PROGRAMMING Manual

2.1

Control/Communicator

5-051-091-00 Rev C

C&K SYSTEMS, INC.

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About This Manual

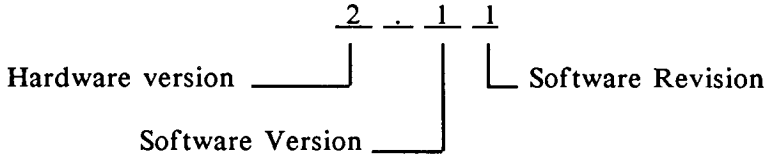
ACCURACY

While C&K Systems has checked this manual for accuracy, we assume no responsibility for inaccuracies nor for actions caused by the use of the information supplied in this manual. C&K Systems reserves the right to modify the 2.XX hardware, 2.10 software, and the material contained in this manual without notice.

CONVENTIONS USED IN THIS MANUAL

MODEL NUMBERS

The model number is comprised of three parts. The number before the period (.) signifies the circuit board design. The first number after the period signifies the software version. The second number after the period shows the revision level of the software model.



SCOPE OF THIS MANUAL

This manual covers programming the 2.11 and 2.12 Control/Communicator. While a separate manual covers the installation and service of the different hardware versions (2.XX and 3.XX), some hardware options will be discussed in this manual since programming and installation are closely related.

This manual is written for the latest software version of the 2.11 and 2.12. Since C&K Systems is constantly improving its products, it is possible that there are slight discrepancies between this manual and the version of the 2.11 or 2.12 that you are installing or servicing. While we try to point out changes, it is not always possible to list all of them. Should you have any questions regarding the programming, installation, service, or use of this equipment, please call our Customer Service Department.

ICONS

Three icons are used throughout this manual to alert the reader to points of special interest or to warn of precautions which must be taken.

MARKETING. Ideas that will make you money.

TECHNICAL TIPS. Ideas to make your installations better.

WARNINGS. Precautions that will keep you out of trouble.

RPS software - The term "RPS software" as used throughout this manual, refers to the remote programming capabilities contained in C&K's COMMANDER, MONITOR, and MASTER DISPATCHER V software programs.

See UL-A Certain suggested applications go beyond the Underwriters Laboratories Inc. investigations of this product.
See UL-B The symbols at the left are used to refer to the three disclaimers in the UL Compliance Verification section of
See UL-C this manual.

BEFORE YOU START

Use this manual for the model 2.1 only. Other models look the same as the 2.1, but differences in the software require different programming instructions.

Operation of the 2.1 Controller/Communicator system is managed by a microprocessor. The microprocessor uses instructions stored in EEPROM memory to control the hardware components and communication equipment. Many FUNCTIONS of the system have OPTIONS which are selected by programming certain MEMORY LOCATIONS. Programming means that the user or the installer keys in DIGITS which are then stored in the Memory Locations.

Some Memory Locations have been pre-programmed at the factory. You may leave them as they are or change them to suit your needs. Other Memory Locations have been left blank and must be programmed by the installer with information unique to each installation.

Each location has an address (called the Memory Location) and has specific FUNCTIONS which it controls. All of the Functions which have Options are listed on Page 7.

Some locations can be changed by the User whenever he wants to change combinations. Others are accessible only to the installer.

This document is both a programming guide and a programming record. You should fill in the numbers you will use in the spaces provided on the Programming Record form at the back of this manual, then use them as a guide when keying them into the memory locations.

ENTERING PROGRAM DATA

Programming can be done from any keypad which is connected to the control panel. (Programming can also be done remotely using RPS software. While all the available Options are the same, the programming procedure is much different.)

LIGHTS

When in PROGRAM MODE the Trouble, Report, and Service indicators on the keypads will flash continuously.

SOUNDS

When in Program Mode an acknowledge beep will be heard as each key is pressed. If continuous beeping begins, it indicates that you have entered too many or too few digits or an invalid Memory Location. Merely start that entry over again. (The beeping will continue until you enter the first digit.)

For each entry, you must key in eight digits, followed by "#" (the "enter" key). This will store the data in memory. The first two digits of each entry determine the Memory Location where the next six digits will be stored.

NOTE! Some digit entries require that the STAR (*) key be pressed before the digit key. Example: 8 *2 means press 8 then press * then 2. The *2 is considered ONE DIGIT, and only one acknowledge beep (after the 2) will be heard.

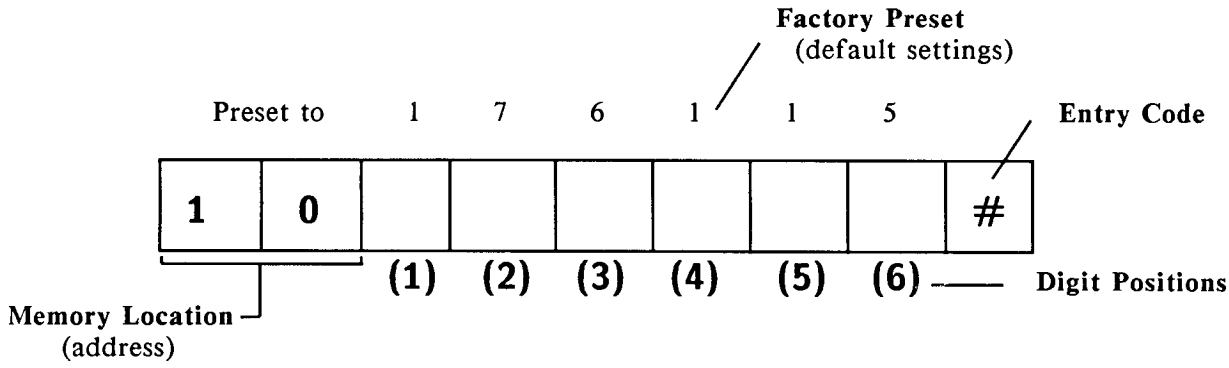
Memory Locations may be programmed in any order. You may skip those Locations which don't need to be changed.

Many Locations have been pre-programmed at the factory. Those which suit your needs may be left as they are.

Entering a Memory Location followed by # will blank out that Memory Location. This should be used with caution. It should be used only on Memory Locations which are factory preset to BLANK.

To change even one digit in a Memory Location, you must key in all eight digits as they will appear after the digit has been changed, then enter "#".

Each Memory Location has six DIGIT POSITIONS, numbered (1) thru (6). In this document, all digits shown in parentheses refer to Digit Positions.



For each Digit Position, a list of Options is shown on the right side of the page. For each Digit Position, you should select the Option desired and write it in the box for that Position for the Memory Location you are working on. Then, when you are ready to enter the program into memory, key in, in sequence, the Memory Location (two digits), the six digits you have written, and the "enter" key "#".

In order to be certain that all your entries are as you intended, you can connect a printer (Model 9.X PRP) to the panel and get a print-out of all Memory Locations. A copy of the list should be left in the panel and one sent to the Central Station. (The remote programmer automatically provides a listing of the entries.)

PROGRAMMING MODE

TO BEGIN PROGRAMMING, key in "*" then the CURRENT MASTER COMBINATION. This will put the control in Program Mode.

During programming (while in Program Mode) you can expect:

THREE LIGHTS (Trouble, Report, & Service) will flash continuously.
One BEEP for each DIGIT keyed in. (The * in front of a number will not cause a beep.)
Continuous BEEPING if you enter an invalid Memory Location or if you key in too few or too many DIGITS before you hit the # key. (Start over while it is beeping.)

TO END PROGRAMMING (get out of Programming Mode) key in | 0 | 0 | # |

WARNING! You must program using only those digit codes listed in this manual for each digit position. While the memory will accept any digit from 0 to *7 in each digit position, any digit which is not listed for that position is considered illegal. Illegal entries can cause the 2.XX to operate in an erratic and unpredictable manner. It is impossible to determine which Functions will be affected and how they will react.

Figure 1
TERMINAL DIAGRAM

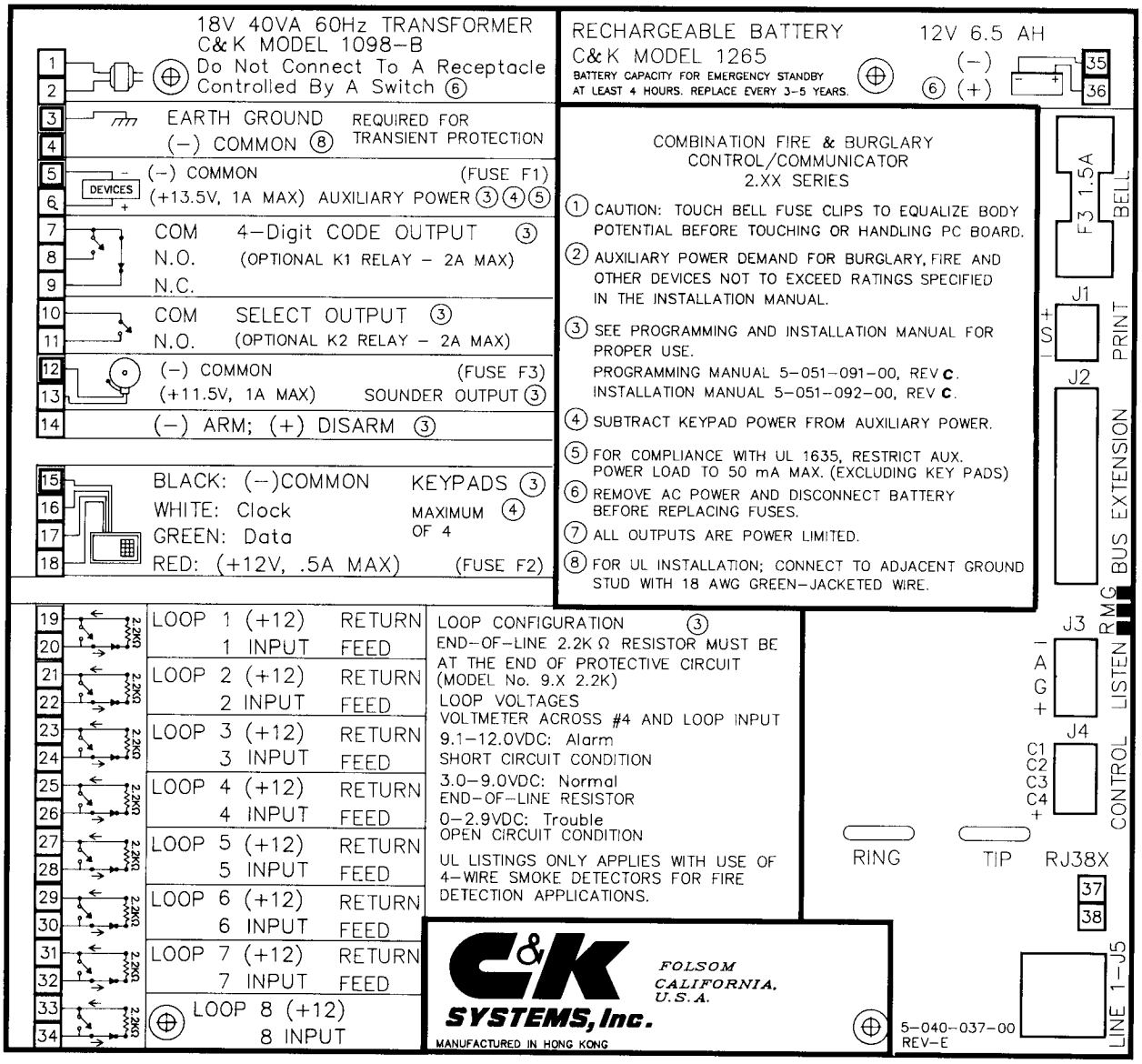
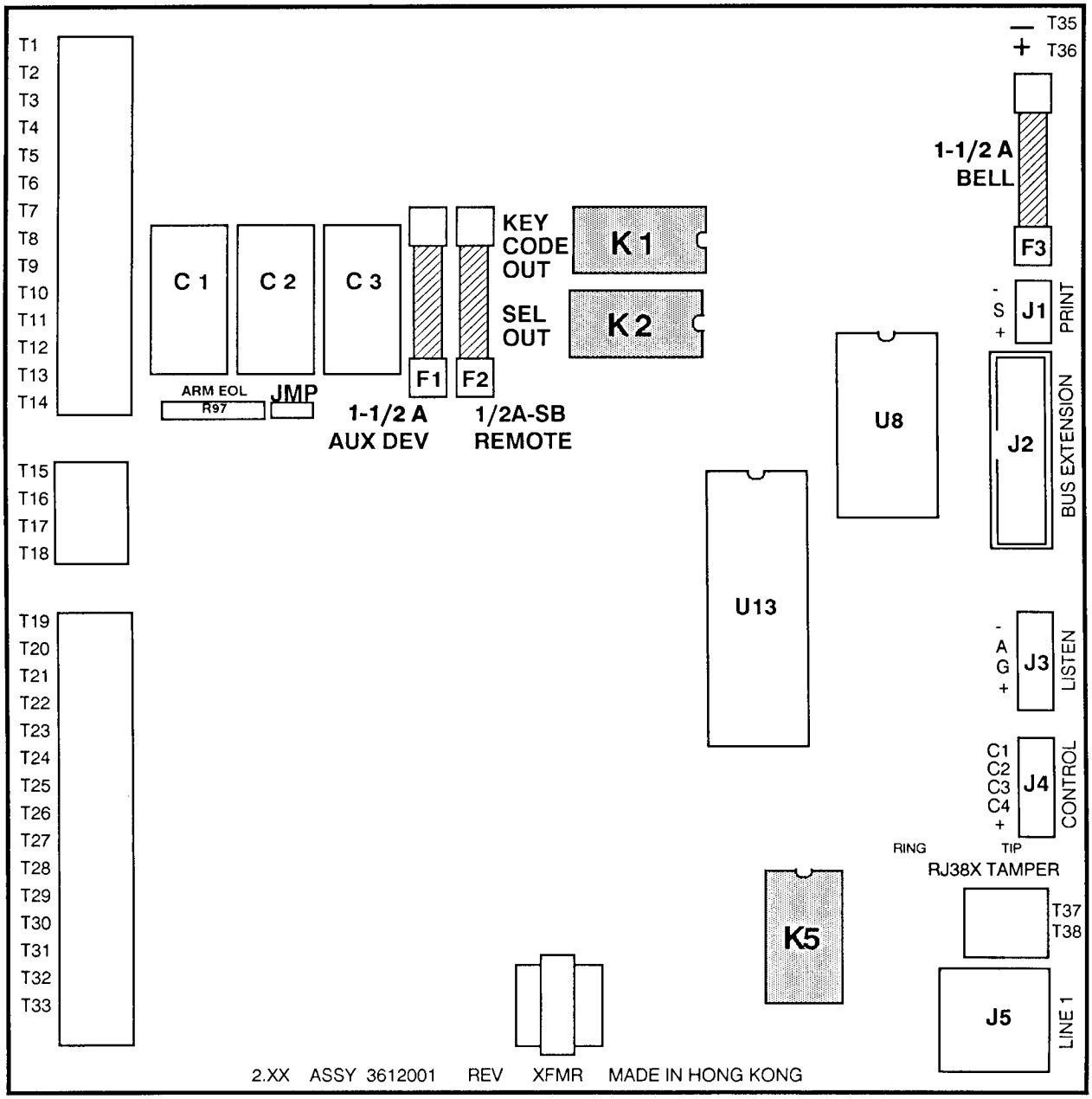


