = alarm

2.2K ohm EOL

Supervised, Bell Latched (i.e., bell sounds until combination is entered) loops use a 2.2K ohm resistor at the end of the detection circuit. An open in the circuit or a foreign ground causes a trouble condition (Unit Status - Trouble). A short in the circuit causes an alarm. Troubles will make the buzzers latch on. The audibles will sound until a valid combination is entered. **This is the recommended circuit type for fire and smoke detection. UL requires this loop type for heat detectors.**

Supervised, Bell Not Latched (i.e., bell times out) loops use a 2.2K ohm resistor at the end of the detection circuit. An open in the circuit or foreign ground causes a trouble condition (Unit Status - Trouble). A short in the circuit causes an alarm. Troubles will make the buzzers sound until a valid combination is entered. **This is the recommended circuit for sprinkler supervision, holdup, emergency, and environmental monitoring. UL requires this loop type for latching smoke detectors.**

Loop 8 provides up to 50 mA at 12 VDC for 2-wire devices like smoke detectors and glass-breaks. Devices like these use the same two wires for power and the alarm contacts. Standard detectors will also work properly when wired to this loop. Although Loop 8 is a powered loop, it still programs and operates like any other SYSTEM 238 loop. This means you have the best of both worlds: a power loop when needed, without losing a standard loop.

Disabling loops

There is no single programming value for disabling a loop. However, you can make a loop "invisible" to the central station, arming sequence, and user by doing the following:

· Alarm, Restoral, and Shunt Reporting codes for each of the SYSTEM 238's loops are programmed in CL 17 - 1E. Go to the Command Location of the unused loop, and program a 0 in Digit Positions (1) through (6). This will disable all reporting for that loop, making it "invisible" to the central station.

· Loop Arming Type and Bell Type are programmed in CL 1F - 26. Programming a 9 in Digit Position (4) will make the loop a 24-hour loop. 24-hour loops have no effect on the SYSTEM 238's arming sequence. When a 4 is programmed in Digit Position (5), the loop will be silent with no LED, "invisible" to the user.
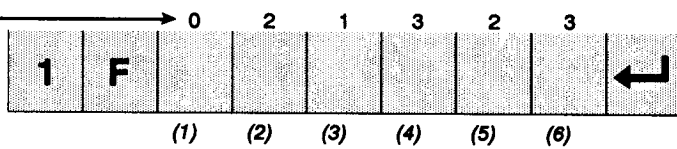
Each time you reprogram the operational characteristics of a loop (CL 1F - 26 and 30 - 37), after exiting the programming mode, **you must change the loop status (normal to faulted or faulted to normal) for the programming changes to take effect.**

Command Locations 1F - 26: Loop Control

Default Values ⟶

```
         0   2   1   3   2   3
    ┌──┬──┬──┬──┬──┬──┬──┬──┬──┐
    │ 1│ F│  │  │  │  │  │  │ ↵│
    └──┴──┴──┴──┴──┴──┴──┴──┴──┘
        (1) (2) (3) (4) (5) (6)
```

1F = Loop 1	23 = Loop 5
20 = Loop 2	24 = Loop 6
21 = Loop 3	25 = Loop 7
22 = Loop 4	26 = Loop 8

Digit Position (1): Alarm Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2): Loop Response Time

0 = 5 milliseconds   2 = 500 milliseconds
1 = 250 milliseconds   3 = 750 milliseconds

Digit Position (3): Loop Restore Type

0 = No Restoral sent   2 = Restored when loop normal and bell silences
1 = Restored when loop normal   3 = Restored when loop normal and system disarmed

Digit Position (4): Loop Arming Type

1 = Interior: delayed during E/E delays   6 = Day/Delay: buzzer on day fault
2 = Instant   7 = Day/Instant with bell
3 = Delay   8 = Day/Delay with bell
4 = Long Delay: entry delay two times as long 9 = 24 Hours: always armed
5 = Day/Instant: buzzer on day fault

Digit Position (5): Loop Bell Type

1 = Pulsing   3 = Chirp   5 = Silent with LED
2 = Steady   4 = Silent with no LED

Digit Position (6): Loop CircuitType

1 = Normally Open Circuit   3 = End Of Line (EOL)   5 = Supervised, bell not latched
2 = Normally Closed Circuit   4 = Supervised, bell latched

**Default Values are different for
each user. Refer to the SYSTEM 238
Programming Worksheet at the end
of this manual for other user default
values.**

Section 4

How to Program the Loop and Soft Zone Options

Command locations 27 - 29:   soft zones control

The SYSTEM 238 has three soft zones: emergency, fire, and police. The term "soft zones" is due to the fact that the zones are generated by software, not by hardwired switches. The client activates these zones by holding down the EMERGENCY, FIRE or POLICE key for three seconds.

Since the soft zones are keypad activated, programming options that define electrical characteristics are not needed. Each zone has just three programming options: Reporting Code, Receiver Select, and Bell Type: Command Location 27 programs the EMERGENCY zone. Command Location 28 programs the FIRE zone. Command Location 29 programs the POLICE zone.

Digit Positions (1) and **(2) program the Alarm Reporting Code** to be transmitted to the central station. This is a two-digit reporting code. Only Digit Position (1) is in the 3/1 Single or 4/1 format. Digit Positions (1) and (2) are both sent for 3/1 Extended, 4/2, or CFSK reporting. Program 00 to disable alarm reporting.

Digit Position (3) programs the Alarm Receiver Select. This determines where the SYSTEM 238 will send alarm reports. You can send alarms from each soft zone to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send alarms to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send alarms to both Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (4) programs the Bell Type. This determines how the audible will sound when a soft zone goes into alarm. If loops or soft zones with different Bell Types are tripped at the same time, the audible priority will be: pulsing, steady, chirp, silent.

You can program the soft zones to report, be local, or be disabled. If you want the soft zones to report, program the Reporting Code with any digits other than 00. Command Location 2F is used to disable a soft zone for both local **and** central station reporting.

Command Locations 27 - 29

Command Location 27: Soft Zone A (EMERGENCY)

Default Values ⟶ 0   0   0   3

| 2 | 7 | | | | | ↵ |

(1)   (2)   (3)   (4)
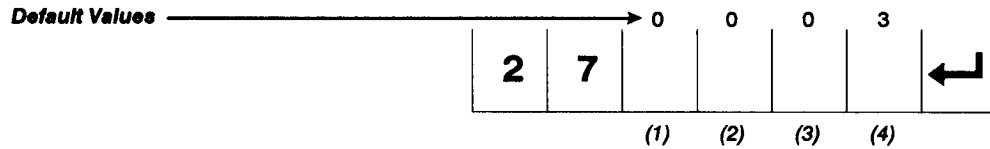
Digit Positions (1) and (2): Emergency Code Report

Only Position (1) is sent for 3/1 and 4/1 formats.
Positions (1) and (2) are sent for 3/1 Extended, 4/2, and CFSK formats.
Program 00 to disable alarm reporting for Emergency zone.
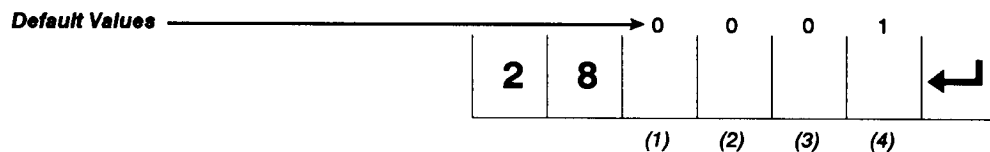
Digit Position (3): Emergency Zone Receiver Select

0 = Receiver 1 with Receiver 2 as back-up   2 = Receiver 2 only
1 = Receiver 1 only   3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (4): Loop Bell Type
1 = Pulsing   2 = Steady   3 = Chirp   4 = Silent

Command Location 28: Soft Zone B (Fire)

Default Values ⟶ 0   0   0   1
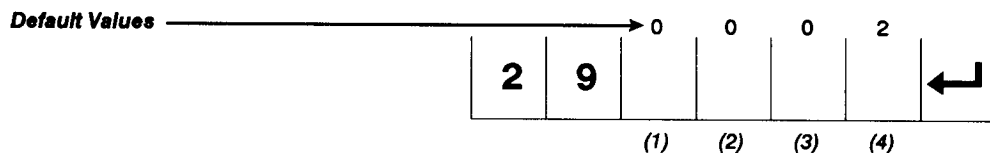
| 2 | 8 | | | | | ↵ |

(1)   (2)   (3)   (4)

Digit Positions (1) and (2): Fire Report Code

Digit Position (3): Fire Receiver Select

Digit Position (4): Loop Bell Type

Command Location 29: Soft Zone C (Police)

Default Values ⟶ 0   0   0   2

| 2 | 9 | | | | | ↵ |

(1)   (2)   (3)   (4)

Digit Positions (1) and (2): Police Report Code

Digit Position (3): Police Zone Receiver Select

Digit Position (4): Loop Bell Type

Section 5

How to Program the Event Reporting Options

Command locations 2A: event report receiver select

Command Location 2A programs event reporting information. This is information used by all loops and the system itself.

Digit Position (1) programs the Shunt Receiver Select. This determines where Shunt Reports will be transmitted. The actual shunt reporting codes were selected in the Command Locations for the Loop Reporting Codes (CL 17 - 1E). You can send Shunt Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send Shunt Reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send Shunt Reports to Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (2) programs the Restore Receiver Select. You can send Loop and Shunt Restore Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send the reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send the reports to Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (3) programs the Unit Status Code. Unit Status Reports tell the central station vital information about the alarm system. The Unit Status Code is a single-digit code. In the 3/1 Extended, 4/2, and CFSK formats, the SYSTEM 238 will automatically add a second digit for the Extension Code. The Extension Code explains why the report is being transmitted. Program in a 0 to disable Unit Status Reports.
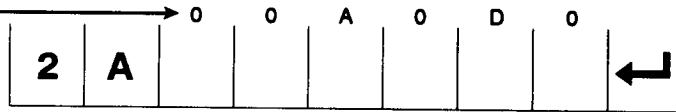
Extension Code Explanation		Transmitted In Ademco DTMF
1	Low Battery	Yes
2	AC Fail	Yes
3	Bell Fuse Fail	No
4	Loop Trouble	Yes
5	Failed To Communicate	Yes
6	Battery Restore	Yes
7	AC Restore	Yes
8	Bell Fuse Restore	No
9	Loop Trouble Restore	Yes
B	Watchdog	Yes
C	Completed Programming	No

Digit Position (4) programs the Unit Status Receiver Select. This determines where the Unit Status Report will be transmitted. You can send Unit Status Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send the reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send the reports to Receiver 1 and Receiver 2 (Dual Reporting).

Command Location 2A

Command Location 2A: Event Reporting

Default Values ⟶ 0 0 A 0 D 0

[2 | A | | | | | | | ↵]

(1) (2) (3) (4) (5) (6)

Digit Position (1): Shunt Receiver Select ⟶

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2): Restore Receiver Select ⟶

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (3): Unit Status Report Code ⟶

Valid entries are 0 - F.

The panel will add a fixed extension digit when reporting in 3/1 Extended, 4/2,
and CFSK formats. Fixed codes are listed below.

Program a 0 to disable Unit Status Reporting.

Digit Position (4): Unit Status Receiver Select ⟶

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (5): Cancel Report Code ⟶

Valid entries are 0 - F.

The panel will add the User ID # as the second digit when
reporting in 3/1 Extended, 4/2, and CFSK formats.

Program a 0 to disable Cancel Reports.