Figure 2
BOARD LAYOUT



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FUNCTIONS

	Memory Location(s)
COMBINATIONS	
Master	11
Auxiliary Arm/Disarm	12 - 16
Duress	17
Relay K1 (Keypad Activation Code)	18
COMMUNICATIONS	
Receiver Account Numbers (2)	22, 26
Receiver Phone Numbers (2)	23 - 25, 27 - 29
Receiver Data Format (2)	21
Message Format (2)	21
Dial Type (Pulse/Tone)	51
Delay before Dial	51
Listen-In Enable	21
Listen-In Duration	21
Receiver 2 Usage Setup	51
RPS Auto Answer Ring Count	51
RPS Phone Number	53 - 55
Double Phone Ring	51
ALARM RESPONSE (for each loop)	
Loop Reporting Code	31 - 39
Receiver Select	31 - 39
Arming Configuration	31 - 39
Audible Alarm Type	31 - 39
Circuit Type	31 - 39
Shunt Enable	31 - 39
Door Chime Enable	31 - 39
Entry Delay Selection	31 - 39
Loop Response Time	41 - 49
Restoral Reporting Criteria	41 - 49
Select Relay K2	41 - 49
SYSTEM ALARM CONTROL	
Event Reporting Codes	41 - 49
Event Reporting Receiver Selections	41 - 49
Entry Delay Times	52
Exit Delay Time	52
Prealarm Enable	52
Force Arm Enable	52
Automatic Home Enable	52
Audible Alarm Duration	52
OTHER FUNCTIONS	
Relay K2 Control	18
Battery Test Enable	48
Open/Close Exception Reporting	41 - 47
Open/Close Schedules	56
Set Real-Time Clock/Calendar	19
Set 24-Hour Test Timer	19
Print Memory	19
Power-Up Delay Enable	49

The following pages are identified by the Memory Locations which they cover.

About these features . . .

MASTER COMBINATION

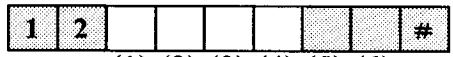
The factory preset value for the MASTER COMBINATION is 777777 . We recommend that you change this combination to increase the security of your subscriber's installation. Some dealers choose to make this number the same for all of their accounts. While this makes record keeping easier, it reduces your security in two ways:

1. An employee who leaves your company has on-site programming access to all your accounts.
2. You must give the MASTER COMBINATION number to those subscribers who will have the authority to change their combinations and arming levels. Thus, one customer will have the MASTER COMBINATION for many other customers.

If you use a different number for different accounts, you must keep a record of each account's MASTER COMBINATION. If you loose this number, or your subscriber changes it without notification, you will only be able to reprogram the panel through RPS Software interactive programming. It is important, therefore, that you initialize all panels for remote programming as described in Memory Locations 51 and 52-55. The correct MASTER COMBINATION is required to gain access to keypad programming.

The MASTER COMBINATION, if used to arm and disarm the system, will always report OPENING or CLOSING user #1 if openings and closings are enabled. This combination cannot be used to shunt.

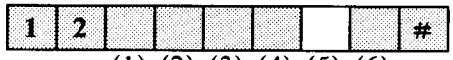
AUXILIARY ARM/DISARM COMBINATIONS



Memory Locations 12 - 16, positions **(1)** through **(4)**, are used to store the 4-digit arming and disarming combinations. Any combination of digits may be used. There are no restrictions regarding starting, ending or repeating numbers.

The 4-digit combination MUST NOT BE THE SAME AS THE FIRST FOUR DIGITS OF THE MASTER COMBINATION. If you duplicate the first four digits, you will not be able to enter Programming Mode. Attempting to enter Programming Mode will only arm or disarm the control.

If you store the same combination in two different Memory Locations, the 2.1 will always decode the combination according to the information stored in the lowest numbered combination Memory Location.



Position **(5)** is used to determine the arming/disarming type. You have the options of Arm Only, Disarm Only, and Arm & Disarm. You also have to determine which if any of these combinations will report to the central station. The actual digits to be used to report OPEN and CLOSE to the central station will be programmed in Memory Locations 45 and 46. Exception opening and closing reports are discussed in Memory Locations 19 and 45.

When reporting openings and closings, the 2.XX will always report by user ID. The number that will report to the central station is the second digit of the memory location. Example: If the combination that armed the system was the combination stored in Memory Location 13, the central station would receive "CLOSING zone 3". An opening using the combination in Memory Location 15 would result in "OPENING zone 5". One exception is that if MESSAGE FORMAT 3/1 Single is selected (in Memory Location 21) no user ID will be reported.

continued

TO BEGIN PROGRAMMING

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

TO END PROGRAMMING

Key in | 0 | 0 | # |

Key in Star (*) and current Master Combination (777777 at start-up)

OR 111111

MASTER COMBINATION
User 1
Name(s) _____

Preset to 7 7 7 7 7 7 OR 111111

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

(1) thru (6): Six-digit MASTER COMBINATION. Any six digits; repeating digits allowed.

ARM/DISARM COMBINATIONS

User 2
Name(s) _____

Preset to BLANK

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

User 3
Name(s) _____

Preset to BLANK

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

User 4
Name(s) _____

Preset to BLANK

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

User 5
Name(s) _____

Preset to BLANK

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

User 6
Name(s) _____

Preset to BLANK

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

(1) thru (4): Four-digit ARM/DISARM COMBINATION. Any four digits; repeating digits allowed.

(5) ARMING TYPE
1 = Arm only, Close Report
2 = Disarm only, Open Report
3 = Arm & Disarm, O/C Report
5 = Arm only, no report
6 = Disarm only, no report
7 = Arm & Disarm, no report

(6) SHUNT PRIVILEGE
1 = Can Shunt
2 = Cannot Shunt

About these features . . .

AUXILIARY ARM/DISARM COMBINATIONS (continued)

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

Position (6) determines if that combination can shunt zones. If any combination is authorized to shunt, the zone shunt option must be selected for each zone which can be shunted (Memory Locations 31 - 39 position (6)).

$ The ability to track people working in service industries such as janitors and maids is very saleable. With the 2.1, you can have one or more combinations report openings and closings while other combinations do not. Maid Watch or Janitor Watch should result in an additional $5 - $15/month in increased monitoring fees.

$ If your customer needs fewer than 5 combinations, you might want to program the unused combinations for future use. Then when the subscriber calls you for a new combination, you can quickly provide him with an additional one. Of course, this is not necessary if you have the RPS software. It will allow you to change any programming information quickly and easily without going to the subscriber's location.

$ You might want to reserve one of the combinations for your own use. If this combination has opening and closing reporting, your central station can log when the service person arrives and departs. This is especially useful when you are carrying subscriber keys. The MASTER COMBINATION is the ideal combination since your servicemen and installers will need to know it when working on the system.

$ Arm-only combinations are very useful to keep maids, janitors, and night clerks or managers from unauthorized entry back into the protected premise. You can use the feature to increase your monthly monitoring fees (you are providing a very valuable feature), or use it as a closing tool. "Mr Jones, if you will sign the contract today, I will include, at no extra charge, our MANAGER-GUARD feature. This will allow your manager to arm the system, but not disarm the system. You will save an additional $10 a month, $120/year, on your fees and increase the security of your store at the same time. Now, should I make the contract out to Mr Jones, or would Mr Tom Jones be better?" (See UL-A)

$ The feature that allows arming but not disarming can be a useful sales tool in selling to the residential market. The homeowner can give the number to the baby sitters, allowing them to protect themselves and the kids, but preventing visitors from re-entering the house.

DURESS COMBINATION

1	7					1	*7	#
(1)	(2)	(3)	(4)	(5)	(6)			

Entering the combination programmed into Memory Location 17 will arm or disarm the system AND send a silent alarm to the central station. An OPEN or CLOSE report is always sent when the duress combination is used if opening/closing is enabled. Openings and closings using the Duress Combination will always report as User 7. If a Duress Reporting Code has been programmed into Memory Location 48, Position (1), the alarm reporting code will be followed by Extension Code 0. No zone or alarm memory lights will show at the arming stations. The yellow REPORT LED will light during the transmission of the OPEN or CLOSE report.

1	7					1	*7	#
(1)	(2)	(3)	(4)	(5)	(6)			

The digit 1 must be programmed into position (5) of Memory Location 17, and the digit *7 in position (6) of Memory Location 17. The DURESS option also requires you to program a zone reporting code into Memory Location 48, position (1). Do not use the same combination for DURESS that is used for any other combination.

If a duress reporting code is not programmed in Memory Location 48, Memory Location 17 can be used for an additional arming/disarming code. Opening and closing reports will report opening/closing extension 7 if opening/closing is enabled. You must program a * 7 into Memory Location 48, Position (1). This will suppress the Duress Alarm Report and convert the combination to an opening and closing reporting combination.

ARM/DISARM COMBINATIONS

User 2
Name(s)_____

Preset to BLANK

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

User 3
Name(s)_____

Preset to BLANK

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

User 4
Name(s)_____

Preset to BLANK

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

User 5
Name(s)_____

Preset to BLANK

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

User 6
Name(s)_____

Preset to BLANK

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

(1) thru (4): Four-digit ARM/DISARM COMBINATION. Any four digits; repeating digits allowed.

(5) ARMING TYPE
1 = Arm only, Close Report
2 = Disarm only, Open Report
3 = Arm & Disarm, O/C Report
5 = Arm only, no report
6 = Disarm only, no report
7 = Arm & Disarm, no report

(6) SHUNT PRIVILEGE
1 = Can Shunt
2 = Cannot Shunt

DURESS COMBINATION

Preset to BLANK

1	7					1	*7	#
		(1)	(2)	(3)	(4)	(5)	(6)	

(1) thru (4): Four-digit DURESS COMBINATION. Any four digits; repeating digits allowed.

(5) = "1"
(6) = *7

About these features . . .

4-DIGIT CODE and SELECT OUTPUTS

Preset to BLANK

1	8							#

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

In the upper center of the circuit board is a relay socket labeled KEY CODE OUT (see Figure 2). If an optional relay (C&K model 9.X RLX) is correctly plugged into the KEY CODE OUT socket, it can be activated by a special keypad combination (4-DIGIT CODE). The combination is stored in Memory Location 18, positions **(1)** through **(4)**. Any combination of digits may be used. There are no restrictions regarding starting, ending, or repeating numbers.

Do not use the same combination for (4-DIGIT CODE) that is used for any other combination.