Digit Position (6): Cancel Report Receiver Select ⟶

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

UNIT STATUS FIXED EXTENSION CODES

1 = Low battery
2 = AC fail
3 = Bell fuse fail
5 = Failed to communicate
6 = Battery restore
7 = AC restore

8 = Bell fuse restore
B = Watchdog reset
C = Completed programming

PROGRAMMING CONVERSIONS

Decimal	Hexadecimal	Keys
10	A	↑ 0
11	B	↑ 1
12	C	↑ 2
13	D	↑ 3
14	E	↑ 4
15	F	↑ 5

Section 5

How to Program the Event Reporting Options

Digit Position (5) programs the Cancel Report Code. A cancel code is transmitted if the client disarms the system after an alarm, but before the audible time has expired. Alarm loops will be reported, followed by the Cancel Code. If Digit Position (5) is programmed with any value other than 0, the programmed value will be transmitted. If a 0 is programmed, Cancel Reports will be disabled. In the 3/1 Extended, 4/2, and CFSK III formats, the SYSTEM 238 will automatically add a second digit to the Report Code. The second digit is the User ID of the person generating the Cancel Report.
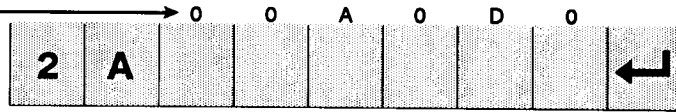
> The Ademco DTMF format cannot process Cancel Reports. If you select the DTMF receiver format, the SYSTEM 238 will ignore the programming values in Digit Position (5).

Digit Position (6) programs the Cancel Receiver Select. You can send Cancel Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send the reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send the reports to Receiver 1 and Receiver 2 (Dual Reporting).

Command Location 2A

Command Location 2A: Event Reporting

Default Values ⟶ 0 0 A 0 D 0

| 2 | A | | | | | ↵ |

Digit Position (1): Shunt Receiver Select ⟶ (1) (2) (3) (4) (5) (6)

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (2): Restore Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (3): Unit Status Report Code

Valid entries are 0 - F.

The panel will add a fixed extension digit when reporting in 3/1 Extended, 4/2, and CFSK formats. Fixed codes are listed below.

Program a 0 to disable Unit Status Reporting.

Digit Position (4): Unit Status Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (5): Cancel Report Code

Valid entries are 0 - F.

The panel will add the User ID # as the second digit when reporting in 3/1 Extended, 4/2, and CFSK formats.

Program a 0 to disable Cancel Reports.

Digit Position (6): Cancel Report Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

UNIT STATUS FIXED EXTENSION CODES

1 = Low battery
2 = AC fail
3 = Bell fuse fail
5 = Failed to communicate
6 = Battery restore
7 = AC restore

8 = Bell fuse restore
B = Watchdog reset
C = Completed programming

PROGRAMMING CONVERSIONS

Decimal	Hexadecimal	Keys
10	A	↑ 0
11	B	↑ 1
12	C	↑ 2
13	D	↑ 3
14	E	↑ 4
15	F	↑ 5

Section 5

How to Program the Event Reporting Options

Command locations 2B: test report

The SYSTEM 238 has a built-in Test Report timer. **Digit Positions (1)** and **(2) program the Test Report Code**. Only Digit Position (1) is reported in the 3/1 Single or 4/1 formats. Digit Positions (1) and (2) are both sent for 3/1 Extended, 4/2, or CFSK reporting. Program in 00 to disable Test Reports.

Digit Position (3) programs the Test Report Receiver Select. You can send Test Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send tests to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send tests to Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (4) programs the Test Report Interval. The actual time of day that the test will begin reporting is programmed in Command Location A0. Test Reports can be programmed to report at intervals from 1 hour through 30 days. If you select a time from 1 hour to 24 hours, you can also have the tests report only when the panel is armed.

Test Reports provide valuable protection for both you and your customer. The reports periodically test the panel, phone system, and central station. Besides indicating problems, the Test Reports can be invaluable evidence in disputes. Should a client insist the system wasn't working, you can show that it was.

In the past, Test Reports were difficult to do because they tied up central station receiver lines. But the SYSTEM 238 makes test reporting a breeze. Using Split Reporting, you can direct the Test Reports to a specific phone line or receiver. If you're using contract monitoring, you can direct the Test Reports to your office. This not only saves you money, it gives you better supervision of your accounts. If you don't have a digital receiver to use for Test Reports, you can use your IBM-compatible computer and our MONITOR II software.

Test Reports are one of the many SYSTEM 238 features that can increase your monthly revenues. If your clients want the additional security that short test report intervals provide, you should charge an additional fee. The amount of the fee will be determined by the interval of the Test Reports, and whether or not your calling a toll free number. Using MONITOR II software, you can provide the Test Reports at very little cost to yourself.

Look at the **Test Report Time Interval.** 24 hours, 7 days, and 30 days are the intervals most dealers use. However, C&K gives you a way to have Test Reports AND make even more money. Program the interval for 24 hours (system armed), and program the **Set Countdown Timer** for just after the client's closing time. This allows you to offer Closing Report supervision (more recurring revenue), as well as Test Reports. If the client closes at the proper time, you will get a Test Report. If you do not get a Test Report, either the panel is not armed or there is a service problem. In either case, action is required. This is just one more way that C&K gives you a better product to help you make more money.

Your power utility company helps maintain the accuracy of your AC-powered clocks. Periodically, the utility company makes small increases or decreases in the power line frequency to correct time drifts. Like all crystal-contolled devices, the SYSTEM 238 does not use power line frequency for timing. This means that Test Report times may change slightly over long periods of time. If the time drifts too far, COMMANDER II or MONITOR II will allow you to easily reset the Test Report Time.

Command Location 2B

Command Location 2B: Test Report

Default Values

		9	9	0	6	
2	B					↵
		(1)	(2)	(3)	(4)	
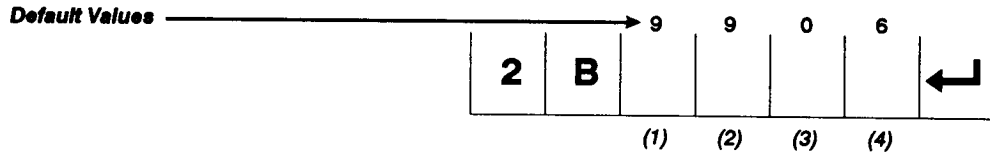
Digit Positions (1) and (2):   Test Report Code
Valid entries are 0 - F.
Only Position (1) is sent for 3/1 and 4/1 formats.
Positions (1) and (2) are sent for 3/1 Extended, 4/2, and CFSK formats.
Program 00 to disable Test Reports. For 3/1 and 4/1 formats, fill Digit Position (2) with any value.

Digit Positions (3): Test Report Receiver Select
0 = Receiver 1 with Receiver 2 as back-up   2 = Receiver 2 only
1 = Receiver 1 only   3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Positions (4): Test Report Interval
1 = 1 hour	5 = 24 hours	0 = 1 hour if armed
2 = 2 hours	6 = 7 days	1 = 2 hours if armed
3 = 4 hours	7 = 14 days	2 = 4 hours if armed
4 = 12 hours	8 = 21 days	↑3 = 12 hours if armed
	9 = 30 days	↑4 = 24 hours if armed

PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Section 5

How to Program the Event Reporting Options

Command locations 2C: opening/closing reports

If you've programmed any of the user combinations to transmit Opening or Closing Reports (CL 01 - 08), you'll have to program Opening and Closing Reporting Codes.

Digit Position (1) programs the single-digit Opening Report Code. In the 3/1 Extended, 4/2, and CFSK formats, the SYSTEM 238 will automatically add a second digit. The second digit will be the User ID of the person arming the system. Program a 0 to disable Opening Reports. If you are using the Ademco DTMF format, the first channel will display the User ID, and all other channels (including the status channel) will display 2's.

| **Example 1:** | opening user 7 | 7222 2222 2 |
| **Example 2:** | opening user 3 | 3222 2222 2 |

Digit Position (2) programs the Opening Report Receiver. You can send Opening Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send reports to Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (3) programs the Closing Report Code. Program a 0 to disable Closing Reports.

Digit Position (4) programs the Closing Report Receiver. If you are using the Ademco DTMF format, the first channel will display the User ID, and all other channels (including the status channel) will display 4's.

| **Example 1:** | closing user 7 | 7444 4444 4 |
| **Example 2:** | closing user 3 | 3444 4444 4 |

You can remotely arm and disarm the SYSTEM 238 using the COMMANDER II or MONITOR II software. If you have programmed the panel for Opening and Closing Reports, it will report User #8 when remotely armed or disarmed.

If the SYSTEM 238 is **Instant Armed with no combination** [SHIFT] [7] [ENTER], a Closing Report will not be transmitted.

You can never make enough money in the alarm business. Alarm companies have high overhead, high liabilities, and fierce competition. C&K is always looking for ways to help you make more money. Opening and closing monitoring is an excellent add-on service to sell. Unfortunately, if you are using a contract monitoring service, the cost to "toll free" monitor an account is too high to make you competitive. The SYSTEM 238 allows you to transmit alarms to the monitoring service, and the Opening/Closing Reports to your office. If you don't already have an alarm receiver, you can use C&K's MONITOR II software with your computer.

Alarm companies typically provide three levels of O/C monitoring. Auto-logging records the time of the openings and closings. The client can call in to get the time if needed. The next level of monitoring is O/C Reports. These are mailed weekly, every two weeks, or monthly. The highest level of monitoring is O/C supervision. Managers of O/C accounts are called if the account fails to open or close within a specific time-window. Most alarm companies charge different fees for the various levels of O/C services.

Command Location 2C

Command Location 2C: Opening and Closing Report Codes

Default Values ─────────────────────────────────────► B   0   C   0

2 B

(1)   (2)   (3)   (4)
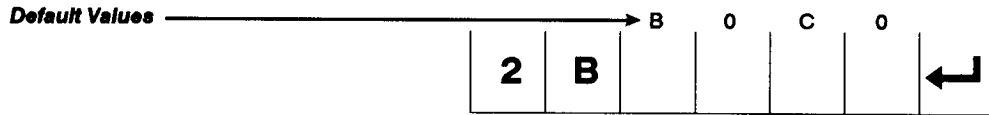
Digit Position (1):   Opening Report Code ──────────────────►
Valid entries are 0 - F.
The User ID # is transmitted after the opening code for 3/1 Extended, 4/2, and
CFSK formats. Program 0 to disable Opening Reports.

Digit Position (2):   Opening Report Receiver Select ─────
0 = Receiver 1 with Receiver 2 as back-up   2 = Receiver 2 only
1 = Receiver 1 only   3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (3):   Closing Report Code ──────────────
Valid entries are 0 - F.
The User ID # is transmitted after the opening code for 3/1 Extended, 4/2, and
CFSK formats. Program 0 to disable Closing Reports.

Digit Position (4):   Opening Report Receiver Select ─────
0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑0
11	B	↑1
12	C	↑2
13	D	↑3
14	E	↑4
15	F	↑5

Section 6

How to Program System Operations

Command location 2D: duress report/delays

If **Digit Position (1)** is programmed with a **Duress Report Code**, the user can send a duress alarm report to the central station when arming or disarming the system. If the user changes the last digit of his combination by adding or subtracting "1", the panel will arm or disarm while sending a duress signal. In the 3/1 Extended and 4/2 formats, the SYSTEM 238 will automatically add a second digit. The second digit is the User ID of the person sending the duress. Program 0 to disable the duress feature.

Example: User #4's combination is 4834. If he enters 4833 or 4835, the SYSTEM 238 will change arming state and transmit a Duress Report. The Duress Report Code will be followed by the digit 4 for User #4.

You can reduce the possibility of false alarms by 50% by making the last digit of the user's combination end with one of the following numbers: 1, 3, 4, 6, 7, or 9. This will make it more difficult to press the wrong key for the last digit of the combination. To activate duress, the user will have to move all the way to the other side of the keyboard. If the last digit of the combination is 1, the duress code will end in either a 0 or 2. If the combination ends with 9, the duress digits will be 8 or 0. If the combination ends with 0, the duress digits will be 9 or 1.

If you are transmitting duress in the Ademco DTMF format, the first channel will display a 1. Channels 2 - 8 will display 5's. The status channel will display a 1. The User ID will not be transmitted for duress.

Example: duress user 7   1555 5555 1

Digit Position (2) programs the Duress Report Receiver. You can send Duress Reports to Receiver 1, with Receiver 2 as back-up (Back-up Reporting). You can send the reports to Receiver 1 or Receiver 2 (Split Reporting). Or, you can send the Reports to Receiver 1 and Receiver 2 (Dual Reporting).

Digit Position (3) programs the Entry Delay time. If a Long Delay loop is faulted, the time will be twice as long as the time programmed in this Digit Position.

**Digit Position (4) programs the Exit Delay time.**

When the SYSTEM 238 is remotely armed, there is no Exit Delay time. There will only be an Entry Delay time.

Digit Position (5) programs the Audible time. This is the length of time that the audible will sound after an alarm is triggered. At the end of the programmed Bell time, the audible will silence until another loop detects an alarm. The audible will sound steady, pulsed, chirp, or silent, depending on how the Loop Bell Type was programmed in CL 1F - 29.

The audible will not time out if the triggered loop's circuit type was programmed as Supervised, Bell Latched.

Command Location 2D: Duress Report and Delays

Default Values → 0 0 3 6 2

| 2 | D | | | | | | ↵ |
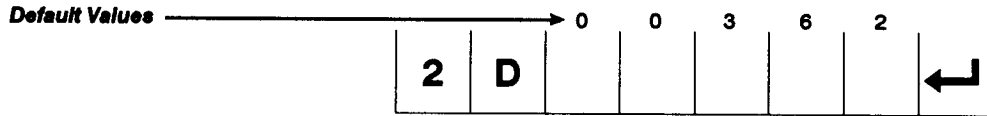
Digit Position (1):   Duress Report Code → (1) (2) (3) (4) (5)

Valid entries are 0 - F.
The User ID # will be reported as the second digit when reporting
in the 3/1 Extended, 4/2, or CFSK formats.
Program 0 to disable Duress Reports.

Digit Position (2):   Duress Receiver Select

0 = Receiver 1 with Receiver 2 as back-up
1 = Receiver 1 only
2 = Receiver 2 only
3 = Receiver 1 and Receiver 2 (Dual Reporting)

Digit Position (3):   Entry Delay Time

1 = 10 secs	↑ 0 = 100 secs
2 = 20 secs	↑ 1 = 110 secs
3 = 30 secs	↑ 2 = 120 secs
4 = 40 secs	↑ 3 = 130 secs
5 = 50 secs	↑ 4 = 140 secs
6 = 60 secs	↑ 5 = 150 secs
7 = 70 secs	
8 = 80 secs	
9 = 90 secs	

Digit Position (4):   Exit Delay Time

1 = 10 secs	↑ 0 = 100 secs
2 = 20 secs	↑ 1 = 110 secs
3 = 30 secs	↑ 2 = 120 secs
4 = 40 secs	↑ 3 = 130 secs
5 = 50 secs	↑ 4 = 140 secs
6 = 60 secs	↑ 5 = 150 secs
7 = 70 secs	
8 = 80 secs	
9 = 90 secs	

Digit Position (5):   Audible Time

1 = 2 min
2 = 5 min
3 = 10 min
4 = 15 min
5 = 30 min

| PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑ 0
11	B	↑ 1
12	C	↑ 2
13	D	↑ 3
14	E	↑ 4
15	F	↑ 5

Section 6

How to Program System Operations

Command location 2E: audible/visual switches

This Command Location programs keypad buzzer and LED functions, as well as special audible options.

Digit Position (1) programs the Entry Pre-alarm Enable. If you program a 1 in this position, the keypad buzzers will sound during the Entry Delay and continue until the panel is disarmed or the Delay Time expires.

Digit Position (2) programs the Exit Pre-alarm Enable. If you program a 1 in this position, the keypad buzzers will pulse during the Exit Delay. The pulsing reminds the customer to immediately leave the premises.

Bell/Siren Box

(shown in non-alarm state)

AUDIBLE

RELAY

EXTERNAL POWER SUPPLY

+ T3   T4 -
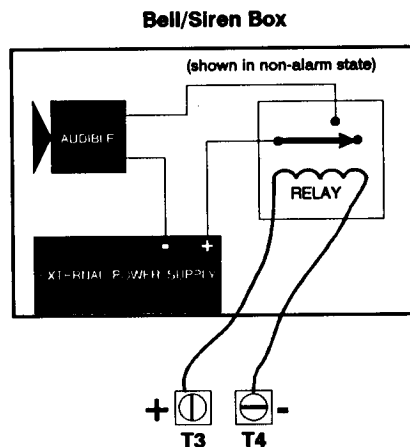
Bell Reverse Operation allows you to supervise the bell wires by installing a relay and power supply in the bell box.

Terminals 3 and 4 on the SYSTEM 238 usually provide voltage only during an alarm. However, you can program the panel to reverse this operation; that is, it will supply voltage when there is no alarm, and drop the voltage to 0 VDC during an audible alarm.

When the voltage from the control to the relay coil is interrupted, the relay drops out. The relay contacts close, supplying power from the external power supply to the audibles.

To use the Reverse Bell Operation feature, program a 1 in **Digit Position (3)**. When the control has an audible alarm, or an intruder cuts the bell wires, the sounders will activate.

Caution: This application cannot be used in areas where the temperature drops below freezing for long periods of time. Remember, since there will be another battery and power supply to maintain, service costs will increase. Because the external power supply and relay are difficult to reach, service time will also increase. **Do not use this application on UL Installations.**

When operating the SYSTEM 238 in the Bell Reverse Operation mode, do not exceed 50 mA of continual power drain from terminals 3 and 4.

By programming a 1 in **Digit Position (4)**, you can signal the customer that the Closing Report was received at the central station.

Some dealers like to disable the loop LEDs while the system is disarmed. This prevents people from determining the protection pattern by watching the keypad. If you want to Disable Loop LEDs, program a 1 in **Digit Position (5)**. The LEDs will go off five minutes after the last key is pressed. To turn them back on for five minutes, press any key. If you program a 0 in this Digit Position, the loop LEDs will always light when a zone is faulted.

Command Location 2E: Audible/Visual Switches

Default Values ⟶ 1 1 0 0 0

| 2 | E | | | | | | ↵ |
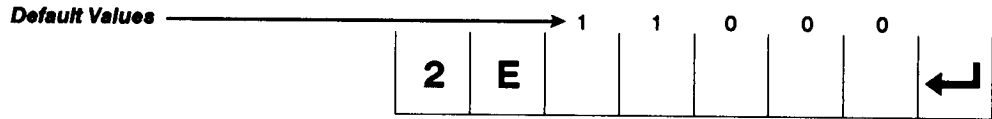
Digit Position (1): Entry Pre-alarm Enable ⟶ (1) (2) (3) (4) (5)

0 = No
1 = Yes: sounds keypad buzzers during entry delay

Digit Position (2): Exit Pre-alarm Enable

0 = No
1 = Yes: sounds keypad buzzers during exit delay

Digit Position (3): Bell Reverse Operation

0 = No
1 = Yes: supplies bell voltage in non-alarm state

Digit Position (4): Ring Back

0 = No
1 = Yes: sounds bells for 2 seconds after closing report

Digit Position (5): Disable Loop LEDs

0 = No
1 = Yes: shut zone LEDs off after 5 minutes

Section 6

How to Program System Operations

Command location 2F: unit control

Unit control options affect the operation of the entire panel.

Digit Position (1) determines if the panel will operate in the **Local System Only** or transmit signals to the central station. In the Local mode, the panel will not transmit any signals, even if reports have been programmed to transmit. You can still remotely program the account. By programming Command Location 2F, you can switch easily from local to reporting or reporting to local.

Often, when a new customer starts using his alarm system, he's afraid of causing false alarms. To help the customer get comfortable with his system, program the SYSTEM 238 initially to be a local panel. After two weeks, send a customer service or sales representative to the premises. Using COMMANDER II or MONITOR II, the representative will work with the central station in converting the panel from local to reporting. While at the premises, the representative should check the installation for completeness, and review the system operation with the customer. The representative should also get the names of four people "who could use the same quality protection as the customer." These types of calls will result in some of your best referrals. The customer still remembers how afraid he was before getting your alarm system, but he hasn't had it long enough to have experienced problems with it.

Even if you are selling the account as a local panel, wire the panel to the phone line. That way, if the customer does have problems, you can easily and profitably troubleshoot the problems over the phone line. This also makes it very easy and profitable for you to sell the customer additional features, since you can turn them on from your office. When the customer decides to change from local to central station, you won't have to go to the premises.

Vacation-Guard[5] is a great way to convert local customers to monitoring. When the customer goes on vacation, offer to monitor his premises for the standard monitoring fee. Then add, "Since the monitoring will be temporary, Mr. Jones, this time I'll waive the normal installation fee." When the customer returns from vacation, he will usually call and ask that the monitoring be discontinued. Since he hasn't personally experienced monitoring, he doesn't realize its value. So, offer two more weeks of free monitoring. Then, in two weeks, send a sales person to disconnect the monitoring. The sales person should take a standard monitoring contract along. Of course, if the customer switches from temporary to permanent monitoring, he or she should be charged the standard installation fee.
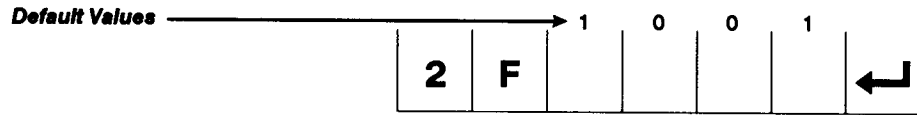
When a customer switches from central station to local, you usually lose money in two ways: loss of monitoring income and labor costs for disconnection. The SYSTEM 238 allows you to make the conversation quickly and almost painlessly. Even though you've lost the monitoring income, you'll have a chance to reconvert the customer to monitoring in the future.

Digit Position (2) programs the Daily Battery Test Enable. This option makes the SYSTEM 238 disconnect the charging circuit for two minutes every 24 hours. The panel tests the battery under an actual load condition.

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[5] Used by permission of The Management Support Group

Command Location 2F

Command Location 2F: Unit Control

Default Values ⟶ 1 0 0 1

| 2 | F | | | | | ↵ |

Digit Position (1): Local System Only ⟶ (1) (2) (3) (4)

0 = No   1 = Yes: disables all communications except RPS

Digit Position (2): Enable Daily Dynamic Battery Test

0 = No   1 = Yes: tests battery under load every 24 hours

Digit Position (3): Enable Four Minute Power-Up Delay

0 = No   1 = Yes: suppress alarms on power-up for 4 minutes

Digit Position (4): Enable Soft Zone Operation

0 = No   1 = Yes: allows use of Emergency, Fire, and Police keys

Section 6

How to Program System Operations

Some motion sensors require a **Four Minute Power-up Delay. Digit Position (3)** programs this option. When enabled, the option prevents the panel from transmitting alarms from loops 1 - 8 for the first four minutes after power (AC or battery) is applied. All other reports will function normally.

Digit Position (4) programs the Enable Soft Zone Operation. This option determines if all the soft zones will be enabled or disabled. If you will not be using any of the soft zones for local or central station reporting, program this Digit Position with a 0.

If you want to use the soft zones to sound local audibles, but not report to the central station, program a 1 in Command Location 2F, Digit Position (4). Then program the Emergency (CL 27), Fire (CL 28), and Police (CL 29) reporting codes as 00. This will allow the soft zones to operate as local only.

Command Location 2F
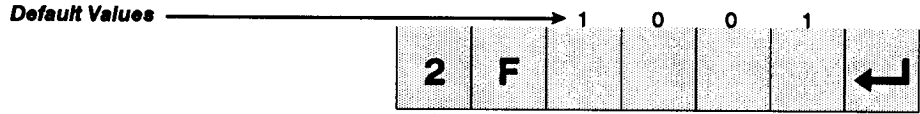
Command Location 2F: Unit Control

Default Values ──────────────→ 1   0   0   1

| 2 | F | | | | | ↵ |

Digit Position (1):   Local System Only ─────────────→ (1)   (2)   (3)   (4)

0 = No   1 = Yes: disables all communications except RPS

Digit Position (2):   Enable Daily Dynamic Battery Test ──────┘

0 = No   1 = Yes: tests battery under load every 24 hours

Digit Position (3):   Enable Four Minute Power-Up Delay ──────────┘

0 = No   1 = Yes: suppress alarms on power-up for 4 minutes

Digit Position (4):   Enable Soft Zone Operation ──────────────┘

0 = No   1 = Yes: allows use of Emergency, Fire, and Police keys

Section 6

How to Program System Operations

Command locations 30 - 37:   loop switches

Each loop has a number of additional programming options. Command Locations 30 - 37 program the Chime, Shunting, and Delay Before Dial options.