1	8							#

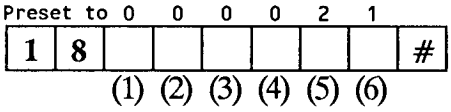
(1) (2) (3) (4) (5) (6)

Position **(5)** in Memory Location 18 determines whether the KEY CODE OUT (K1) relay contacts will toggle their output state as the combination is entered, or change state and automatically re-set after 5 seconds. See Figure 1 (terminals 7, 8, 9) for K1's wiring diagram. Instructions on the installation and suggested wiring schematics for this relay are included in Section 8 of the Operation, Installation and Service Manual for the 2.XX Control/Communicator.

This relay makes a simple and inexpensive access control system. Program Position **(5)** with a **2** (5 second duration) and wire the relay contacts between the power supply and the electric door strike as shown in the installation manual. The RPS software allows you to access this relay from your office. This eliminates the need for your guards or servicemen to carry premise keys. In an emergency, you can also allow responding police or fire officials into the building without the delay of waiting for someone with premise keys to arrive. A wiring diagram is included in Section 8 of the Installation Manual. (See UL-B)

If 4-DIGIT CODE OUTPUT is not used for other purposes, it can be used to reset smoke detector or glass break power from the keypad. Program Position **(5)** with a **2** . This will cause the relay to activate (break smoke detector power) for 5 seconds. Additional wiring information is included in Section 8 of the Installation Manual.

4-DIGIT CODE and
SELECT OUTPUTS



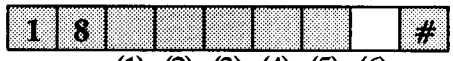
(1) thru (4): K1 four-digit ACTIVATION CODE. Any four digits; repeating digits allowed. (If optional K1 is installed.)

(5) K1 OPERATION
1 = Toggle on Activation Code
2 = 5 sec. pulse on Activation Code.

(6) SEL OUTPUT OPERATION
(If optional K2 is installed.)
1 = Selected Loop(s) Alarm
(selected in memory locations 41 to 49)
2 = Any Loop Alarm
3 = Alarm and Alarm Memory
4 = System Disarmed
5 = System Armed
8 = AC Power loss > 15 min.
9 = Service LED ON

About these features . . .

SELECT OUTPUT RELAY



If an optional relay is installed in socket SEL OUT, it can be programmed to operate when selected loops go into alarm, any loop alarms (general alarm output), on alarm memory, when the system is armed or disarmed, during AC power losses greater than 15 minutes, or when service is required. Digit Position (6) of Memory Location 18 determines when this relay activates (contacts close). Relay K2 will remain closed until the condition causing the activation clears.

POSITION 6 DIGIT	WHEN RELAY ACTIVATES	WHEN RELAY RESTORES
1	Selected loops go into an alarm condition	Zone restores (as programmed in Memory Locations 41-48).
2	Alarm on any alarm zone including PANIC	Zone restores (as programmed in Memory Locations 41-48).
3	Alarm or Alarm Memory	System rearms after disarming, or keypad 4 & 8. (Relay remains closed after zone LED times out.)
4	System disarmed	System arms
5	System arms	System disarms
8	AC power loss for more than 15 minutes	As soon as AC restores
9	Service LED lights when: Low Battery (10.5V or less) Battery Test Failure Blown Bell Fuse (F3) AC Power Loss	Condition causing SERVICE LED restores to normal

If SEL OUT is used with PANIC (* and #), Memory Location 49, Digit Position (4) must be programmed with a 2. This will cause the SEL OUT relay to latch in alarm until the control is disarmed. You can also latch K2 relay for PANIC by programming Memory Location 18, Position (6) as a 3 (Alarm Memory). K2 remains latched until Alarm Memory is cleared usingthe 4 and 8 keys, or through remote programming.

If selected loops are to activate this relay when they go into alarm, you must program a 1 in position (5) of the Memory Locations (41 - 49) for those loops.

If you program a 1, 2, or 3 in Position 6, and the loop that activates K2 is a 24-hour silent loop, you must disarm the panel to deactivate K2.

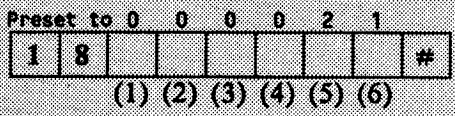
If K2 has been programmed to activate when the Service LED lights, it will not activate when the LED is flashing.

The SEL OUT relay can be used to activate recording equipment during alarms. Since you can select which alarm zones activate the relay, you can record a specific type of alarm such as a holdup. A wiring schematic is included in Section 8 of the Installation Manual.

While we typically think in terms of burglar and fire alarm systems, the power of the 2.XX control makes it ideal for industrial process monitoring. SEL OUT can control heaters, coolers, or pumps in the event of an environmental alarm. Section 8 of the Installation Manual shows the proper installation of high voltage devices. (See UL-C)

SEL OUT can be used to connect the 2.XX to long range radio or derived channel transmitters. This will allow the features, flexibility, and remote programming power of the Control/Communicator and the dual path alarm reporting of a second transmitter.

4-DIGIT CODE and SELECT OUTPUTS



(1) thru (4): K1 four-digit ACTIVATION CODE. Any four digits; repeating digits allowed. (If optional K1 is installed.)

(5) K1 OPERATION
1 = Toggle on Activation Code
2 = 5 sec. pulse on Activation Code.

(6) SEL OUTPUT OPERATION
(If optional K2 is installed.)
1 = Selected Loop(s) Alarm
(selected in memory locations 41 to 49)
2 = Any Loop Alarm
3 = Alarm and Alarm Memory
4 = System Disarmed
5 = System Armed
8 = AC Power loss > 15 min.
9 = Service LED ON

About these features . . .

ACCESS UPPER MEMORY

1	9	#

The Master Combination must be used in conjunction with 1 9 # to gain access to the upper memory locations. This information should not be given to the end user since incorrect programming entries can disable the 2.XX or cause it to operate erratically.

PRINT MEMORY CONTENTS

1	9	6	6	6	6	6	6	#
(1)	(2)	(3)	(4)	(5)	(6)			

Often it is useful to make a printed record of the program. You can do this either through the RPS software, or by using the programming printer. The RPS software will allow you to easily store and access the memory information for all accounts.

The optional C&K printer model 9.X PRP allows you to print out the memory of the Control/ Communicator. Plug the printer cord into Jack J1 which is located near the top right corner of the 2.XX . After the printer is plugged in, key in 1 9 6 6 6 6 6 6 # to print out the memory contents. At the end of the print-out, the control will automatically exit the Program Mode. Additional information can be found in the 9.X PRP Instruction Sheet.

Memory Locations programmed as BLANK will print out as 000000. Programmed 0's (such as the leading zeros used with telephone numbers) will print out as A's. Programmed *7's will print out as 0's.

Once a Print Memory is started, you must let it finish printing all Memory Locations and exit Program Mode on its own. If you attempt to print with no printer plugged in, you must wait for the 2.XX to exit Program Mode on its own.

Use only the C&K programming printers. Other printers may damage the circuits. The plug and jack are polarized. To prevent damage to the plug/jack and internal circuits, do not force the plug into the jack.

SET COUNTDOWN TIMER

1	9	1	1	1	1	8		#
(1)	(2)	(3)	(4)	(5)	(6)			

The 2.XX has a built-in 24-hour timer. The reporting code and enable options must be programmed into Memory Location 49. The first test report will come in 24 hours after powering up the panel. Memory Location 19 is used to change this initial reporting time.

Often it is desirable to set the approximate time of day that the timer will start its reports. After keying in 1 9 1 1 1 8 , the next digit will select the number of hours before the first report is transmitted.

EXAMPLE: It is now 2PM. To change the reporting time to 1AM (11 hours later) key in
1 9 1 1 1 1 8 6 #

SYSTEM FUNCTIONS

ACCESS UPPER (Installer) MEMORIES

Key in | 1 | 9 | # |

To make locations 21 thru 57 accessible.
They remain accessible until Program Mode is exited.

PRINT MEMORY CONTENTS

1	9	6	6	6	6	6	6	#
		(1)	(2)	(3)	(4)	(5)	(6)	

If a printer is connected to the system, use to start printing.

SET COUNTDOWN TIMER
(24-Hour Check-In)

1	9	1	1	1	1	8		#
		(1)	(2)	(3)	(4)	(5)	(6)	

(1) thru (5): "1 1 1 1 8"

(6) select the countdown desired before the first 24-hour check-in.

1 = 21 hrs.
2 = 19 hrs.
3 = 17 hrs.
4 = 15 hrs.
5 = 13 hrs.
6 = 11 hrs.
7 = 9 hrs.
8 = 7 hrs.
9 = 5 hrs.
*1 = 3 hrs.
*2 = 1 hr.

About these features . . .

SET REAL TIME CLOCK and CALENDAR

If you have installed the optional real time clock and calendar (C&K model 9. X RTC), you can program the 2.XX to report opening and closing exceptions. Openings and closings will not report if they are within the programmed time window. Arming and disarming outside the window will cause an opening or closing report to be sent. Failure to arm or disarm will send a special unit status report. The armed status will be sent during the 24-hour check-in.

The actual schedule for each day of the week is programmed in Memory Locations 41- 47 using one of 3 timetables programmed into Memory Location 56. The window for acceptable openings and closings is +/- 30 minutes of the programmed time.

Once you have installed the real time clock using the instructions supplied with it, you must set the clock time and calender. Memory Location 19, Positions **(1) and (2)** program the seconds, minutes, hours, day of the month, month, year, and day of the week. The following examples show the value of Positions **(1) and (2)** to program the time/calendar functions.

SECONDS/MINUTES

1	9	2	1					#

HOURS/DATE

1	9	2	2					#

MONTH/YEAR

1	9	2	3					#

DAY OF WEEK

1	9	2	4			1	1	#

You must enter * 7 for each zero needed to set the seconds, minutes, hours, date, month, year, and day of week.

Whenever entering or changing any of the time/date information, you must enter all data and in the sequence shown. You must always start with 1 9 2 1 and finish with 1 9 2 4 (2-digit day of week) 1 1 # .

For example, if you are setting the clock/calendar on Monday, January 25, 1988 at exactly 2:30PM, you would key in:

1 9 2 1 *7 *7 3 *7 #	(00 seconds, 30 minutes)
1 9 2 2 8 2 2 5 #	(2PM, 25th day)
1 9 2 3 *7 1 8 8 #	(1st month, year 88)
1 9 2 4 *7 2 1 1 #	(Monday)

The real time clock has a replaceable lithium battery, (C&K model 9.X LTB). Once the date and time are programmed, the clock will retain the correct time even if the AC and standby power are disconnected, or the real time clock is removed from the circuit board. The real time clock cannot automatically correct for changes caused by Daylight Saving Time. These changes can easily and quickly be made from your office using the RPS interactive software.

SET REAL TIME CLOCK and CALENDAR
(Effective only if the optional Real-Time Clock Board is installed.)

SECONDS/MINUTES

1	9	2	1					#
(1)	(2)	(3)	(4)	(5)	(6)			

(1) and (2): "2 1"

(3) and (4): SECONDS, from *7*7 to 59

(5) and (6): MINUTES, from *7*7 to 59

HOURS/DATE

1	9	2	2					#
(1)	(2)	(3)	(4)	(5)	(6)			

(1) and (2): "2 2"

(3) and (4): HOURS, any value from table below.

Time	AM	PM	Time	AM	PM
1:	*7 1	8 1	7:	*7 7	8 7
2:	*7 2	8 2	8:	*7 8	8 8
3:	*7 3	8 3	9:	*7 9	8 9
4:	*7 4	8 4	10:	1 *7	9 *7
5:	*7 5	8 5	11:	1 1	9 1
6:	*7 6	8 6	12:	1 2	9 2

(5) and (6): CALENDAR DATE, from *71 to 31.

MONTH/YEAR

1	9	2	3					#
(1)	(2)	(3)	(4)	(5)	(6)			

(1) and (2): "2 3"

(3) and (4) MONTH, from *71 to 12.

(5) and (6) YEAR, from *7*7 to 99.

DAY OF WEEK

1	9	2	4			1	1	#
(1)	(2)	(3)	(4)	(5)	(6)			

(1) and (2): "2 4"

(3) and (4) DAY OF WEEK, from *71 to *77.

*7 1 = Sunday
*7 2 = Monday
*7 3 = Tuesday
*7 4 = Wednesday
*7 5 = Thursday
*7 6 = Friday
*7 7 = Saturday

(5) and (6): "1 1"

About these features . . .

COMMUNICATION CONTROL 1

Memory Location 21 programs the receiver and message formats as well as the listen-in options. Because there is very little standardization in format names or the formats themselves, it can be difficult to select the optimum formats for your receiver. The chart below will help you to select the correct receiver and message formats. The RECEIVER FORMAT and MESSAGE FORMAT sections are included for those of you who want a better understanding of the selection process.

2	1	*R*	*M*	*R*	*M*			#
		(1)	(2)	(3)	(4)	(5)	(6)	

R - Select RECEIVER FORMAT OPTIONS ***M*** - Select MESSAGE FORMAT OPTIONS

	RECEIVER FORMAT							MESSAGE FORMAT				
RECEIVER	**Slow A**	**Fast A**	**Slow B**	**Fast B**	**CFSK**	**Sum Check (1400)**	**Sum Check (2300)**	**3/1 Single**	**3/1 Extended**	**3/2**	**4/2**	**6/2 CFSK**
Acron					I							I
Ademco 660		I	C	I	I	I	I	C	C	I	I	I
Ademco 685	C	C	C	C	I	C	C	C	C	I	C	I
C&K MONITOR	I	I	I	I	C	I	I	I	I	I	I	C
FBI CP-220					I							I
Franklin					I							I
ITI CS-4000					I					I		I
Osborne-Hoffman	C	C	C	C	I			C	C		C	I
Radionics 6000	C	C	C	C	I	C	C	C	C	I	I	I
Radionics 6500	C	C	C	C	I	C	C	C	C	I	I	I
Sescoa 3240					I							I
Sescoa 3210					I							I
Sescoa 3000					I							I
S.K. 8510	I	I	C	C	I	I	I	C	C	I	C	I
S.K. 8520	I	I	C	C	I	I	I	C	C	I	C	I
S.K. 9000	C	C	C	C	I	C	C	C	C	I	C	I
Varitech					I							I
Vertex					I							I

C = Compatible. We have found it to work in our tests, but receiver modifications could change that.
I = Incompatible. All others not tested

CFSK FORMAT

One of the fastest and most reliable formats available is C&K's CFSK format. The speed of most digital dialer formats is 10 or 20 baud while CFSK transmits at 110 baud! In addition to high speed and increased reliability over noisy phone lines, it has advanced error detection.

CFSK is received using an IBM XT* computer with a Hayes Smartmodem* (1200 baud) and the MONITOR receiver software. This combination gives you one of the most powerful receivers at an extremely low cost. Additional information is available from the MONITOR specification sheet and its Operation Manual.

* Contact the C&K Customer Service Department for compatibility requirements for Hayes modems and MS-DOS computers.

COMMUNICATION CONTROL 1

Preset to 3 1 3 1 4 1

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

(1) RECEIVER FORMAT - RECEIVER 1
(3) RECEIVER FORMAT - RECEIVER 2
2 = Slow "A", 2300 Hz ack.
3 = Fast "A", 2300 Hz ack.
4 = Slow "B", 1400 Hz ack.
5 = Fast "B", 1400 Hz ack.
6 = CFSK (C&K Systems)
8 = Sum Check, 1400 Hz ack.
*1 = Sum Check, 2300 Hz ack.

(2) MESSAGE FORMAT - RECEIVER 1
(4) MESSAGE FORMAT - RECEIVER 2
1 = 3/1 Single, .5 sec. wait
9 = 3/1 Single, 2 sec wait
4 = 3/1 Extended, .5 sec wait
*3 = 3/1 Extended, 2 sec wait
2 = 4/2
3 = 3/2
*7 = 6/2 (CFSK)

(5) LISTEN-IN ENABLE
1 = Receiver 1 Central Station
2 = Receiver 2 Central Station
3 = Both Central Stations
4 = Disable Listen-In

(6) LISTEN-IN DURATION
1 = 10 sec
2 = 20 sec
3 = 30 sec
4 = 40 sec
5 = 50 sec
6 = 60 sec
7 = 70 sec
8 = 80 sec
9 = 90 sec
*1 = 100 sec
*2 = 110 sec
*3 = 120 sec
*4 = 130 sec
*5 = 140 sec
*6 = 150 sec
*7 (Invalid Entry)

About these features . . .

UNDERSTANDING DIGITAL COMMUNICATION FORMATS

RECEIVER FORMATS

Digital communicators transmit in one of two signal transmission types; pulsed or Frequency Shift Keyed. Pulsed signals are a series of chirps followed by a short period of silence. FSK signals consist of a carrier tone which changes frequency during data transmission. The major digital dialer manufacturers, including C&K, have created proprietary FSK formats for use when transmitting into their own receivers. FSK allows more data to be transmitted in a shorter time and with less errors. Memory Location 21, Digit Positions (1) and (3) determine if the data will be pulsed (2,3,4,5,8 & *1) or FSK (6).

Pulsed signals are found in several common formats. They allow you to transmit into virtually every digital receiver manufactured within the past 10 years. Pulsed signal formats are differentiated by the data transmission frequency, time between digits, and time between rounds. Since there are no standard names for the formats, we have titled them "A" and "B". If you are not sure which format(s) your receiver handles, we suggest that you program the 2.XX for various formats and try them into your receiver.

In addition to the signal type (pulsed or FSK), when programming for pulsed signals you have to select the type of error checking and the frequency of the handshake. Transmission errors are typically detected in one of two ways. The two-round technology transmits the account and alarm information twice then compares them to each other, digit by digit. The check-sum technology transmits the account, the alarm, and a check-sum digit in a single round. The receiver adds the account and alarm code information together and subtracts it from a specific number. The remainder is the check-sum digit. If the check-sum digit transmitted does not equal the check-sum digit calculated by the receiver, an ERROR report is generated and the digital communicator is commanded to re-transmit the information.

EXAMPLE:

Account 123, Alarm zone 5 -	DIGIT by DIGIT	CHECK-SUM
Round 1	123 5	123 5 4
Round 2	123 5	
Comparisons		The receiver adds 1+2+3+5 = 11. It subtracts 11 from its parity constant of 15. If the remainder (4) is the same as the parity check-digit, it is correct.

The receiver tells the communicator when to start and stop transmitting information by sending a handshake/kiss-off tone to the communicator. Different receivers have different handshake frequencies. The two most common ones are 1400 Hz and 2300 Hz. When selecting the MESSAGE FORMAT, you need to know the handshake frequency of your receiver.

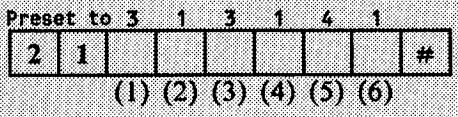
MESSAGE FORMAT

After selecting the receiver format, you have to determine the number of digits in the account number and the zone codes. The account number can be three, four, or six digits long. The reporting zone can be one or two digits long. The length of the account number and the zone code are shown as 3/1, 3/2, 4/2, or 6/2. If you have programmed CFSK (the number 6) in Digit Positions (1) and (3), you need to program Digit Positions (2) and (4) as * 7 .

The 3/1 format has two additional options that have to be considered; number of rounds and delay after handshake before data transmission. The 3/1 format can be transmitted in either a single format or in an extended format, and either format can be after a half-second wait or a two-second wait.

The receiver format for the second receiver is selected in Memory Location 21, Position (3). The message format for the second receiver is selected in Memory Location 21, Position (4). While the format can be different for receiver 2, it is important that the second receiver can properly decode all the zone and supervisory codes in the same manner as receiver 1.

COMMUNICATION CONTROL 1



(1) RECEIVER FORMAT - RECEIVER 1
(3) RECEIVER FORMAT - RECEIVER 2
2 = Slow "A", 2300 Hz ack.
3 = Fast "A", 2300 Hz ack.
4 = Slow "B", 1400 Hz ack.
5 = Fast "B", 1400 Hz ack.
6 = CFSK (C&K Systems)
8 = Sum Check, 1400 Hz ack.
*1 = Sum Check, 2300 Hz ack.

(2) MESSAGE FORMAT - RECEIVER 1
(4) MESSAGE FORMAT - RECEIVER 2
1 = 3/1 Single, .5 sec. wait
9 = 3/1 Single, 2 sec wait
4 = 3/1 Extended, .5 sec wait
*3 = 3/1 Extended, 2 sec wait
2 = 4/2
3 = 3/2
*7 = 6/2 (CFSK)

(5) LISTEN-IN ENABLE
1 = Receiver 1 Central Station
2 = Receiver 2 Central Station
3 = Both Central Stations
4 = Disable Listen-In

(6) LISTEN-IN DURATION
1 = 10 sec
2 = 20 sec
3 = 30 sec
4 = 40 sec
5 = 50 sec
6 = 60 sec
7 = 70 sec
8 = 80 sec
9 = 90 sec
*1 = 100 sec
*2 = 110 sec
*3 = 120 sec
*4 = 130 sec
*5 = 140 sec
*6 = 150 sec
*7 (Invalid Entry)

About these features . . .

LISTEN-IN

When the C&K listen-in module (model number 9.X LN or 9.X VC) is plugged into Jack J3 you have the ability to listen in to the protected premise after an alarm has been activated. Complete instructions are included with the listen-in module.

The plug and jack are polarized. To prevent damage to the plug/jack and internal circuits, do not force the plug into the jack.

Besides wiring the listen-in module and programming the communicator, you have to determine what the receiver requires to handle listen-in accounts. The table in figure 11 lists the requirements for the major receivers. Because manufacturers' requirements may change, it is recommended that you contact C&K Customer Service or the manufacturer of the receiver for the latest information.

Figure 11
Watch this space for Listen-In Receiver Requirements Table
Coming Soon

Listen-in accounts are typically charged $5 - $20 more a month for the listen-in service. Since there is little or no additional work required to serve these accounts, it is an excellent way to increase bottom-line profits.

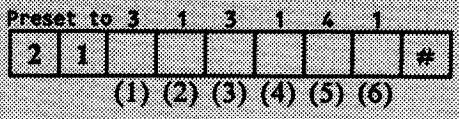
Listen-in is not typically used on a day-to-day basis. It does have some very good applications including holdup and medical alarms. Listen-in during an alarm allows the alarm company to get descriptions to the police as the suspect is leaving the building. It also gives the victim better protection since medical services can be dispatched as needed instead of waiting for the police to arrive to determine medical needs.

Outdoor protection has always caused a great deal of false alarms. Listen-in allows you to listen in during outdoor alarms to help verify the validity of the alarm.

Entering *7 in Position (6) forces the panel to lock on Listen-In until you power down, restart the panel (using the G and M pads), or enter programming mode.

Additional installation and marketing ideas are contained in the C&K LISTEN-IN APPLICATION MANUAL.

COMMUNICATION CONTROL 1



(1) RECEIVER FORMAT - RECEIVER 1
(3) RECEIVER FORMAT - RECEIVER 2
2 = Slow "A", 2300 Hz ack.
3 = Fast "A", 2300 Hz ack.
4 = Slow "B", 1400 Hz ack.
5 = Fast "B", 1400 Hz ack.
6 = CFSK (C&K Systems)
8 = Sum Check, 1400 Hz ack.
*1 = Sum Check, 2300 Hz ack.

(2) MESSAGE FORMAT - RECEIVER 1
(4) MESSAGE FORMAT - RECEIVER 2
1 = 3/1 Single, .5 sec. wait
9 = 3/1 Single, 2 sec wait
4 = 3/1 Extended, .5 sec wait
*3 = 3/1 Extended, 2 sec wait
2 = 4/2
3 = 3/2
*7 = 6/2 (CFSK)

(5) LISTEN-IN ENABLE
1 = Receiver 1 Central Station
2 = Receiver 2 Central Station
3 = Both Central Stations
4 = Disable Listen-In

(6) LISTEN-IN DURATION
1 = 10 sec
2 = 20 sec
3 = 30 sec
4 = 40 sec
5 = 50 sec
6 = 60 sec
7 = 70 sec
8 = 80 sec
9 = 90 sec
*1 = 100 sec
*2 = 110 sec
*3 = 120 sec
*4 = 130 sec
*5 = 140 sec
*6 = 150 sec
*7 (Invalid Entry)

About these features . . .

ACCOUNT NUMBER 1

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

The 2.1 can transmit to two receiver phone numbers. The account number can be a different number when transmitting to the second receiver. This might occur when you are monitoring your accounts and have another central station backing it up. The primary account number used by your central station might already be used by the backup central station.

The account number can be any combination of numbers or letters, depending on the requirements of monitoring central station. You must program all six digits. Use zero's (keypad "0")to fill in the leading unused spaces. The 2.XX will transmit the correct number of digits for the message format programmed.

EXAMPLE:

2	2	0	0	0	4	5	6	#
(1)	(2)	(3)	(4)	(5)	(6)			

Some receivers, such as the C&K's MONITOR, can receive the letters B through F, which represent hexadecimal digits. These digits allow you to greatly increase the number of accounts that can be monitored. The additional digits can also be used to identify the type of account (residential, commercial, fire) or a specific group of accounts that require special handling. The table on the top of the next page lists the decimal and hexadecimal digits and the programming keys used to enter them into the 2.XX .

RECEIVER 1 PHONE NUMBER

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

There are three memory locations used to store the primary phone number. All 18 Digits Positions must be programmed. Be sure that the last digit of the phone number ends in position (6) of Memory Location 25. Place keypad zeros to the left of the phone number as fillers. The 2.XX will not dial these leading zeros.

Sometimes the 2.XX might have to pause, or dial the * or # (as explained below in "tone blocking"). Pauses are useful when dialing long distance, while waiting for second dial tones, or when dialing on very old phone exchanges.

While you can program a pause for dial tone, the 2.XX is internally programmed for an initial dial tone detection. By programming additional unneeded pauses, you could actually prevent the communicator from getting dial tone. On modern telco switch systems, if you remain off hook for too long without dialing, the phone exchange will temporarily disconnect your system from the phone network. Program pauses only when they are needed.