Door Chime Enable determines if the keypad buzzer will sound for two seconds when a loop is faulted. The buzzer will not sound again for a particular loop until it's restored and re-faulted. No report is sent to the central station. Door Chime makes an excellent door annunciator. To enable this option, program a 1 in **Digit Position (1)**.

How would you like to have a talking billboard that paid you monthly for the privilege of advertising your company? If so, use the Door Chime feature and Alpha keypads. Program the Alpha's dealer message with your company name. When the Door Chime feature is enabled, and someone walks through the door, the keypad will call attention to your company. This is also a good way to warn potential "bad guys" that the customer is protected by a working alarm system.

Digit Position (2) programs the Allow Shunting of This Loop option. You can program loops to be priority loops. Priority loops cannot be shunted or force armed, even if the user is authorized to shunt. Most dealers program 24-hour loops like fire and holdup to be priority loops. Some installations have burglar zones that are considered critical. You can program these loops to be priority loops. If the client cannot secure them before arming, he will have to stay at the premises until a guard or technician arrives.

By pressing [Combination] [SHIFT] [4] [ENTER], the customer can shunt all loops programmed with **Group Shunting Enabled**. To make a loop a Group Shunting loop, program a 1 in **Digit Position (3)**.

You can delay an alarm transmission by programming a 1 in **Digit Position (4), Delay Before Dial**. The delay time is programmed in CL 0B, Digit Position (1). If the client disarms the system before the end of the Delay Before Dial time, no alarms, restorals, or cancels will be transmitted. Delay Before Dial does not affect the audibles.

Each time you reprogram the operational characteristics of a loop (CL 1F - 26 and 30 - 37), after exiting the programming mode, **you must change the loop status (normal to faulted or faulted to normal) for the programming changes to take effect.**
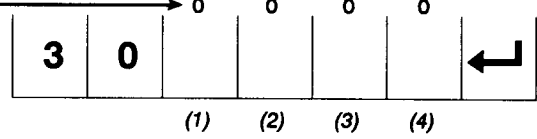
Command Locations 30 - 37 & A0

Command Locations 30 - 37: Loop Switches

Default Values → 0   0   0   0

| **3** | **0** |

(1) (2) (3) (4)

30 = Loop 1   34 = Loop 5
31 = Loop 2   35 = Loop 6
32 = Loop 3   36 = Loop 7
33 = Loop 4   37 = Loop 8

**Default Values are different for each loop.
Refer to the SYSTEM 238 Programming
Worksheet at the end of this manual for other
user default values.**

Digit Position (1): Enable Door Chime

0 = No
1 = Yes: keypads beep 2 seconds when faulted

Digit Position (2): Allow Shunting of This Loop

0 = No: makes it a priority zone (not shuntable)
1 = Yes: authorized users can bypass or force arm

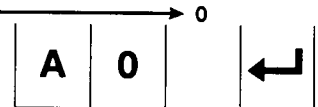### Digit Position (3): Allow Group Shunting for This Loop

0 = No
1 = Yes: this loop will shunt with Group Shunt

Digit Position (4): Delay Before Dial

0 = No
1 = Yes: this loop will delay dialing on alarm for time programmed in 0B (1)

Command Location A0:   Set Test Report Countdown Time

Default Value → 0

| **A** | **0** |

(1)

Digit Position (1): Set Countdown Time

0 = 1/4 hour	↑ 0 = 14 hours
1 = 1/2 hour	↑ 1 = 16 hours
2 = 1 hour	↑ 2 = 18 hours
3 = 2 hours	↑ 3 = 20 hours
4 = 3 hours	↑ 4 = 22 hours
5 = 4 hours	↑ 5 = 24 hours
6 = 6 hours	
7 = 8 hours	
8 = 10 hours	
9 = 12 hours	

PROGRAMMING CONVERSIONS		
Decimal	Hexadecimal	Keys
10	A	↑ 0
11	B	↑ 1
12	C	↑ 2
13	D	↑ 3
14	E	↑ 4
15	F	↑ 5

COMPLETED PROGRAMMING

To exit programming, press [SHIFT] [ENTER].

Command Locations 38 and A1 are not used in the SYSTEM 238. If you move to these locations, either exit programming, or move the cursor to the left most position and type in the desired Command Location followed by [ENTER].

Section 6

How to Program System Operations

Command location A0:   set countdown timer

If you are transmitting Test Reports, the first test will transmit at the time programmed in the Set Countdown Timer. Each time the panel is powered up or the CPU is reset, the panel will reset the time of the next Test Report to the time programmed in CL A0.

To change the time of the first Test Report, program the new time in CL A0. Subsequent Test Reports will transmit at the time programmed in the Test Report Interval, CL 2B.

> **Example:** Let's say it's 1500 hours (3:00 pm). You want the first Test Report to transmit at 0100 hours (1:00). 3:00 pm + 10 hours = 1:00 am. Program **Digit Position (1)** of CL A0 with an 8 (10 hours).

If the Test Report Interval is programmed to transmit only when the system is armed, and the first Test Report time occurs while the panel is disarmed, the Test Report will not transmit.

> · The time of the next Test Report will change if you change the Test Report Interval or the Set Countdown Timer.
>
> · The SYSTEM 238 microprocessor is reset by removing all power, the Watchdog, keypad command [Installer Combination] [SHIFT] [6] [8] [ENTER], or remotely using RPS. Once you change the Countdown Timer, the time of the first Test Report after a reset will always be the time programmed in CL A0.

Default Values ————————→ 0

| A | 0 | ↵ |
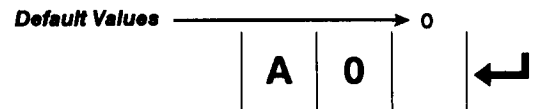
Digit Position (1): Set Countdown Time ————————→ (1)

0 = 1/4 hour	↑ 0 = 14 hours
1 = 1/2 hour	↑ 1 = 16 hours
2 = 1 hour	↑ 2 = 18 hours
3 = 2 hours	↑ 3 = 20 hours
4 = 3 hours	↑ 4 = 22 hours
5 = 4 hours	↑ 5 = 24 hours
6 = 6 hours	
7 = 8 hours	
8 = 10 hours	
9 = 12 hours	

Exiting program mode

When you've finished programming, press the [SHIFT] key and then the [ENTER] key. The SYSTEM 238 will exit programming and resume normal operations. When programming with the ALPHA keypad, if you do not press any key within five minutes, the keypad will automatically exit the programming mode.

> When you've completed the installation, **be sure to test all devices** (including the SYSTEM 238) for proper programming and operation. Verify that the central station received **ALL** conditions. Programming modifications are easy to make, whether from your office using COMMANDER II or MONITOR II, or from the keypad. Make sure to update all programming records (on site and at the office).

Section 7

How to Program The ALPHA Keypad

How to start ALPHA programming

You can program ALPHA keypads from the keypad, or remotely using COMMANDER II or MONITOR II. Remote programming is covered in the COMMANDER II/MONITOR II Remote Programming Manual.

The ALPHA keypad must be wired to a SYSTEM 238. Apply power to the panel. You can only program while the panel is disarmed. Press [Installer Combination] [SHIFT] [0] [1] [ENTER]. The ALPHA will display **SERVICE MESSAGE**. Press the [BYPASS] key to scroll through all the messages. If you scroll past the desired message, press and release the [BYPASS] key until you scroll to it again. You can also scroll in reverse by pressing the [SHIFT] key followed by the [BYPASS] key.

> **Scrolling order:**
> Service Message
> Dealer Message
> Soft Zone Identifiers (A, B, and C)
> Hardwired Loop Identifiers (1 - 8)
> Keypad Address

If you do not press any key within five minutes, the ALPHA keypad will automatically exit the programming mode.

How to program letters and numbers

ALPHA keypads can be customized to display different messages for the loops and special functions. On the second side of the Programming Template, you'll find an ALPHA Programming Template. Place the ALPHA Programming Template over the keys. The template will make it easy to program 8 hardwired loop identifiers, 3 soft zone identifiers, a dealer message, service message, and keypad address. Up to 16 characters can be programmed on the bottom line of the display.

Programming letters

Looking at the ALPHA keypad, you can see that it's impossible to write letters using the keypad. The ALPHA Programming Template allows you to use combinations of keys to make the desired letters. Keys 1 - 9 are used with the soft zone keys (EMERGENCY, FIRE, and POLICE) to make letters. The letters and soft zone keys are color-coded.

Section 7

How to Program The ALPHA Keypad

ALPHA Programming Template
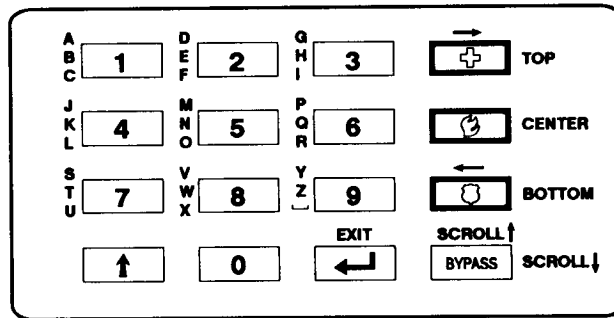
Look at key [1]. If you press and release the [EMERGENCY] key (color-coded red), followed by the [1] key, you'll program the letter **A**. If you press the [FIRE] key (color-coded black), and then the [1] key, you'll program the letter **B**. If you press the [POLICE] key (color-coded green), followed by the [1] key, you'll program the letter **C**. Easy, isn't it?

Programming numbers

If you want to program a number, simply press the number key without first pressing a soft zone key.

Special function keys

There are six additional special function keys.

· Pressing the [POLICE] key, followed by the [9] key, erases what is stored at that cursor position.

· Pressing [SHIFT], then [EMERGENCY], moves the cursor one space to the right.

· Pressing [SHIFT], followed by the [POLICE] key, moves the cursor one space to the left.

· Pressing the [BYPASS] key makes the display scroll down to the next message.

· Pressing [SHIFT], then [BYPASS], makes the display scroll back one message.

· Pressing [ENTER] tells the keypad that you've completed entering information for that message. The message will be saved in the keypad's EEPROM memory.

If you press [SHIFT] [ENTER] while entering data, the data for that message will be lost. This is because you exited programming **before** downloading the message by pressing the [ENTER] key. If you don't press a key within five minutes, the keypad will automatically exit the programming mode, and new or edited data will be lost. New or edited data will also be lost if you press SCROLL UP or SCROLL DOWN before pressing the [ENTER] key.

Pressing [SHIFT] [ENTER] will make the keypad exit the programming mode.

Section 7

How to Program The ALPHA Keypad

Dealer message

The Dealer Message displays when the system is disarmed, all loops are normal, and there are no trouble conditions. The message appears on the second line of the display.

You might want to program in your company name. Every time the system is disarmed, your company name will be displayed on the keypad. Come to think of it, the ALPHA keypad is the only security equipment that allows the customer to pay you for the privilege of advertising your name! Of course, instead of your company name, you could always program in your customer's name.

Service message

The Service Message appears on the second line of the display when the SYSTEM 238 detects a service condition: low battery, AC fail, bell fuse fail, failure to communicate, interface error, or watchdog reset.

The Service Message feature can generate a lot of service revenue. When a system problem occurs, the keypad reminds the customer to call, and keeps reminding him until the problem is resolved. The keypad can even display your phone number.

Soft zone and hardwired loop identifiers

The SYSTEM 238 has 8 hardwired loops and 3 soft zones. You can program a 16-character description into each of them. The customer understands GARAGE FIRE a lot easier than ALARM ZONE 1. The programmed identifier appears on the second line of the display.