Some old telephone exchanges still use stepper relays to complete the telephone call. It is possible for the digital communicator to dial faster than the telephone exchange can switch relays. These exchanges can easily be identified by calling the telco marketing office of that exchange or listening on a handset while dialing a number. If you hear slight relay clicking in the background, one click for each digit dialed, or DTMF (Touch Tone a registered trademark of AT&T) tone dialing is converted to dial pulses, you are probably on a stepper exchange. If you hear a fast busy signal before you have completed dialing the number, that equipment busy signal signifies that you are dialing faster than the phone equipment can process the pulses.

To reduce the possibility of dialing faster than the stepper exchange, you can program a short pause (*5= 1 second or *6 = 5 seconds) between digits. Usually a pause after each of the first 3 digits is all that is required. Stepper exchanges do not have the problem where excessive pauses can cause the phone exchange to temporarily disconnect your system from the phone network.

On non-USA phones, when zero must be the first digit of a phone number, program a one-second pause (*5) before the zero. (Leading zeros are not recognized.)

continued

ACCOUNT NUMBER 1
Primary Central Station

2	2							#

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

RECEIVER 1 PHONE NUMBER
Primary Central Station

2	3							#
2	4							#
2	5							#

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

ACCOUNT NUMBERS must end in position (6). Use zeros on the left, if necessary, to make six digits.

Keypad Entry	1	2	3	4	5	6	7	8
Hex Equivalent	1	2	3	4	5	6	7	8
Decimal Equiv.	1	2	3	4	5	6	7	8

Keypad Entry	9	0	*2	*3	*4	*5	*6	*7
Hex Equivalent	9	A	B	C	D	E	F	0
Decimal Equiv.	9	10	11	12	13	14	15	0

For PHONE NUMBERS, the last digit to be dialed must be in Position (6) of location 25 or location 29. Use zeros to the left to make 18 digits..

Example: Number is:
1 pause 4155551212
Entered:

2	3	0	0	0	0	0	0	#
2	4	1	*5	4	1	5	5	#
2	5	5	5	1	2	1	2	#
		(1)	(2)	(3)	(4)	(5)	(6)	

SPECIAL ENTRIES

2 = "" tone
*3 = "#" tone
*5 = 1 sec. pause
*6 = 5 sec. pause

About these features . . .

RECEIVER 1 PHONE NUMBER continued

When dialing long distance, adding a 5-second pause after the long distance access digit "1", can increase the ability to get through during high traffic times when the phone system's access to long distance circuits might be slower than the 2.XX dialing interval.

Call-waiting can cause data transmissions errors when the communicator is transmitting alarms or in interactive programming. The beep or tone that signals another call is detected by the central station receiver or interactive computer as an ERROR. To prevent call-waiting tones on selected phone calls, many telco switch offices offer "tone blocking". The customer pays a small monthly amount for this programming feature. If the phone numbers programed into the communicator for the receivers and interactive programming are preceded by *70 (* 2 7 0), the call-waiting tone will be blocked for that one call. This will not affect the subscriber's normal phone operation.

A rare but very frustrating situation can occur when you connect a digital communicator to a phone line that requires an operator for long distance dialing, and you have to dial long distance to reach your receiver. There is no way to solve this problem other than not installing the alarm in the first place. This type of phone system is called Operator Number Identified (ONI). When in doubt as to the type of exchange, call the marketing office of THAT exchange before going on the sales call. Digital communicators work only on Automatic Number Identified (ANI) systems when dialing long distance.

The 2.XX can easily handle installations where you have to program a "9" or some other access number to access an outside phone line. However, dialing these extra digits usually means that the communicator has to dial through the Private Branch Exchange (PBX) equipment. This wiring arrangement is connected to the instrument side of tip and ring. In addition to not complying with FCC RJ31X or RJ38X wiring standards, a failure of the PBX can prevent alarm signals from being successfully transmitted. To be properly wired, digital communicators must be connected ahead of PBX equipment, on the street side of tip and ring. Proper wiring is explained in the Installation Manual. When wiring to the street side of tip and ring in a PBX installation, you will probably have to install a ground start relay in socket K5. Refer to the 2.1 Installation Manual for additional information on ground start installations. **Ground start applications are not permissable in UL installations.**

ACCOUNT NUMBER 2

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

The rules for programming the account number for the second receiver are the same as for ACCOUNT NUMBER 1 (Memory Location 22). See NOTE, below.

RECEIVER 2 PHONE NUMBER

2	7							#
2	8							#
2	9							#
(1)	(2)	(3)	(4)	(5)	(6)			

The rules for programming the phone number for the second receiver are the same as PHONE NUMBER 1 (Memory Locations 23-25). See NOTE, below.

NOTE: We recommend that, if transmitting to only one number, you duplicate the information of Account Number 1 and Receiver 1 Phone Number, in Account Number 2 and Receiver 2 Phone Number. This will increase the possibility of the signal being received at the central station.

When you must install a 2.XX on the instrument side of tip & ring in a PBX phone system, program the first receiver number for the standard access number followed by a pause and then the actual phone number of the receiver. Program the second receiver phone number (Memory Locations 27-29) to the central station number but omit the PBX access numbers. Program the account numbers and the formats the same for both receivers. Program all loops (Memory Locations 31-39) and system reports (Memory Locations 41-49) to transmit to RECEIVER 1. Program Memory Location 51, Position (5) with the number 1. Install the ground start relay in relay socket K5. Wire the communicator to one of the PBX extensions that are configured as emergency extensions. If the PBX fails, these emergency extension phones are automatically connected directly to the outside trunk circuits. Thus your signal should go through whether the PBX is operational or not.

ACCOUNT NUMBER 2
Secondary Central Station

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

RECEIVER 2 PHONE NUMBER
Secondary Central Station

2	7							#
2	8							#
2	9							#
(1)	(2)	(3)	(4)	(5)	(6)			

ACCOUNT NUMBERS must end in position (6). Use zeros on the left, if necessary, to make six digits.

Keypad Entry	1	2	3	4	5	6	7	8
Hex Equivalent	1	2	3	4	5	6	7	8
Decimal Equiv.	1	2	3	4	5	6	7	8

Keypad Entry	9	0	*2	*3	*4	*5	*6	*7
Hex Equivalent	9	A	B	C	D	E	F	0
Decimal Equiv.	9	10	11	12	13	14	15	0

For PHONE NUMBERS, the last digit to be dialed must be in Position (6) of location 25 or location 29. Use zeros to the left to make 18 digits..

Example: Number is:
1 pause 4155551212
Entered:

2	3	0	0	0	0	0	0	#
2	4	1	*5	4	1	5	5	#
2	5	5	5	1	2	1	2	#
		(1)	(2)	(3)	(4)	(5)	(6)	

SPECIAL ENTRIES

2 = "" tone
*3 = "#" tone
*5 = 1 sec. pause
*6 = 5 sec. pause

About these features . . .

LOOP PROGRAMMING

LOOP REPORTING CODE

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

Position (1) of Memory Locations 31-39 determines what alarm code is to be sent to the central station. If a loop is to be used only as a local annunciator, program * 7 . Loops so programmed will sound the bells or sirens, but will not report to the central station.

Excellent for use as outdoor burglar protection. The audible alarm scares away intruders, while authorities are not dispatched for false alarms.

Any loops which are not used or are permanently shunted must be deactivated by programming the digit 3 followed by the loop number (1 - 9) and the # . You must repeat this for every loop that is not used. Failure to follow this procedure could result in false alarms or the inability to arm the system.

3	L	#

RECEIVER SELECT

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

Position (2) of each loop's Memory Location selects whether each loop will report its alarm codes to Receiver 1, or Receiver 2 if you have selected Split Reporting in Memory Location 51, Position (2). You also have the option to delay the alarm transmission, with the delay time selected in Memory Location 51, Position (2). The delay feature is very useful for subscribers who are susceptible to causing SUB ERROR false alarms. The 2.XX allows you to select, by loop, which loops will be delayed and which transmit instantly.

Model 2.12 gives you the option to send selected loop alarm reports to a third receiver. If you are using C&K's MONITOR or MASTER DISPATCHER V software for remote programming, you can also use it to receive selected alarm signals. Program an 8 (dial delay) or a *3 (NO delay). The alarms will be transmitted to the phone number programmed into Memory Locations 53-55. The formats will always be the CFSK high speed receiver and message formats. The account number will always be Account Number 1 (Memory Location 22). You cannot use listen-in if you are using the third receiver option.

The RPS receiver option is independent of split or backup reporting. This means that you can still have backup reporting on your alarms while selected reports can be sent to the RPS receiver.

The third receiver allows you to receive selected alarm signals on a standard IBM compatible computer. The computer connected to the RPS phone number (Memory Locations 53-55) must be running C&K's MONITOR or MASTER DISPATCHER V software. Other receivers cannot process this high speed computer data format.

LOOP CONFIGURATION 1

NOTE: All memory locations 31 thru 39 are preset to blank. At installation, any loops which are not used must be deactivated by keying in

3	L	#

where L is the Loop number.

LOOP 1. Label _____

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

LOOP 2. Label _____

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

LOOP 3. Label _____

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

LOOP 4. Label _____

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

LOOP 5. Label _____

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

LOOP 6. Label _____

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

LOOP 7. Label _____

3	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 8. Label _____

3	8							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 9. Label Keyboard PANIC

3	9							#
		(1)	(2)	(3)	(4)	(5)	(6)	

OPTIONS for Loops 1 thru 9:

(1) LOOP ALARM REPORTING CODE

1 = 1	6 = 6	*2 = B
2 = 2	7 = 7	*3 = C
3 = 3	8 = 8	*4 = D
4 = 4	9 = 9	*5 = E
5 = 5	*1 = A	*6 = F

*7 disables communications from this loop (local service only).

(2) LOOP RECEIVER SEL
1 = Dial Receiver 1, dial delay
2 = **Dial Receiver 2, dial delay
5 = Dial Receiver 1, NO dial delay
6 = **Dial Receiver 2, NO dial delay
8 = Dial RPS Receiver, dial delay
*3 = Dial RPS, NO dial delay
**Split Reporting Only

(3) LOOP ARMING CONFIGURATION
1 = Interior
2 = Instant
3 = Delay
6 = Day/Instant
7 = Day/Delay
8 = 24-hour (continuously armed)

(4) LOOP AUDIBLE ALARM
2 = Pulsing
4 = Steady
8 = Chirp
9 = Silent, with no LED indication
1 = Silent, with normal LED

(5) LOOP CIRCUIT TYPE
1 = Supervised (w/EOL), Resettable (smoke detectors)
9 = Supervised (w/EOL), Latched (heat sensors)
2 = NO (Open Loop)
3 = NC (Closed Loop)
4 = NC/NO (w/EOL)

(6) LOOP SHUNT ENABLE / KEYPAD CHIME ANNUNCIATOR

†WARNING. Shunting a zone renders inactive the protection of that zone.

KEY-IN	SHUNT ENABLE	DOOR CHIME	DELAY Long/Short
2	N	N	S
1	†Y	N	S
6	N	Y	S
5	†Y	Y	S
* 1	N	N	L
9	†Y	N	L
* 5	N	Y	L
* 4	†Y	Y	L

About these features . . .

LOOP ARMING CONFIGURATION

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

Arming configurations are programmed into Digit Position (3). Selecting the digit 1 causes the loop to be an Interior loop. If the system is armed and an exit delay loop is not faulted during the exit delay time, this loop will automatically be shunted out of the system. This is called Auto Home, which is explained under Memory Location 52. The shunt will remain until the system is disarmed.

Arming the system and faulting an entry/exit loop during exit delay will cause this loop to arm into the system as an Instant loop. After arming, if an entry/exit loop is faulted first, the interior loops become delay loops. If the interior loop is faulted first, it becomes an instant loop. During exit delay, this loop is delayed.

Memory Location 52, Digit Position (3) must be programmed with a 5 or a 6 for the AUTO HOME feature to be enabled. Improper programming will prevent the subscriber from being able to arm the system then remain inside the protected premise.

Programming a 2 causes the loop to be an instant loop. These loops provide instant detection whenever the burglar alarm is armed.

Program the digit 3 in this position to create an entry/exit delay zone. This zone will be delayed from detecting an alarm, after arming, for the amount of time programmed into Memory Location 52, Digit Position (4). If this loop is faulted first during entry, all interior loops will become delayed loops for the time determined by Memory Location 3 L (where L is the loop number), Digit Position (6) and the entry delay times programmed into Memory Location 52, Digit Positions (1) and (2).

The digit 6 in Position (3) configures the loop to have day trouble supervision and report alarms instantly when the system is armed. A day trouble condition will cause a pulsing tone at the keypad which can be silenced by entering any arming combination. TROUBLE will be reported if Memory Location 43 is properly programmed and an open, short, or ground occurs on the protective loop, depending on how Position (5) is programmed. The digit 7 in this position gives the day supervision, but delays night alarms for the programmed entry and exit delays.

LOOP CONFIGURATION 1

NOTE: All memory locations 31 thru 39 are preset to blank. At installation, any loops which are not used must be deactivated by keying in

3	L	#

where L is the Loop number.

LOOP 1. Label _____

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

LOOP 2. Label _____

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

LOOP 3. Label _____

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

LOOP 4. Label _____

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

LOOP 5. Label _____

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

LOOP 6. Label _____

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

LOOP 7. Label _____

3	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 8. Label _____

3	8							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 9. Label Keyboard PANIC

3	9							#
		(1)	(2)	(3)	(4)	(5)	(6)	

OPTIONS for Loops 1 thru 9:

(1) LOOP ALARM REPORTING CODE

1 = 1	6 = 6	*2 = B
2 = 2	7 = 7	*3 = C
3 = 3	8 = 8	*4 = D
4 = 4	9 = 9	*5 = E
5 = 5	*1 = A	*6 = F

*7 disables communications from this loop (local service only).

(2) LOOP RECEIVER SEL
1 = Dial Receiver 1, dial delay
2 = **Dial Receiver 2, dial delay
5 = Dial Receiver 1, NO dial delay
6 = **Dial Receiver 2, NO dial delay
8 = Dial RPS Receiver, dial delay
*3 = Dial RPS, NO dial delay
**Split Reporting Only

(3) LOOP ARMING CONFIGURATION
1 = Interior
2 = Instant
3 = Delay
6 = Day/Instant
7 = Day/Delay
8 = 24-hour (continuously armed)

(4) LOOP AUDIBLE ALARM
2 = Pulsing
4 = Steady
8 = Chirp
9 = Silent, with no LED indication
1 = Silent, with normal LED

(5) LOOP CIRCUIT TYPE
1 = Supervised (w/EOL), Resettable (smoke detectors)
9 = Supervised (w/EOL), Latched (heat sensors)
2 = NO (Open Loop)
3 = NC (Closed Loop)
4 = NC/NO (w/EOL)

(6) LOOP SHUNT ENABLE / KEYPAD CHIME ANNUNCIATOR

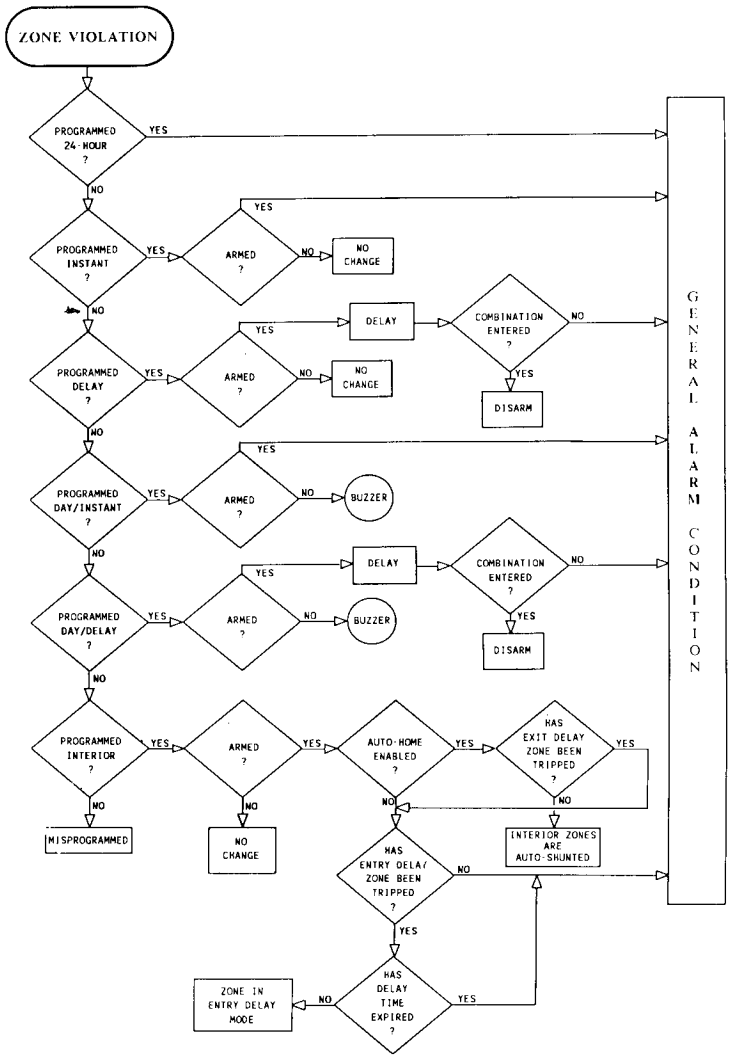
†**WARNING. Shunting a zone renders inactive the protection of that zone.**

KEY-IN	SHUNT ENABLE	DOOR CHIME	DELAY Long/Short
2	N	N	S
1	†Y	N	S
6	N	Y	S
5	†Y	Y	S
* 1	N	N	L
9	†Y	N	L
* 5	N	Y	L
* 4	†Y	Y	L

About these features . . .

ARMING CONFIGURATION continued

The digit **8** in this position makes the loop a 24-hour/day-armed circuit. The loop cannot be disarmed. Typical uses for this code include fire, holdup, medical, and industrial process detection. It can be shunted if shunting is enabled in Digit Position **(6)** for this loop and the arming combination (Memory Locations 12 - 16) are authorized to shunt.



This flow chart will show you what conditions are necessary to activate the alarm with each of the six LOOP ARMING CONFIGURATIONS.

Starting with a violation of any zone (loop), follow the arrows. At each diamond, answer the question (yes or no) and follow the appropriate line out of the diamond. In each case, you will ultimately come to the General Alarm or to some other conclusion, such as No Change, Disarm, Buzzer, and etc.

AUDIBLE ALARM

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

Position **(4)** determines how the sounders will sound and the LEDs will light. If you program for one of the audible options (digits **2** , **4** or **8**) the sounder will time out after the time programmed into Memory Location 52, position **(6)**. A pulsed sound will override a steady, which will override a chirp, which will override a silent alarm, if multiple zones are tripped.

If you program the digits **9** or **1** , the zone will be silent. A **9** also shuts off the ZONE and REPORT LEDs, making it very useful for holdup loops. Silent alarms become audible after eight dialing attempts. This signifies that the 2.XX has failed to communicate with the central station.

Audibles will automatically shut off during Listen-In.

LOOP CONFIGURATION 1

NOTE: All memory locations 31 thru 39 are preset to blank. At installation, any loops which are not used must be deactivated by keying in

3	L	#

where L is the Loop number.

LOOP 1. Label _____

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

LOOP 2. Label _____

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

LOOP 3. Label _____

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

LOOP 4. Label _____

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

LOOP 5. Label _____

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

LOOP 6. Label _____

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

LOOP 7. Label _____

3	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 8. Label _____

3	8							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 9. Label Keyboard PANIC

3	9							#
		(1)	(2)	(3)	(4)	(5)	(6)	

OPTIONS for Loops 1 thru 9:

(1) LOOP ALARM REPORTING CODE

1 = 1	6 = 6	*2 = B
2 = 2	7 = 7	*3 = C
3 = 3	8 = 8	*4 = D
4 = 4	9 = 9	*5 = E
5 = 5	*1 = A	*6 = F

*7 disables communications from this loop (local service only).

(2) LOOP RECEIVER SEL

1 = Dial Receiver 1, dial delay
2 = **Dial Receiver 2, dial delay
5 = Dial Receiver 1, NO dial delay
6 = **Dial Receiver 2, NO dial delay
8 = Dial RPS Receiver, dial delay
*3 = Dial RPS, NO dial delay
**Split Reporting Only

(3) LOOP ARMING CONFIGURATION

1 = Interior
2 = Instant
3 = Delay
6 = Day/Instant
7 = Day/Delay
8 = 24-hour (continuously armed)

(4) LOOP AUDIBLE ALARM

2 = Pulsing
4 = Steady
8 = Chirp
9 = Silent, with no LED indication
1 = Silent, with normal LED

(5) LOOP CIRCUIT TYPE

1 = Supervised (w/EOL), Resettable (smoke detectors)
9 = Supervised (w/EOL), Latched (heat sensors)
2 = NO (Open Loop)
3 = NC (Closed Loop)
4 = NC/NO (w/EOL)

(6) LOOP SHUNT ENABLE / KEYPAD CHIME ANNUNCIATOR

†WARNING. Shunting a zone renders inactive the protection of that zone.

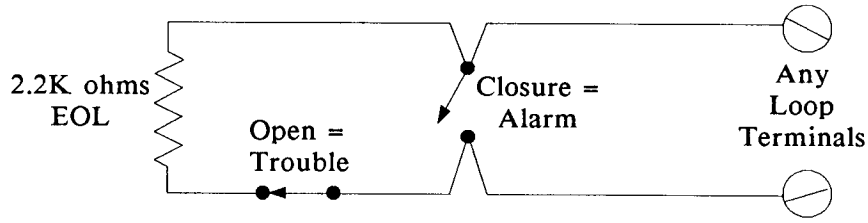
KEY-IN	SHUNT ENABLE	DOOR CHIME	DELAY Long/Short
2	N	N	S
1	†Y	N	S
6	N	Y	S
5	†Y	Y	S
* 1	N	N	L
9	†Y	N	L
* 5	N	Y	L
* 4	†Y	Y	L

About these features . . .

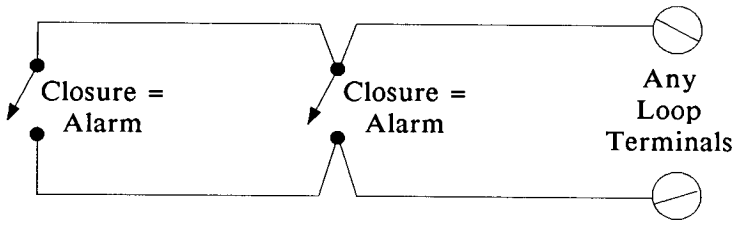
CIRCUIT TYPE

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

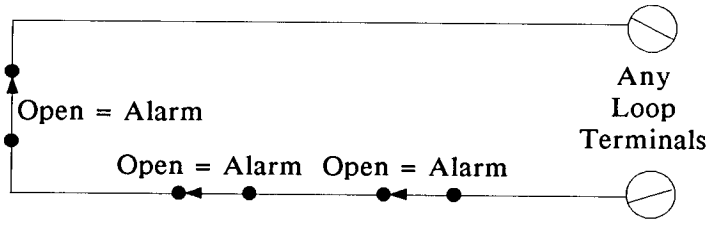
Section 13 of the Installation Manual shows the wiring options for the loops. Loops can be wired to use a 2.2K ohm End-Of-Line resistor, normally open switches, normally closed switches, or voltage triggers to activate an alarm. EOL loops can be supervised for trouble conditions as well as for alarms. You have to program the loop to tell it how to respond to the loop wiring.



NUMBER 1: A 1 programmed into Position (5) configures the loop as **supervised with EOL** resistor. The EOL resistor should be installed across loop return (+12) and loop input at the far end of the detection circuit. A short across the loop ("+" voltage) = ALARM and an open ("0" voltage) = TROUBLE.



NUMBER 2: If Digit Position (5) is programmed with a 2 , the loop will be configured to be an **open loop** using Normally-Open devices. There will be no EOL resistor, so there will be no contact or wiring supervision. A contact closure ("+" voltage) = ALARM.



NUMBER 3: The digit 3 programmed into Position (5) causes the loop to act as a **closed loop**, using Normally-Closed contacts. The 2.2K ohm EOL resistor is not used. An open in the circuit ("0" voltage) = ALARM. This loop is typically used for burglar loops when you do not want to supervise the loop for shorts or foreign grounds.

continued

LOOP CONFIGURATION 1

NOTE: All memory locations 31 thru 39 are preset to blank. At installation, any loops which are not used must be deactivated by keying in

3	L	#

where L is the Loop number.

LOOP 1. Label _____

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

LOOP 2. Label _____

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

LOOP 3. Label _____

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

LOOP 4. Label _____

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

LOOP 5. Label _____

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

LOOP 6. Label _____

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

LOOP 7. Label _____

3	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 8. Label _____

3	8							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 9. Label Keyboard PANIC

3	9							#
		(1)	(2)	(3)	(4)	(5)	(6)	

OPTIONS for Loops 1 thru 9:

(1) LOOP ALARM REPORTING CODE

1 = 1	6 = 6	*2 = B
2 = 2	7 = 7	*3 = C
3 = 3	8 = 8	*4 = D
4 = 4	9 = 9	*5 = E
5 = 5	*1 = A	*6 = F

*7 disables communications from this loop (local service only).