ALPHA keypad addresses

Unlike LED keypads, ALPHA keypads have individual addresses. You can use up to four ALPHA keypads in one system. Of course, **you must not exceed maximum auxiliary/keypad power.**

You can have different messages for each keypad in the system. For example, Zone 2 might display JERRY'S BEDROOM on the keypad in Jerry's bedroom, while displaying DRACULA'S BEDROOM on the keypad in his sister's bedroom.

Each ALPHA keypad must be programmed with its own address. Valid numbers are 0 - 7. You cannot duplicate addresses within a system. If you add or change keypads after the SYSTEM 238 is powered up, you must restart the panel. When you restart the panel, it determines which keypads are in the system. Restart the panel by momentarily interrupting both AC and DC power, or press [SHIFT] [6] [8] [ENTER] at a different keypad.

If the keypads display the proper system information, but the panel does not see key strokes from the keypad, either the keypad address is wrong, or the keypad was added without restarting the panel.

How to exit ALPHA keypad programming

To exit programming, press [SHIFT] [ENTER].

Section 8

How to Test The ALPHA Keypad

Test points are labeled on the ALPHA keypad's circuit board.

The ALPHA keypad has built-in Self Test functions. While these functions are normally used only for production testing, if necessary, you can use them to field test the keypad.

To test the ALPHA keypad, wire it to a 12 VDC power supply. The alarm system wiring and power from the SYSTEM 238 can be used. Connect the green and white keypad wires together. If connected to a SYSTEM 238, disconnect the green and white wires from the panel before connecting them together.

Jumper from C7 (-) to top of R27 during test
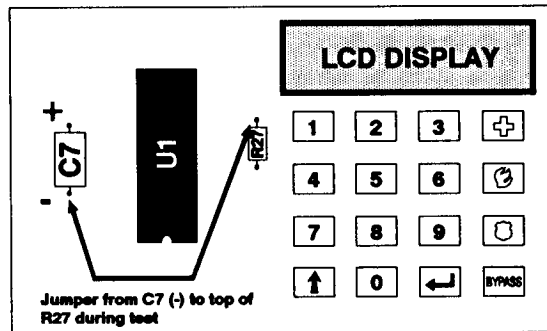
The Self Test starts when you short test pad PP5 to the power supply negative, and press [SHIFT] [6] [7] [ENTER]. The easiest way to short the test pad is to short the negative of capcitor C7 to the top lead of resistor R27.

Once the test starts, pressing different keys initiates different test functions. During the Self Test, the top line of the display will read **238 ALPHA TESTER**. Leave the shorting wire on throughout the testing.

Test functions

Key Entry	Test
[1]	LCD viewing angle adjustment. The bottom line of the display will read **TEST VIEW ANGLE**. Adjust potentiometer R23 to change the viewing angle of the display. R23 can be adjusted from the component side of the PCB, or through a hole in the back side, using a small slotted screwdriver.
[2]	The display will read **TEST 5 VOLT PWR**. You can measure the 5 volt regulated output at test points PP7 (+5 V) and PP2 (Ground).
[3]	The display will read **TEST FREQUENCY**. This is used by the factory to measure the CPU and crystal frequencies at test point PP6.
[4]	The display will read **ARMED LED TEST**. The red alarm LED toggles on or off each time you press the key.
[5]	The display will read **AC LED TEST**. The green AC power LED toggles on or off each time you press the key.

Section 8

How to Test The ALPHA Keypad

Key Entry	Test
[6]	The display will read **PIEZO SOUND TEST**. The keypad toggles on or off each time you press the key.
[7]	The display will read **BACKLIGHT TEST**. The LCD and keypad backlight toggle on or off each time you press the key.
[8]	The ALPHA keypad will perform a loop test involving the keypad clock (white) and data (green) flying leads. The keypad will transmit test information out and back to itself. If the information is not received, the display will read **LOOP TEST FAIL**. If the information is received correctly, the display will read **LOOP TEST PASS**.

☠ The green and white keypad wires must be connected together. If you disconnect the green and white wires from the panel at the panel side of the wiring, not the keypad side, when you do the loop-back test, you will also be checking the keypad wiring.

[9]	The ALPHA keypad generates special timing pulses called clock signals. If the ALPHA receives the special clock signals as a loop-back, it displays **CLOCK TEST PASS**. If it doesn't, it displays **CLOCK TEST FAIL**.

☠ The green and white keypad wires must be connected together for this test.

[SHIFT]	The default EEPROM program data will be loaded into the ALPHA's EEPROM from the microprocessor. During loading, the display will read **PROGRAMMING**. The information in the EEPROM will then be compared to the information in the microprocessor. The display will read **VERIFYING**. If the information matches, the display will read **EEPROM TEST PASS**. If the information doesn't match, the display will read **EEPROM TEST FAIL**.

☠ This test writes over the keypad address and any messages already written into the keypad. **Do not run this test if you do not want to change the keypad address or messages**. After the test is over, the keypad will have the factory default programming. Both the keypad address and messages will have to be reprogrammed.

[0]	The display will read **KEY "0"**.
[ENTER]	The display will read **KEY "ENTER"**.
[EMERGENCY]	The display will read **KEY "EMERGENCY"**.
[FIRE]	The display will read **KEY "FIRE"**.

Section 8

How to Test The ALPHA Keypad

Key Entry	Test
[POLICE]	The display will read **KEY "POLICE"**.
[BYPASS]	The ALPHA keypad will verify that every key has been pressed and every test performed. If so, the display will read **TEST COMPLETE**. If not, the display will read **TEST INCOMPLETE**.

If the keypad is tested while installed in a system, you will most likely see the **TEST INCOMPLETE** message displayed. Since you do not want to write over the ALPHA programming, you probably didn't test the [SHIFT] function. The [BYPASS] test is used only to verify that all tests have been performed. It is not necessary to perform all tests. Test as few or many functions as you like.

How to exit the ALPHA keypad test

First, remove the test shorting wire on the keypad. Next, remove power from the SYSTEM 238 and keypad. Then, reconnect the green and white wires from the control to the keypad, and re-apply control and keypad power. The ALPHA Keypad Test is now complete.

If you performed the [SHIFT] test, you will need to reprogram the keypad messages and address. Once this is done, you'll have to restart the panel so that it can find the keypad. You can restart the panel in three ways: use remote programming; remove and restore the panel's AC and DC power; or enter [Installer Combination] [SHIFT] [6] [8] [ENTER] from any keypad in the system, except the one you just reprogrammed.

Section 9

Keypad Operations

The following is a complete list of the LED and ALPHA keypad operations and displays.

All keypad operations are listed in numerical key operation order

Key Entry	Operation
[FIRE], hold for 3 seconds	**Fire Alarm - Keypad Activated.** makes the FIRE soft zone activate an alarm, if the soft zones are enabled and the FIRE soft zone is programmed
[EMERGENCY], hold for 3 seconds	**Emergency Alarm - Keypad Activated.** makes the EMERGENCY soft zone activate an alarm, if the soft zones are enabled and the EMERGENCY soft zone is programmed
[POLICE], hold for 3 seconds	**Police/Panic Alarm - Keypad Activated.** makes the POLICE soft zone activate an alarm, if the soft zones are enabled and the POLICE soft zone is programmed
[User Combination] [ENTER]	**Arm or Disarm with Delays.** This is the normal arming and disarming operation.
[Combination If Required] [BYPASS] [Zone # from 1 - 8] [ENTER]	**Bypass Zone.** This allows the user to shunt or unshunt specific zones. If multiple zones are to be shunted, use the following sequence: [Combination If Required] [BYPASS] [Zone # from 1 - 8] [BYPASS]... [ENTER] If multiple zones are to be shunted, and they are programmed for Group Shunting, the Group Shunting command can also be used.
[Installer Combination] [SHIFT] [0] [ENTER]	**Panel Programming.** Use this command to begin programming the panel.
[Master Combination] [SHIFT] [0] [ENTER]	**Combination Change.** Use this command to change a user combination. After getting into the Combination Command mode by entering the combination on the left, enter the new combination. The new combination must always start with the fixed first digit of the old combination. After entering the last

Section 9

Keypad Operations

Key Entry	Operation
	digit of the new combination, press the [ENTER] key. Enter the new combination again and press the [ENTER] key. For additional security, the numbers will not display if programming with the ALPHA keypad. The Master Combination cannot change a user's arming type.
[Installer Combination] [SHIFT] [0] [1] [ENTER]	**ALPHA Keypad Programming.** Use this command to program a specific ALPHA keypad.
[Combination If Required] [SHIFT] [0] [2] [ENTER]	**Keypad Activated RPS.** This command makes the dialer call the remote programming system to initiate remote programming. A phone number must be programmed in the RPS number, CL 14 - 16.
[SHIFT] [1] [ENTER]	**Clear Alarm Memory.** This command clears all zones in alarm memory, also the watchdog indicator.
[Combination If Required] [SHIFT] [4] [ENTER]	**Group Bypass.** This command makes all loops programmed for Group Bypass shunt at the same time. This is not an arming or disarming command.
[Combination If Required] [SHIFT] [5] [ENTER]	**Chime On or Off.** This command turns the chimes on or off for all loops programmed for Chime Enable. When any of these loops are faulted, the keypads sound for 2 seconds. The chime will not sound again until the faulted loops are restored, and another fault occurs.
[SHIFT] [5] [1] [ENTER]	**Audible Feedback Toggle.** This command turns the audible feedback on or off. It only applies to ALPHA keypads, and only the ALPHA keypad where the command is entered.
[SHIFT] [5] [2] [ENTER]	**Pre-warn Toggle On or Off.** This command turns the Entry/Exit pre-warn tones on or off. It only applies to ALPHA keypads, and only the ALPHA keypad where the command is entered.

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Keypad Operations

Key Entry	Operation
[SHIFT] [5] [3] [ENTER]	**Chime Toggle.** This command turns the door chime tone on or off. It only applies to ALPHA keypads, and only the ALPHA keypad where the command is entered.
[SHIFT] [5] [4] [ENTER]	**Arming Tones Toggle On or Off.** This command turns arming and error warning tones on or off. It only applies to ALPHA keypads, and only the ALPHA keypad where the command is entered.
[SHIFT] [6] [0] [ENTER]	**Local Walk-Test.** This command puts the panel in local-only mode. No reports will be transmitted. The keypad sounders will chime when any zone is faulted. The bells will not sound. Testing stops as soon as any key is pressed. At the end of the test, the panel and keypads resume normal operation.

During the test, the top line of the ALPHA display will read **WALK TEST**. The second line of the display will show the faulted zone. You can only test specific zones by shunting zones not to be tested **before** entering the Keypad Test command. Chimes must be enabled globally, [SHIFT] [5] [ENTER], as well as locally on the ALPHA keypad, [SHIFT] [5] [3] [ENTER].

Alarm detection is disabled during testing. It is important to complete testing and resume normal operations as soon as possible.

| [Combination If Required] [SHIFT] [6] [1] [ENTER] | **Central Station Test.** This command makes the panel transmit the Test Report code. When the test is successful, the audibles and keypads will sound as a 3-second ring-back. All other panel functions operate normally. The panel automatically resumes normal operation at the end of the test. |

The ALPHA keypad displays **TEST REPORTING** on the top line. When the test is complete, the second line displays either **TEST PASSED** or **TEST FAILED**. The display remains on for 5 seconds.

The LED keypad displays normal operations. Both the LED and ALPHA keypads chime twice if the test was successful, and five times if the test failed.

Section 9

Keypad Operations

Key Entry	Operation
[SHIFT] [6] [2] [ENTER]	**Reset Auxiliary Power.** This command interrupts auxiliary power on terminal 5 and terminal 22 (powered by loop 8) for 5 seconds. During this time, all loops suppress troubles and alarms. The ALPHA and LED keypads show normal. The panel resumes normal operation at the end of the reset.
[Combination if Required] [SHIFT] [6] [3] [ENTER]	**Bell Test.** This command activates the sounders for 3 seconds.
[SHIFT] [6] [4] [ENTER]	**Dynamic Battery Test.** This command dynamically tests the battery by interrupting AC power for 2 minutes. CL 2F (2), Dynamic Battery Test, does not have to be enabled. If a low battery is detected, the panel reports it to the central station, if Reporting and Unit Status are enabled. The panel resumes normal operation at the end of the test. The ALPHA keypad displays **BATTERY TEST** during the test. At the end of the test, it displays either **TEST PASSED** or **TEST FAILED**. The display remains on for 5 seconds. If the battery is low, the service condition will be displayed, and the green AC light on each keypad will flash slowly. Both the LED and ALPHA keypads chime twice if the battery is okay, and five times if the battery is low.
[SHIFT] [6] [7] [ENTER]	**ALPHA Keypad Test.** This command is used to initiate a factory test of the ALPHA keypad, in conjunction with a jumper. The ALPHA Keypad Test is described in Section 8.
[Installer Combination] [SHIFT] [6] [8] [ENTER]	**Reset Panel.** This command warm-starts the panel and all ALPHA keypads. Pending reports will be cleared. The countdown timer for the next Test Report will be cleared, making the next test report at the end of the Set Countdown Timer's programmed time. Restarting the panel does not affect arming status, shunted zones, test report interval, or any programming values. The LED keypads show normal. The ALPHA keypads display **SYSTEM RESET** for 5 seconds, then return to normal.

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Section 9

Keypad Operations

Key Entry	Operation
[Installer Combination] [SHIFT] [6] [9] [ENTER]	**Kill/Revive Panel.** This is a toggle command. Enter it once, and you will enable Panel Kill. The panel will not actually "die" until the next time it's disarmed. Once the panel is dead, the ALPHA keypad will only display the programmable Service Message on the second line of the display. The armed LED will go out, and the power LED will operate normally. The LED keypad will only display the green power LED. The keypad sounders will be disabled. When the panel is killed, all functions stop except remote programming (if enabled) and the battery charger. To revive (un-kill) the panel, enter [Installer Combination] [SHIFT] [6] [9].

While the Kill command can be a very powerful tool, it also increases your liabilities. The SYSTEM 238 has been designed to reduce your liabilities. After you activate Kill, the panel will not go into a sleep mode until it's disarmed. This prevents you from killing a customer's panel while it's armed.

Before killing a panel, make sure you've taken all the legal steps required in informing the client. C&K suggests that you establish the procedures and form letters with the aid of your company's lawyer.

Key Entry	Operation
[Combination If Required] [SHIFT] [7] [ENTER]	**Arms with Delays Converted to Instant.** This is an arm only command. Entry and Exit Delays are converted to instant. If the subscriber will occupy a protected area, interior zones must be shunted before arming.
[SHIFT] [8] [ENTER]	**Backlight Toggle On or Off.** This command turns the keypad backlighting on or off. It only applies to ALPHA keypads, and only to the ALPHA keypad where the command is entered.
[SHIFT] [9] [ENTER]	**Display Keypad Model and Revision Number.** This command applies only to ALPHA keypads, and only to the ALPHA keypad where the command is entered.

Section 9

Keypad Operations

Keypad operations available to both LED and ALPHA keypads - alphabetical listing

Operation	Key Entry
Arm or Disarm with Delays	[Combination] [ENTER]
Arm - Delays Converted to Instant	[Combination If Required] [SHIFT] [7] [ENTER]
Bypass Zone (n)	[Combination If Required] [BYPASS] [Zone # from 1 - 8] [ENTER]. Use the [BYPASS] key instead of the [ENTER] key if multiple zones are to be bypassed.
Chime On or Off	[SHIFT] [5] [ENTER]
Change Combinations	[Master Combination] [SHIFT] [0] [ENTER], followed by [New Combination] [ENTER], [New Combination] [ENTER]. When you've finished changing the combinations, exit the programming mode.
Clear Alarm Memory	[SHIFT] [1] [ENTER]
Emergency Alarm - Keypad Activated	Hold [EMERGENCY] key down for 3 seconds
Exit Combination Change Programming	[SHIFT] [ENTER]
Fire Alarm - Keypad Activated	Hold [FIRE] key down for 3 seconds
Group Bypass	[Combination If Required] [SHIFT] [4] [ENTER]
Keypad Activated RPS	[Combination If Required] [SHIFT] [0] [2] [ENTER]
Police/Panic Alarm - Keypad Activated	Hold [POLICE] key down for 3 seconds
Reset Auxiliary Power	[SHIFT] [6] [2] [ENTER]
Test - Battery	[SHIFT] [6] [4] [ENTER]
Test - Bells	[Combination If Required] [SHIFT] [6] [3] [ENTER]
Test - Central Station	[Combination If Required] [SHIFT] [6] [1] [ENTER]

Section 9

Keypad Operations

Operation	Key Entry
Test - Local Walk-Test	[Combination If Required] [SHIFT] [6] [0] [ENTER]

Keypad operations for ALPHA keypads only - alphabetical listing

Operation	Key Entry
Arm Tones Toggle On or Off	[SHIFT] [5] [4] [ENTER]
Audible Feedback Toggle	[SHIFT] [5] [1] [ENTER]
Backlight Toggle On or Off	[SHIFT] [8] [ENTER]
Chime Toggle	[SHIFT] [5] [4] [ENTER]
Display Keypad Model and Revision Number	[SHIFT] [9] [ENTER]
Pre-warn Toggle On or Off	[SHIFT] [5] [2] [ENTER]

Keypad operations for installers only - alphabetical listing

Operation	Key Entry
ALPHA Keypad Programming - Start	[Installer Combination] [SHIFT] [0] [1] [ENTER]
ALPHA Keypad Test	[SHIFT] [6] [7] [ENTER]
Exit Panel or ALPHA Programming	[SHIFT] [ENTER]
Kill/Revive Panel	[Installer Combination] [SHIFT] [6] [9] [ENTER]
Panel Programming - Start	[Installer Combination] [SHIFT] [0] [ENTER]
Reset Panel	[Installer Combination] [SHIFT] [6] [8] [ENTER]

Section 9

Keypad Operations

LED keypad lights

	Condition	Meaning
Power LED (green)	on	AC power on
	slow flash	low battery
	off	operating on battery or no power
Arm LED (red)	on	system armed with delays
	slow flash	system armed with delays converted to instant
	off	system disarmed
Ready LED (green)	on	system disarmed and all loops normal
	slow flash	system armed or disarmed with loops shunted, or alarm memory
	off	system armed or disarmed and burglar loops faulted, or loop trouble
Bypass LED (yellow)	on	one or more loops shunted
	off	no loops shunted
Program LED (yellow)	on	system in RPS, keypad, or combination programming mode
	off	system not in programming mode
Trouble LED (yellow)	on	one or more loops in trouble, or system trouble detected
	slow flash	watchdog reset
	off	no loop or system troubles
Zone LEDs (red)	on	loop faulted
	fast flash	alarm memory
	slow flash	loop shunted or in trouble
	off	loop normal

Section 9

Keypad Operations

ALPHA keypad displays - alphabetical listing

Display	*Meaning*
AC POWER FAIL	Displays SYSTEM TROUBLE as soon as the AC power fails. Press the [ENTER] key several times to make the Service Message display AC POWER FAIL.
ALARM ZONE	Displays when any zone detects an alarm condition. Press the [ENTER] key several times to display the loops in alarm. This is the same display for Alarm Memory. Press [SHIFT] [1] [ENTER] to clear the Alarm Memory.
ARMED	Displays after the system has been armed, with all loops normal and delays enabled.
ARMED - INSTANT	Displays when the system has been armed with Entry Delays converted to instant, [SHIFT] [7] [ENTER].
AUDIBLE TONE OFF **AUDIBLE TONE ON**	Displays for 5 seconds after pressing [SHIFT] [5] [1] [ENTER]. Tells whether the audible feedback tone is turned on or off for that keypad.
BACKLIGHT OFF **BACKLIGHT ON**	Displays for 5 seconds after pressing [SHIFT] [8] [ENTER]. Tells whether the keys and display backlighting are turned on or off for that keypad.
BATTERY TEST	Displays for 2 minutes after pressing [SHIFT] [6] [4] [ENTER]. AC power is interrupted, while the battery is tested under load. If the battery is okay, the display will read TEST-PASSED. If the battery is low or dead, the display will read TEST-FAILED.
BELL FUSE FAIL	Activates SYSTEM TROUBLE as soon as the Bell fuse opens. Press the [ENTER] key several times to make the Service Message display BELL FUSE FAIL.
BYPASSED ZONE	Displays when loops have been bypassed, group bypassed, or force armed. When the [ENTER] key is pressed, bypassed loops will be shown on the second line of the display.
CHIMES OFF **CHIMES ON**	Displays for 5 seconds after pressing [SHIFT] [5] [ENTER] or [SHIFT] [5] [3] [ENTER]. Turns the chimes on or off for all keypads with chime tones enabled.

Section 9

Keypad Operations

Display	Meaning
CMD - D A T A -	Displays on the top line while in the installer programming mode. The second line displays the Command Location in the left two digits, followed by the programming values for that Command Location.
CONNECTION FAIL	Activates SYSTEM TROUBLE after the programmed number of dialing attempts. Press the [ENTER] key several times to make the Service Message display CONNECTION FAIL.
ENTRY - DISARM NOW	Displays when a delay loop has been faulted during the armed period. The second line of the display shows the relative Entry Delay time remaining.
EXIT NOW	Displays when the system has been armed, during the Exit Delay time. The second line of the display shows the relative Exit Delay time remaining.
FAULTED ZONE	Displays when the loops are not in the normal state. When the [ENTER] key is pressed, the loop label will be shown on the second line of the display.
INTERFACE ERROR	Indicates either a malfunction in the keypad Clock and Data wiring or in the SYSTEM 238 panel communications protocol.
INVALID ENTRY	The user either pressed two keys at the same time or entered an invalid key sequence.
INVALID P.I.N.	The user is entering a Personal Identification Number (combination) not programmed in the SYSTEM 238.
KEYPAD ADDRESS?	ALPHA keypads must be programmed with a keypad address. The address must be different for each keypad. KEYPAD ADDRESS? displays when the system has been reset and detects a keypad without an address. Program in a valid address (see Section 7), then reset the SYSTEM 238. When the panel is reset, it scans for all valid keypad addresses.

Section 9

Keypad Operations

Display	Meaning
LOW BATTERY	Activates SYSTEM TROUBLE after a low battery condition has been detected. Press the [ENTER] key several times to make the Service Message display LOW BATTERY.
ALPHA KEYPAD REVISION X.X	The ALPHA keypad model number and firmware version display when the user enters [SHIFT] [9] [ENTER].
NOT READY TO ARM	Displays while the system is disarmed and burglar loops are faulted. Press the [ENTER] key several times to display faulted loops.
P.I.N. ACCEPTED	Displays for 5 seconds after a combination has been successfully changed using the Master Combination.
P.I.N. REQUIRED	Displays when the user attempts to perform a combination-required operation without using the combination.
PREWARN TONE OFF PREWARN TONE ON	Displays for 5 seconds after entering [SHIFT] [5] [2] [ENTER]. Tells whether entry and exit warning tones will be sounded at that keypad.
PROGRAMMING	Appears on the top line of the display while the panel is in interactive mode, or another keypad is programming the panel.
READY TO ARM	The SYSTEM 238 is in the normal, disarmed state with no loops faulted.
RESET SYSTEM	Displays when the system should be reset either by removing and restoring all power, or by entering [Installer Combination] [SHIFT] [6] [8] [ENTER] from a different keypad.
SYSTEM RESET	Displays for 5 seconds after pressing [Installer Combination] [SHIFT] [6] [8] [ENTER]. This key sequence restarts the SYSTEM 238 microprocessor. No programming changes will occur, but the time of the next Test Report will start counting down to the programmed test interval. All pending reports will be cleared.
SYSTEM TROUBLE	Appears on the top line of the display when the SYSTEM 238 detects AC failure, low battery, fuse failure, communication failure, or watchdog reset. Press the [ENTER] key several times to learn the cause of the SYSTEM TROUBLE.