(2) LOOP RECEIVER SEL
1 = Dial Receiver 1, dial delay
2 = **Dial Receiver 2, dial delay
5 = Dial Receiver 1, NO dial delay
6 = **Dial Receiver 2, NO dial delay
8 = Dial RPS Receiver, dial delay
*3 = Dial RPS, NO dial delay
**Split Reporting Only

(3) LOOP ARMING CONFIGURATION
1 = Interior
2 = Instant
3 = Delay
6 = Day/Instant
7 = Day/Delay
8 = 24-hour (continuously armed)

(4) LOOP AUDIBLE ALARM
2 = Pulsing
4 = Steady
8 = Chirp
9 = Silent, with no LED indication
1 = Silent, with normal LED

(5) LOOP CIRCUIT TYPE
1 = Supervised (w/EOL), Resettable (smoke detectors)
9 = Supervised (w/EOL), Latched (heat sensors)
2 = NO (Open Loop)
3 = NC (Closed Loop)
4 = NC/NO (w/EOL)

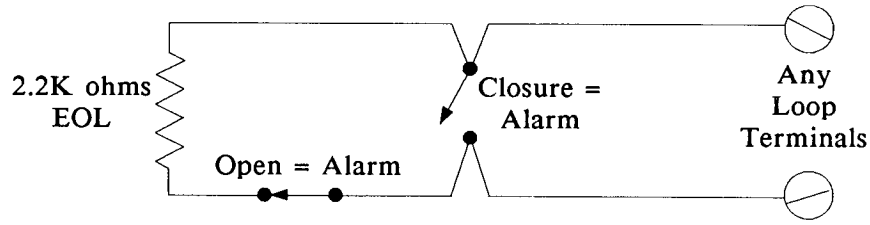
(6) LOOP SHUNT ENABLE / KEYPAD CHIME ANNUNCIATOR

†**WARNING. Shunting a zone renders inactive the protection of that zone.**

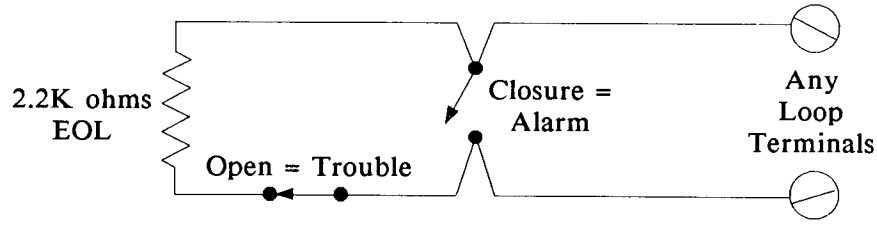
KEY-IN	SHUNT ENABLE	DOOR CHIME	DELAY Long/Short
2	N	N	S
1	†Y	N	S
6	N	Y	S
5	†Y	Y	S
* 1	N	N	L
9	†Y	N	L
* 5	N	Y	L
* 4	†Y	Y	L

About these features . . .

CIRCUIT TYPE continued



NUMBER 4: By programming the digit **4** into position **(5)**, you will configure the loop for either **normally-open** or **normally-closed** devices, or both. Since the loop is not programmed to be supervised, there will be no day-trouble reporting. A short (+ voltage) or open (0 voltage) = ALARM. This is the recommended loop programming for burglar alarm loops since the EOL supervises the loop for shorts and foreign grounds.



NUMBER 9: Programming the digit **9** in this position **(5)** causes the 2.XX to consider the loop as **latched with supervised EOL** resistor. Supervised latched loops operate the same as supervised loops (option 1) except that the sounder is latched ON until the loop restores. The EOL resistor should be installed across loop return (+12) and loop input at the far end of the detection circuit. A short (+ voltage) = ALARM and an open (0 voltage) = TROUBLE. The audible timeout does not begin until the device resets.

LOOP SHUNT ENABLE/KEYPAD CHIME ANNUNCIATOR

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

WARNING. Shunting a zone renders inactive the protection of that zone.

The programming options regarding the ability to bypass a specific zone, sound the keypad buzzer as a door chime, and the length of the entry delay, are all determined in Position **(6)** of Memory Location 39. The chart shows what numbers to key in to select the combination of options for a particular installation.

If the installation is to allow loop shunting by the subscriber, each shuntable loop must be programmed with a digit in Position **(6)** that has a Y in the Shunt Enable column. You must also allow at least one combination to have shunting (Memory Locations 12 - 16). Loops programmed as supervised will indicate trouble and report trouble if trouble reporting has been enabled in Memory Location 43. The RPS software can shunt loops whether the loops have SHUNT ENABLE or not.

Any loop(s) can act as a door annunciator by selecting DOOR CHIME. The piezo sounders on the keypads will sound for about 1 second when the loop is faulted and the control is in the disarmed state. The sounder will not sound again until the loop is restored and then re-faulted. The door chime is disabled when the system is in the armed state. If you have enabled the chime operation, the customer can turn it off and on by pressing "####" at the keypad.

The Long and Short options for the delay applies only to entry/exit delay loops (digit **3** or **7** programmed into Digit Position **(3)** of this memory location). If this is not a delay loop, the Long or Short options are ignored by the 2.XX . Actual delay times are programmed in Memory Location 52.

LOOP CONFIGURATION 1

NOTE: All memory locations 31 thru 39 are preset to blank. At installation, any loops which are not used must be deactivated by keying in

3	L	#

where L is the Loop number.

LOOP 1. Label _____

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

LOOP 2. Label _____

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

LOOP 3. Label _____

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

LOOP 4. Label _____

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

LOOP 5. Label _____

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

LOOP 6. Label _____

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

LOOP 7. Label _____

3	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 8. Label _____

3	8							#
		(1)	(2)	(3)	(4)	(5)	(6)	

LOOP 9. Label Keyboard PANIC

3	9							#
		(1)	(2)	(3)	(4)	(5)	(6)	

OPTIONS for Loops 1 thru 9:

(1) LOOP ALARM REPORTING CODE

1 = 1	6 = 6	*2 = B
2 = 2	7 = 7	*3 = C
3 = 3	8 = 8	*4 = D
4 = 4	9 = 9	*5 = E
5 = 5	*1 = A	*6 = F

*7 disables communications from this loop (local service only).

(2) LOOP RECEIVER SEL

1 = Dial Receiver 1, dial delay
2 = **Dial Receiver 2, dial delay
5 = Dial Receiver 1, NO dial delay
6 = **Dial Receiver 2, NO dial delay
8 = Dial RPS Receiver, dial delay
*3 = Dial RPS, NO dial delay
**Split Reporting Only

(3) LOOP ARMING CONFIGURATION

1 = Interior
2 = Instant
3 = Delay
6 = Day/Instant
7 = Day/Delay
8 = 24-hour (continuously armed)

(4) LOOP AUDIBLE ALARM

2 = Pulsing
4 = Steady
8 = Chirp
9 = Silent, with no LED indication
1 = Silent, with normal LED

(5) LOOP CIRCUIT TYPE

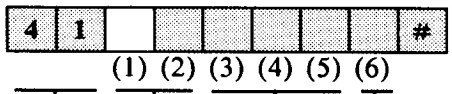
1 = Supervised (w/EOL), Resettable (smoke detectors)
9 = Supervised (w/EOL), Latched (heat sensors)
2 = NO (Open Loop)
3 = NC (Closed Loop)
4 = NC/NO (w/EOL)

(6) LOOP SHUNT ENABLE / KEYPAD CHIME ANNUNCIATOR

†WARNING. Shunting a zone renders inactive the protection of that zone.

KEY-IN	SHUNT ENABLE	DOOR CHIME	DELAY Long/Short
2	N	N	S
1	†Y	N	S
6	N	Y	S
5	†Y	Y	S
* 1	N	N	L
9	†Y	N	L
* 5	N	Y	L
* 4	†Y	Y	L

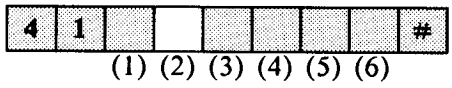
About these features . . .



MEMORY LOCATION — SYSTEM REPORTS — LOOP OPTIONS — OPENING/CLOSING SCHEDULES

Memory Locations 41 through 49 program many different functions. Each Memory Location contains three basic areas for programing. The first two Digit Positions refer to systems reports. Digit Position **(1)** selects what code will be sent to the central station for specific system reports (Memory Location 41 = RESTORE; ML 42 = SHUNT; ML 43 = TROUBLE; ML 44 = UNIT STATUS: ML 45 = OPENING; ML 46 = CLOSING; ML 47 = CANCEL; ML 48 = DURESS; ML 49 = 24-HOUR TEST). **See Page 54 for explanations of Unit Status, Closing, Shunt, Trouble, and 24-Hour Test Reports.**

If you program a system report with a * 7 , the report will be disabled, and all programming options associated with that report will be ignored by the 2.XX When selecting reporting codes, insure that your central station will properly decode them for the desired response.



Digit Position **(2)** determines where the system report defined in that Memory Location will be sent. if the system has been programmed for Split Reporting (in Memory Location 51, Position (2)). A **5** in this position will cause the signal to transmit to Receiver 1. A **6** will select Receiver 2. **If Backup Reporting has been selected, this position must be programmed with a 5.** See the discussion of split and backup under Memory Location 51.

Model 2.12 gives you the option to send selected event reports to a third receiver. If you are using C&K's MONITOR or MASTER DISPATCHER V software for remote programming, you can also use it to receive selected event signals. Program a ***3** into Position (2). The events will be transmitted to the phone number programmed into Memory Locations 53-55. The formats will always be the CFSK high speed receiver and message formats. The account number will always be Account Number 1 (Memory Location 22). You cannot use listen-in if you are using the third receiver option.

The third receiver allows you to receive selected event signals on a standard IBM compatible computer. The computer connected to the RPS phone number (Memory Locations 53-55) must be running C&K's MONITOR or MASTER DISPATCHER V software. Other receivers cannot process this high speed computer data format.

RESTORE REPORT / LOOP 1 / SUN

Preset to *5 5 4 4 1 *7

4	1							#

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

SHUNT REPORT / LOOP 2 / MON

Preset to *7 5 4 4 1 *7

4	2							#

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

TROUBLE REPORT / LOOP 3 / TUE

Preset to *6 5 4 4 1 *7

4	3							#

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

UNIT STATUS REPORT / LOOP 4 / WED

Preset to *7 5 4 4 1 *7

4	4	†						#

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

OPENING REPORT / LOOP 5 / THU

Preset to *2 5 4 4 1 *7

4	5							#

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

CLOSING REPORT / LOOP 6 / FRI

Preset to *3 5 4 4 1 *7

4	6							#

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

ALARM CANCEL REPORT / LOOP 7 / SAT

Preset to *4 5 4 4 1 *7

4	7							#

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

DURESS REPORT / LOOP 8 / DYNAMIC

Preset to *7 5 4 4 1 1

4	8							#

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

24-HOUR TEST REPORT / LOOP 9 / PWR-UP

Preset to *7 5 4 1 2 2

4	9	†						#

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

(1) REPORTING CODE

1 = 1 6 = 6 *2 = B
2 = 2 7 = 7 *3 = C
3 = 3 8 = 8 *4 = D
4 = 4 9 = 9 *5 = E
5 = 5 *1 = A *6 = F
*7 = disable report

† Unit Status Report and 24-Hour Test Report must be enabled for UL

(2) REPORT RECEIVER SELECT

5 = Dial Receiver 1
6 = Dial Receiver 2 (Split Reporting Only)
*3 = Dial RPS Receiver

(3) LOOP RESPONSE TIME

1 = 25 milliseconds	*1 = 250 ms
2 = 50 ms	*2 = 275 ms
3 = 75 ms	*3 = 300 ms
4 = 100 ms	*4 = 325 ms
5 = 125 ms	*5 = 350 ms
6 = 150 ms	*6 = 375 ms
7 = 175 ms	*7 = 750 ms

(4) LOOP RESTORE CONDITIONS

(except Memory Location 49)

4 = When Loop returns to normal
1 = When loop returns to normal AND Audible silences (times out or is manually reset.)
2 = When loop returns to normal AND Control is Disarmed.

(5) ENABLE LOOP ACTIVATION OF RELAY K2

1 = Yes
2 = No

(6) NORMAL OPEN/CLOSE (for Day of Week)

(except Memory Locations 48 and 49)

1 = Schedule A
2 = Schedule B
4 = Schedule C
*7 = Disable Exception Reporting
(Schedules set in Memory Location 56)

(6) ENABLE DYNAMIC BATTERY TEST

(Memory Location 48 only)

1 = Enable
2 = Disable

(6) ENABLE 4-MINUTE POWER-UP DELAY

(Memory Location 49 Only)

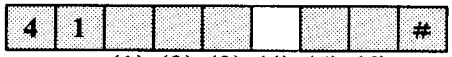
1 = Enable

About these features . . .

Digit Positions (3), (4) and (5) program more loop options that are selected on a loop-by-loop basis. Memory Location 41 = loop 1; ML 42 = 2; ML 43 = 3; ML 44 = 4: ML 5 = 5; ML 6 = 6; ML 7 = 7; ML 8 = 8; ML 49 = Keypad PANIC (* and #).

Position (3) determines the loop response time. Short times such as 25 milliseconds (25/1000) are required by fast-acting devices such as vibration detectors and photo-electrics. Slow loop response times are useful in reducing "swinger" alarms caused by intermittent wiring faults. Extremely slow loop response such as 750 milliseconds (3/4 of a second) are often used on foil and screen loops.