Section 9

Keypad Operations

Display	Meaning
TEST - FAILED	Displays on the second line after failing to complete a dynamic battery test [SHIFT] [6] [4] [ENTER], or a central station reporting test [SHIFT] [6] [1].
TEST - PASSED	Displays on second line after completing a dynamic battery test or central station reporting test.
TEST REPORTING	Displays on top line when performing the central station reporting test.
TROUBLE ZONE	Displays after detecting an open or foreign ground in a supervised or supervised - latched loop. Press the [ENTER] key several times to display the TROUBLE ZONE message.
WATCHDOG RESET	Activates SYSTEM TROUBLE after detecting a microprocessor failure and attempting to reset the system. Press the [ENTER] key several times to make the Service Message display WATCHDOG RESET.
WALK TEST	Displays on the top line when the system is in the walk-test mode.

Section 10

How to Install the SYSTEM 238 and Keypads

Standby battery

The SYSTEM 238 is designed to operate with a 12 volt, 6.5 Ah, sealed lead-acid battery (C&K Model 1265). Do not use non-rechargeable batteries or batteries other than sealed lead-acid. **Replace the standby battery every three to five years.**

Connect the red lead to the battery positive terminal and the black lead to the battery negative. The battery is reverse-polarity protected by fuse F4 (3 AG, 3 amps, fast-blow).

Five minutes after the panel is powered up, it will dynamically test the standby battery by interrupting AC power for two minutes and monitoring the battery under load.

Standby Battery Time with One LED Keypad

AUX POWER DRAIN*	STANDBY TIME
50 mA	32 hours
250 mA	16 hours
500 mA	10 hours

* Total power for all keypads, auxiliary, and Loop 8

If you replace the battery after a SYSTEM TROUBLE - LOW BATTERY message, you must test the battery under load conditions. Press [SHIFT] [6] [4] [ENTER] to start the Dynamic Battery Test.

AC power   Terminals 1 and 2

AC power is supplied from a 16.5 VAC, 25 VA transformer at 50 or 60 Hz. A UL listed Class 2 transformer must be used in UL installations (C&K Model 1097-B). Connect the secondary of the transformer to terminals 1 and 2. Use at least 18 AWG (1.02 mm) wire to reduce voltage drops. **The primary side of the transformer must be connected to an unswitched receptacle.** Secure the transformer to the wall.

AC power failure

If an AC power failure lasts more than 15 minutes, the keypads will display a system trouble. An AC failure report will be sent, if programmed. When AC is restored for five minutes, a restoral report will be sent.

Precautions
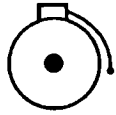
☞ Do not share the secondary of the transformer with other devices. A foreign ground can damage the power supply, voiding the warranty.

☞ Do not use transformers with a secondary rated less than 16.5 VAC at 25 VA.

Section 10

How to Install the SYSTEM 238 and Keypads

Audible output   Terminals 3 and 4

Terminal 3 provides up to 1.5 amps at 10.5 - 13.5 VDC. **Output is limited to 300 - 800 mA if operating from AC only.** The type of voltage (steady, pulsed, chirp) and the time is programmable.

Fuse

Terminal 3 is protected by a 2.5 amps, 3 AG fast-blow fuse (F1). **If any fuse opens, remove AC and DC power, remove the short or overload condition, then replace the fuse before restoring power. Do not substitute a higher rated fuse.**

Electromagnetic interference

Vibrating horns can produce electromagnetic interference (EMI). While EMI will not damage the SYSTEM 238, it can cause transmissions errors and mis-dialing. To minimize EMI, install a 0.01 mfd, 100 volt capacitor across the terminals of the horn. The capacitor must be located in the horn.

Auxiliary power   Terminals 5, 6, and 7
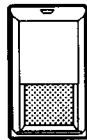
Terminal 5 provides positive 10 - 12.5 VDC power for devices that require switched power for resetting. Typical devices are glass-break and smoke detectors. Terminal 6 provides power common. Terminal 7 supplies uninterrupted positive power.

Available power

The maximum power available at terminals 5, 7, and 8 is 500 mA. The switched auxiliary, unswitched auxiliary, and keypads share the same power buss. **Do not exceed 500 mA for all keypads and auxiliary devices.**
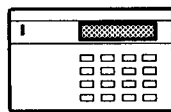
Fuse

Terminals 5 and 7 are protected by a 0.75 amp, 3 AG, fast-blow fuse (F2).

Voltage variations

Output voltages will vary between 9.0 to 14.4 VDC (worst case), depending on the load, battery condition, and AC line voltage.

Arming stations   Terminals 6, 8, 9, and 10

Up to 4 Alpha or LED keypads can be wired to the SYSTEM 238.

Terminal 6 (black) is common.

Terminal 8 (red) provides 11 - 14 VDC keypad power.

Terminal 9 (green) is data from the keypad to the panel.

Terminal 10 (white) is the clock line.

Section 10

How to Install the SYSTEM 238 and Keypads

Maximum wire.length for any keypad is 500' (23.6 m) of 22 AG (0.643 mm) copper wire.

Each LED keypad uses 30 mA of current, while each LCD keypad uses 40 mA. Total power used by all keypads and auxiliary devices must not exceed 500 mA.

Fuse

Terminal 8 is protected by a 0.75 amp, 3 AG, fast-blow fuse (F3).

Alpha keypad information

The Alpha keypad uses a top viewing display. This means the display reads most clearly when viewed from a top angle rather than straight on or from below. Mounting the keypad at the light switch level and adjusting the viewing angle gives the best viewing results.

The viewing angle is adjusted by removing the keypad from the back mounting plate. Towards the bottom center of the circuit board is a small hole. Insert a small screwdriver into the hole to the slotted potentiometer **R23**. Adjust the viewing angle while holding the keypad at its mounting height. You can also adjust the R23 potentiometer by removing the keypad's front cover.

You must program a keypad address for each Alpha keypad installed in the system. **Each keypad must have a different address.** When replacing a keypad, be sure to program the replacement keypad with the same address as the previous keypad.

The first time you power up the system, unaddressed Alpha keypads will display **KEYPAD ADDRESS?**. Press any number from 0 through 7 at each keypad. The exact number you press is not important as long as no other keypad has the same number. You are allowed a maximum of four Alpha keypads in a system. After all keypads have been programmed, reset the panel by removing and restoring both AC and DC power.

Loop inputs   Terminals 11 - 22

Loops 1 - 8
0 - 2.5 VDC = short
2.5 - 8.5 VDC = normal
8.5 - 15 VDC = open
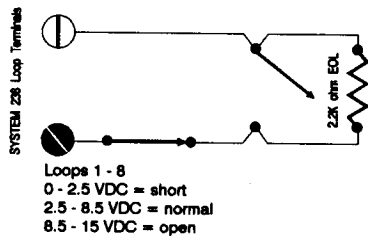
Each loop is independently configured through programming. Loops can be wired to use a 2.2K ohm end-of-line (EOL) resistor, open circuit switch, or closed circuit switch. EOL loops can be programmed to supervise for opens or foreign grounds.
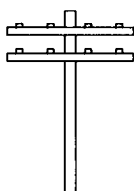
Section 10

How to Install the SYSTEM 238 and Keypads

ONE DETECTOR
PER LOOP

MULTIPLE DETECTORS
PER LOOP
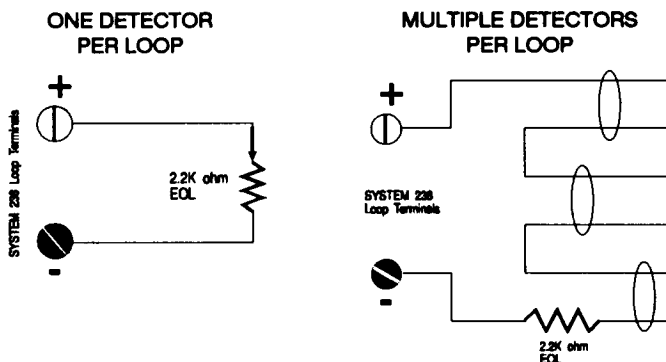
Loop 8

Terminals 21 and 22 are a standard loop that can also power 2-wire devices. It supplies 10 - 12.5 VDC at 50 mA. Use Loop 8 to power 2-wire glass-breaks and smoke detectors.

Telephone interface

Use the 9.X PCP, 9.X PCF, or 238 PCT cord to connect the SYSTEM 238 to the phone line. The cords have an 8-pin telco plug on one end. Plug the cord into **J1** on the lower right corner of the SYSTEM 238.

9.X PCP

The 9.X PCP has an 8-pin plug on one end. Plug it directly into the phone company's RJ31 or RJ38X jack.

9.X PCF

The 9.X PCF has eight flying leads on one end. Wire them to the phone line terminals.
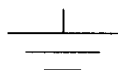
RED = ring
GRAY = ring seized
GREEN = tip
BROWN = tip seized

BLUE and ORANGE = tamper
YELLOW and BLACK = not used

238 PCT

The 238 PCT allows you to tamper the RJ38X phone jack. Plug the end with the blue and yellow flying leads into the SYSTEM 238. Use the leads to connect the normally closed RJ38X tamper circuit to one of the detection loops.

Earth ground   Terminal 23

Connect terminal 23 to earth ground using a minimum wire size of 14 AWG (1.63 mm). The wire run should be as straight and short as possible.

Enclosure ground

For UL installations, the enclosure door must be grounded. Connect the grounding strap from the lower left circuit board mount to the ground lug on the lower door hinge.

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How to Install the SYSTEM 238 and Keypads

Watchdog indicator

DS1

WATCH DOG

The SYSTEM 238 is protected by an advanced circuit that constantly monitors the microprocessor.

As long as the panel is powered and operating normally, the DS1 LED on the circuit board will flash. If the Watchdog circuit detects a failure, it will attempt to reset the panel and make the DS1 LED light steadily.

If the panel resumes normal operation after a Watchdog reset, clear the DS1 LED by resetting the panel or pressing [SHIFT] [1] [ENTER], then test the system. No further action is required.

If the panel does not operate properly after a Watchdog reset, call the **C&K Technical Support Hotline at 1-800-227-8065**.

Testing

Once the installation is complete, connect AC and DC power. If required, complete the programming. **Test all panel operations**.

You can walk-test the panel by pressing [SHIFT] [6] [0] [ENTER]. The keypads will sound every time a device is faulted.

If the chimes at an ALPHA keypad are toggled off when you enter the walk-test mode, the chimes will automatically activate and sound during the test. Once the test is ended and you've exited the walk-test mode, you'll have to toggle the chimes off again.

Default program

The SYSTEM 238 comes factory programmed with default values. The default programming allows you to use the SYSTEM 238 immediately. The panel is programmed to operate as a local panel. User #1's combination is 1 2 3 4. All other combinations are disabled.

Loop 1 = entry/exit
Loop 2 = doors or windows
Loop 3 = doors or windows
Loop 4 = doors or windows

Loop 5 = interior
Loop 6 = interior
Loop 7 = 24-hour tamper or panic
Loop 8 = fire

Default programming values

Option	Value
Account #1	000000
Phone number	none
Message format	Fast 'A', 2300 Hz
Receiver format	3/1 Extended

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Option	Value
Account #1	000000
Phone number	none
Message format	Fast "A", 2300 Hz
Receiver format	3/1 Extended
Account #2	000000
Phone number	none
Message format	Fast "A", 2300 Hz
Receiver format	3/1 Extended
Dialing type	10 pulses/second
Delay dial time	0 seconds
RPS from keypad	yes
RPS enable remotely	yes
RPS phone number	none
Phone ring type	single
Default installer combination	yes
Faulted arming type	Goof-proof
Audible time	5 minutes
Bell reverse	no
Daily battery test	no
Disable loop LEDs	no
Entry delay time	30 seconds
Entry pre-alarm	yes
Exit delay time	60 seconds
Exit pre-alarm	yes
Power-up delay	no
Local system	yes
Ring back	no
Set test report countdown timer	15 minutes
Soft zones enabled	yes
Combination command	no
Guest time	disabled

Default combinations

	Combination	Arming type	Shunting
Installer	012345	none	no
User #1	1234	arm/disarm, no O/C	yes
Users #2 - #8	disabled	not programmed	not programmed

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How to Install the SYSTEM 238 and Keypads

Events

	Code	Receiver Select
Cancel	D	Receiver 1 only
Closing	C	Receiver 1 only
Duress	none	Receiver 1 only
Opening	B	Receiver 1 only
Restoral	see loops	Receiver 1 only
Shunt	see loops	Receiver 1 only
Test	99	Receiver 1 only Test interval = 7 days
Unit status	A	Receiver 1 only

Loop events

Event	Alarm Code	Shunt Code	Restore Code	OK To Shunt	Group Shunt	Recvr Select	Fault Time	Restore Type	Arm Type	Bell Type	Circuit Type
Loop 1	10	disabled	E1	no	no	Rcvr 1	250 ms	normal	delay	steady	EOL
Loop 2	20	disabled	E2	yes	no	Rcvr 1	250 ms	normal	instant	steady	EOL
Loop 3	30	disabled	E3	yes	no	Rcvr 1	250 ms	normal	instant	steady	EOL
Loop 4	40	disabled	E4	yes	no	Rcvr 1	250 ms	normal	instant	steady	EOL
Loop 5	50	disabled	E5	yes	no	Rcvr 1	250 ms	normal	interior	steady	EOL
Loop 6	60	disabled	E6	yes	no	Rcvr 1	250 ms	normal	interior	steady	EOL
Loop 7	70	disabled	E7	no	no	Rcvr 1	250 ms	normal	24-hour	steady	EOL
Loop 8	80	disabled	E8	no	no	Rcvr 1	250 ms	normal	24-hour	pulsed	superv
Emerg	local	-	-	-	-	Rcvr 1	-	-	-	chirp	-
Fire	local	-	-	-	-	Rcvr 1	-	-	-	pulsed	-
Police	local	-	-	-	-	Rcvr 1	-	-	-	steady	-

Limited warranty

The SYSTEM 238 is warrantied against manufacturing defects for **12 months** from the date of manufacture. The manufacture date is established by the date code on the unit. This Limited Warranty does not apply to any product that has been abused, altered, or misused, whether physically or electrically. Products returned within **five months** of manufacture will be replaced with a new unit. Before returning a product to C&K SYSTEMS, obtain a **Return Materials Authorization** number (RMA) from our Customer Service Department. Complete warranty information is available from C&K Distributors, C&K Sales Representatives, and our Customer Service Department. **Do not return communicators in their metal cabinets.** The cabinets increase your shipping costs and delay repair times.

Section 10

How to Install the SYSTEM 238 and Keypads

To the installer

Regular maintenance and inspection (at least monthly) by the installer and frequent testing by the user are vital to the continuous and satisfying operation of any alarm system. The installer should assume the responsibility for 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 include a specific program of regular testing (at least weekly) to insure than the system is operating properly at all times.**

Telephone line problems

In the event of telephone line problems, disconnect the SYSTEM 238 by removing the modular connector plug from the Telco interface jack. **Do not disconnect the connection inside the SYSTEM 238 cabinet.** Doing so will prevent the premise phones from operating. If your phone works correctly after the control panel has been disconnected from the phone line, the control panel has a problem and should be returned for repair.

If the phone does not work after you have disconnected the control panel from the phone line, notify the telephone company and request prompt repair. **The user may not under any circumstance (in or out of warranty) attempt any service or repairs on the SYSTEM 238.** The control panel must be returned to C&K SYSTEMS or an authorized service agency for repairs.

FCC requirements

The Federal Communications Commission (FCC) has established Rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.

If this device is malfunctioning, it may also be causing harm to the telephone network. This device should be disconnected until the source of the problem can be determined and corrected. If this is not done, the telephone company may temporarily disconnect service.

The telephone company may make changes in its technical operations and procedures. If such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of the changes.

If the telephone company requests information on the equipment connected to its lines, inform them of:

a. The telephone number this device is connected to

b. The ringer equivalence number

c. The USOC jack required (RJ31X or RJ38X)

d. The FCC registration number

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How to Install the SYSTEM 238 and Keypads

Items "b" and "d" are indicated on the label. The ringer equivalence number (REN) is used to determine how many devices can be connected to the telephone line. In most cases, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

In the event of equipment malfunction, all repairs should be made by C&K SYSTEMS or an authorized agent. It is the responsibility of users to report the need for service to C&K SYSTEMS or one of its agents. Service can be obtained at:

C&K SYSTEMS
107 Woodmere Road
Folsom, CA 95630
TEL: 916/ 351-1131
FAX: 916/ 985-0352

FCC emissions notice

The SYSTEM 238 generates and uses radio frequency energy. Though the panel has been thoroughly tested and found in compliance with the specifications in Part 15, Subpart J, of the FCC Rules for Class B Computing Devices, it can still cause radio and television interference **if not properly installed.**

If the SYSTEM 238 causes interference (determined by powering the system on and off), try one or more of the following corrective measures:

· Re-orient the radio/television antenna.

· Connect the AC transformer to a different outlet so that the control panel and radio/television are on different branch circuits.

· Relocate the control panel with respect to the radio/television.

Canadian emissions requirements

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le pre'sent appareil nume'rique n'e'ment pas de bruits radioe'lectriques de'passant les limites applicables aux appareils nume'riques de la class B prescrites dans le Re'glement sur le brouillage radio'electrique e'dicte' par le ministe're des Communications du Canada.

Section 10

How to Install the SYSTEM 238 and Keypads

The limitations of your alarm system

While the SYSTEM 238 is an advanced design security system, it does not offer guaranteed protection against burglary, fire, or other losses. Any alarm system, whether commercial or residential, is subject to compromise or failure-to-warn for a variety of reasons. These include:

- 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, smoke detectors, and many sensing devices will not operate without power. Devices powered by AC will not work if their AC power supply is off for any reason and their back-up batteries are missing, dead, or improperly installed.

- Alarm warning devices such as sirens, bells, and horns may not alert people or wake up sleepers if they are located on the other side of closed or partly closed doors. If warning devices are on a different level of the residence from the bedrooms, they are less likely to waken or alert people inside the bedrooms.

- Telephone lines needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily out of service. Telephone lines are subject to compromise by sophisticated methods of attack.

- Smoke detectors used in conjunction with the alarm system may not sense fires that start where smoke cannot reach the detectors, such as chimneys, walls, or roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level of the 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 you 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, arson, etc.

- The most common cause of an alarm system not functioning properly when an intrusion or fire occurs is inadequate maintenace. Your alarm system should be tested weekly to make sure all sensors are **operating properly. The SYSTEM 238 panel and keypads should also be tested**.

- Installing an alarm system may make you 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.

Section 11

How to Program for UL Compliance

The SYSTEM 238 is in compliance with Underwriters Laboratories, Inc. Standards UL 985, Household Warning System Units; UL 1023, Household Burglar Alarm System Units; and UL 1635, Digital Burglar Alarm Communicator System Units. **The following programming restrictions must be observed to meet UL standards.**

UL 985
1. The audible must be programmed to sound at least four minutes before silencing.
2. No zone may be programmed for silent alarm.
3. Fire zones must be programmed for pulsing audible alarm.
4. Burglar zones must be programmed for a steady audible.
5. A lock must be installed on the cabinet.
6. All devices must be UL listed.

UL 1023
1. The audible must be programmed to sound at least four minutes before silencing.
2. No zone may be programmed for silent alarm.
3. No Entry Delay may be greater than 45 seconds.
4. No Exit Delay may be greater than 60 seconds.
5. No Delay Before Dial may be programmed for the communicator.
6. A lock must be installed on the cabinet.
7. All devices must be UL listed.
8. The unit must not be programmed to dial a police station.

UL 1635
1. The audible must be programmed to sound at least four minutes before silencing.
2. The Unit Status Report must be enabled.
3. The 24-hour Check-in must be enabled.
4. The Dynamic Battery Test must be enabled.
5. No Entry Delay may be greater than 45 seconds.
6. No Exit Delay may be greater than 60 seconds.
7. Burglar loops (non-24-hour loops) must be programmed for NO/NC.
8. No Delay Before Dial may be programmed for the communicator.
9. A lock must be installed on the cabinet.
10. A tamper switch must be installed on the cabinet.

Zone Programming

FIRE LOOP	BURGLAR LOOP
• No Delay Before Dial	• No Delay Before Dial
• 24-hour arming	• Steady Audible
• Pulsing audible	• NO/NC with EOL

• Supervised
  - latching for heat
  - resetting for smoke	

• Not shuntable	

ALPHA Keypad
C&K's ALPHA keypad must be used in all UL certificated installations. When installing the keypad, remove the key with the EMERGENCY symbol on it (⌂), and replace it with one of the blank keys provided. **The EMERGENCY feature cannot be used in UL certificated installations.**

Specifications

· **Dimensions:**
10.25" wide x 10.125" high
x 2.75" deep
(26 cm x 25.5 cm x 7 cm)
metal cabinet with lock

· **Power Input:**
16.5 VAC, 25 VA;
battery reverse-polarity
protected

· **Power consumption:**
idle - 100 mA
dialing - 120 mA

· **Zone Inputs:**
3 keypad, 8 hardwired;
loop response time = 5 - 750
msec (programmable);
loop 8 - switched 50 mA at
supply voltage

· **Operating environment:**
40° to 140° F
(4° to 60° C);
up to 95% relative humidity
(non-condensing)

· **Telecom listings:**
operates on loop-start phone
lines

USA:
FCC Part 15 and Part 68;
ringer 0.3B;
reg #: C2DCHN-18742-AL-E

Canada:
load 5;
certificate #: 1140 4100A;

Contact your C&K distributor
for other telecom approvals.

Keypad power consumption:

LED	14 mA idle	35 mA alarm
ALPHA	44 mA idle	53 mA alarm

Accessories

Ordering Information

Model 238 LED:
attractive, backlit, low profile
4-wire keypad

Model ALPHA:
attractive, low profile keypad
with SuperTwist 32-character
(16 x 2) backlit LCD display

Commander II:
remote programming
software

Monitor II:
alarm receiving/remote
programming software;

238 Demonstrator:
includes a working control
panel, battery, LED and
ALPHA keypads, end-user
video, residential and
commercial overlays

Model 1265:
12 VDC, 6.5 AH sealed
lead-acid battery

Model 1097-B:
16.5 VAC, 25 VA Class 2
transformer

Model 9.X PCP:
phone cord with plugs
on both ends

Model 238 PCT:
phone cord with two wires
for jack tamper

Model 9.X PCF:
phone cord with plug on
one end and 8 flying leads
on other end

C&K Service Centers

USA/Corporate Headquarters
107 Woodmere Road
Folsom, CA 95630
TEL: 1-916-351-1131
    1-800-227-8065
FAX: 1-916-985-0352

CANADA
7025 Tomken Road, Unit 16
Mississauga, Ontario L5s 1R6
TEL: 1-416-670-7733
    1-800-668-5677
FAX: 1-416-670-5753

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Northamptonshire NN16 8LF
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TEL: 44-536-412-202
FAX: 44-536-410-867
TLX: 34672 CK SWIT

Avenida Valgrande 14-4
28100 Alcobendas
Madrid, Spain
TEL: 34-1-661-4768
    34-1-661-2676
FAX: 34-1-661-5729

39 rue de Monthlery
Silic 447
94593 RUNGIS Cedex
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TEL: 33-1-4978-0011
FAX: 33-1-4687-2475

Via Torino 25
Edificio C
Centro Direzionale Summit
20063 Cernusco Sul Naviglio
Milan, Italy
TEL: 39-2-92-100-663
FAX: 39-2-92-100-819

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Northmead 2152
Sydney, NSW
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TEL: 61-2-683-1555
FAX: 61-2-683-6165

Unit 5
56 Holdsworth Street
Coorpardo 4151
Brisbane, Queensland
Australia
TEL: 61-7-847-1444
FAX: 61-7-847-1160

Unit A2
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Mount Waverly 3149
Melbourne, Victoria
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TEL: 61-3-562-9111
FAX: 61-3-562-9091

215 Gilbert Street
Adelaide 5000
South Australia
Australia
TEL: 61-8-231-9761
FAX: 61-8-212-3781

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#06-00 Yong Da Building
Singapore 1438
TEL: 65-743-2992
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