Insure that the loop response time will react fast enough to detect all devices wired to the loop. The loop response time must be selected according to the fastest acting device, not the slowest. If you are not sure of the contact response time for a particular device, check with the manufacturer of that device.



Digit Position (4) programs the condition under which the restoral will take place for zone processing and SEL OUT relay operation, and for a RESTORE report to be sent to the central station if not disabled by a *7 in Memory Location 41. Some people confuse RESTORE with CANCEL. A CANCEL report is generated when the alarm system is disarmed after an alarm AND the audible timeout has not elapsed. A RESTORE is the condition where a faulted loop (alarm or trouble) electrically goes to normal, and the selected conditions are met; in other words, when the fault is repaired and the detector resets to the non-alarm state.

If you have programmed RESTORAL reports, the report will be sent as follows:

1 = When the loop returns to normal AND the audible silences. This is useful if the central station wants to know when the audible shuts off (perhaps because of noise ordinances).

2 = When the loop returns to normal AND the control is disarmed. Useful when you want to know when someone arrived at a non-supervised (no opening and closing reports) premise after an alarm.

4 = When the loop returns to normal. This programming option is very useful since you know the actual condition of the loop at all times (alarm, trouble, or restore to normal). If the loop has locking devices, such as smoke detectors or holdup switches, this option lets your central station know when the devices are again able to report alarm conditions. K2, Select Out, activation and reset also follows the same rule if programmed for Selected Loops, a 1 programmed in Position (6) of Memory Location 18.

Memory Location 49, Positions (1), (2), (4), and (5) control the keypad PANIC (* and #). Since there are no RESTORAL reports associated with keypad PANIC, program the digit 1 in Position (4). The 2.XX will know to ignore the RESTORE report when keys * and # are pressed.

RESTORE REPORT / LOOP 1 / SUN

SHUNT REPORT / LOOP 2 / MON

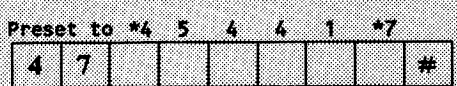
TROUBLE REPORT / LOOP 3 / TUE

UNIT STATUS REPORT / LOOP 4 / WED

OPENING REPORT / LOOP 5 / THU

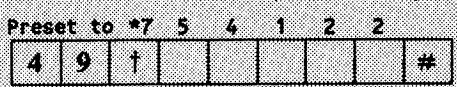
CLOSING REPORT / LOOP 6 / FRI

ALARM CANCEL REPORT / LOOP 7 / SAT



DURESS REPORT / LOOP 8 / DYNAMIC

24-HOUR TEST REPORT / LOOP 9 / PWR-UP



(1) REPORTING CODE

1 = 1 6 = 6 *2 = B
2 = 2 7 = 7 *3 = C
3 = 3 8 = 8 *4 = D
4 = 4 9 = 9 *5 = E
5 = 5 *1 = A *6 = F
*7 = disable report

†Unit Status Report and 24-Hour Test Report must be enabled for UL

(2) REPORT RECEIVER SELECT

5 = Dial Receiver 1
6 = Dial Receiver 2 (Split Reporting Only)
*3 = Dial RPS Receiver

(3) LOOP RESPONSE TIME

1 = 25 milliseconds	*1 = 250 ms
2 = 50 ms	*2 = 275 ms
3 = 75 ms	*3 = 300 ms
4 = 100 ms	*4 = 325 ms
5 = 125 ms	*5 = 350 ms
6 = 150 ms	*6 = 375 ms
7 = 175 ms	*7 = 750 ms

(4) LOOP RESTORE CONDITIONS
(except Memory Location 49)

4 = When Loop returns to normal
1 = When loop returns to normal AND Audible silences (times out or is manually reset.)
2 = When loop returns to normal AND Control is Disarmed.

(5) ENABLE LOOP ACTIVATION OF RELAY K2

1 = Yes
2 = No

(6) NORMAL OPEN/CLOSE (for Day of Week)
(except Memory Locations 48 and 49)

1 = Schedule A
2 = Schedule B
4 = Schedule C
*7 = Disable Exception Reporting
(Schedules set in Memory Location 56)

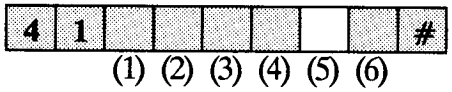
(6) ENABLE DYNAMIC BATTERY TEST
(Memory Location 48 only)

1 = Enable
2 = Disable

(6) ENABLE 4-MINUTE POWER-UP DELAY
(Memory Location 49 Only)

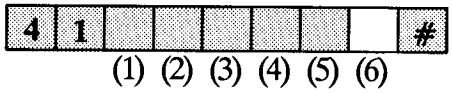
1 = Enable

About these features . . .



Digit Position (5) selects whether the SEL OUT relay (K2) will activate when the loop (1 - 9) goes into an alarm condition.

If you program the digit 1 to cause the relay to activate on alarm, you must also program Memory Location 18, Digit Position (6) with a 1 . Failure to do so will prevent the relay K2 from operating when the loop alarms. Relay K2 is an optional plug-in relay which is explained in the Installation Manual.



Position (6) programs the daily opening and closing schedule for each day of the week. The actual times for schedules A, B, and C are stored in Memory Location 56. Memory Locations 41 through 47 program Sunday through Saturday.

Digit Position (6) in Memory Locations 41 - 47 must be disabled (* 7) if the real time clock module (C&K model 9.X RTC) is not installed on the 2.XX . Failure to disable could cause erratic 2.XX operation .

In Memory Location 48, Position (6) determines if the battery will be placed under load during the test report. This is called dynamic battery testing. The AC power is turned off for four minutes before test time, causing the communicator to report the 24-hour test using the battery. A low-battery condition will cause a low-battery report. Since dynamic battery testing tests the battery under actual power failure load conditions, we recommend that this position always be programmed with the digit 1 . The
also has a passive battery test which cannot be disabled. The passive test measures the battery voltage, but is not as thorough a test as the dynamic test. If Dynamic Battery Test is enabled and the user presses the 2 and 9 keys at the keypad, AC power will be disconnected while the keys are depressed. If Dynamic Battery Test is disabled, AC power is not disconnected during this test.

Memory Location 49, Position (6) is used to delay loop alarms after a total power outage. If you are using sensors which need time after they are powered up to stabilize, program a 1 in this position. The control will delay looking at the loop conditions for four minutes after a power up. This delay time can be aborted by entering and exiting programming mode. During the 4-minute power-up delay time, the READY, ARMED, TROUBLE, REPORT, and SERVICE LEDs will flash. The 2.XX comes factory programmed with a 2 which disables this feature. For C&K DUAL-TEC sensors, we recommend that you program in a 1

RESTORE REPORT / LOOP 1 / SUN

SHUNT REPORT / LOOP 2 / MON

TROUBLE REPORT / LOOP 3 / TUE

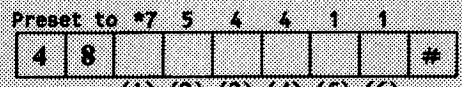
UNIT STATUS REPORT / LOOP 4 / WED

OPENING REPORT / LOOP 5 / THU

CLOSING REPORT / LOOP 6 / FRI

ALARM CANCEL REPORT / LOOP 7 / SAT

DURESS REPORT / LOOP 8 / DYNAMIC



24-HOUR TEST REPORT / LOOP 9 / PWR-UP

(1) REPORTING CODE

1 = 1 6 = 6 *2 = B
2 = 2 7 = 7 *3 = C
3 = 3 8 = 8 *4 = D
4 = 4 9 = 9 *5 = E
5 = 5 *1 = A *6 = F
*7 = disable report

†Unit Status Report and 24-Hour Test Report must be enabled for UL

(2) REPORT RECEIVER SELECT

5 = Dial Receiver 1
6 = Dial Receiver 2 (Split Reporting Only)
*3 = Dial RPS Receiver

(3) LOOP RESPONSE TIME

1 = 25 milliseconds	*1 = 250 ms
2 = 50 ms	*2 = 275 ms
3 = 75 ms	*3 = 300 ms
4 = 100 ms	*4 = 325 ms
5 = 125 ms	*5 = 350 ms
6 = 150 ms	*6 = 375 ms
7 = 175 ms	*7 = 750 ms

(4) LOOP RESTORE CONDITIONS
(except Memory Location 49)

4 = When Loop returns to normal
1 = When loop returns to normal AND Audible silences (times out or is manually reset.)
2 = When loop returns to normal AND Control is Disarmed.

(5) ENABLE LOOP ACTIVATION OF RELAY K2

1 = Yes
2 = No

(6) NORMAL OPEN/CLOSE (for Day of Week)
(except Memory Locations 48 and 49)

1 = Schedule A
2 = Schedule B
4 = Schedule C
*7 = Disable Exception Reporting
(Schedules set in Memory Location 56)

(6) ENABLE DYNAMIC BATTERY TEST
(Memory Location 48 only)

1 = Enable
2 = Disable

(6) ENABLE 4-MINUTE POWER-UP DELAY
(Memory Location 49 Only)

1 = Enable

About these features . . .

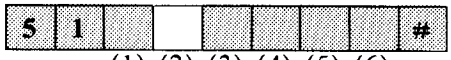
COMMUNICATION CONTROL 2

Memory Location 51 provides some more programming options for 2.XX communications. Position (1) determines if the 2.XX will dial in pulse or DTMF (Touch-Tone registered by AT&T). If the telephone system will handle DTMF dialing, program in the digit **1** or **3** . A **3** causes the 2.XX to dial at a very fast rate. To program for pulse dialing, select the digit **2** or **4** . Modern telephone switch systems can usually handle the faster 10 pulses per second dialing.

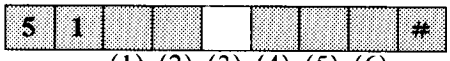
While dialing speed is important, remember that insuring that the signal will get to the central station is even more important. To properly test that the dialing speed is not too fast, the 2.XX should be tested into the central station during normal business hours. Monday through Friday, 9AM-5PM, when the phone system is operating under heavy traffic conditions. If telco can process the 2.XX dialing during these times, the programming is probably proper.

If the 2.XX cannot break dial tone (cause it to silence dial tone while dialing), the 2.XX is 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 by momentarily earth grounding either side of the phone line during dialing, the problem is ground start. Install the C&K optional ground start relay 9.X RLX.

If the 2.XX gets a fast busy signal while trying to dial the phone number digits, it is usually caused by the 2.XX dialing faster than the telco switch can process the digits. Re-program Memory Location 51, Position (1) for slower dialing, or program dialing pulses as described in Memory Locations 23-25..



Position (2) allows the communicator to pause before dialing an alarm condition. The alarm signal is transmitted at the end of the delay time. The actual loops that would be delayed were programmed in Memory Locations 31 - 38. The length of the delay, for all delay-before-dial loops, is programmed in Memory Location 51, Position (2).



Position (3) selects the number of rings that the 2.XX "hears" before it answers the phone. If the 2.XX answers the phone and recognizes the call as coming from the RPS software, it then hangs up and dials the phone number programmed in Memory Locations 53 - 55. When it connects with the RPS software, you can remotely re-program or control its operations. The number of rings selected is typically 15, unless the 2.XX is wired to a phone line dedicated to it. If you program a number that is too short, the 2.XX will answer the phone before the subscriber can. This is not a good situation!

If remote programming, you can use ring counts greater than 8 only with MONITOR, MASTER DISPATCHER V, and COMMANDER (later than version 1.0). COMMANDER version 1.0 does not allow you to program more than 8 rings. If you program more than 8 rings using keypad programming, the modem will hang up after the 8th ring when attempting to establish the remote programming connection. COMMANDER version 1.0 does not initialize the modem to stay off hook for more than one minute (approximately 8 rings).

If you program the 2.XX to answer on the 15th ring (***6**), you also enable the INTERCEPT function. Answering machines that answer the ringing before 2.XX can, prevent the remote programming process. INTERCEPT allows you to bypass these answering machines. When you call the account, let the phone ring for 15 seconds, hang up, wait 15 seconds, and then re-call the 2.XX , Inctecept activates. Intercept answers after the first ring of the second phone call. Even if the answering machine and Intercept activate at the same time, Intercept will control the call, since the 2.XX seizes the phone line from the premise devices. COMMANDER (version 1.10) and MONITOR (version 1.10), and MASTER DISPATCHER V (version 1.0) RPS software can be programmed to automatically re-dial the to activate Intercept.

continued

COMMUNICATION CONTROL 2

Preset to 3 1 8 2 1 2

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

(1) DIAL TYPE
4 = 5 pulses/sec
2 = 10 pulses/sec
1 = 5 tones/sec (DTMF)
3 = 10 tones/sec(DTMF)

(2) DELAY BEFORE DIAL

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

(3) RPS AUTO-ANSWER RING COUNT
(for remote programming/operation request)
1 = Answer on 1st ring
2 = Answer on 2nd ring
3 = Answer on 3rd ring
4 = Answer on 4th ring
5 = Answer on 5th ring
6 = Answer on 6th ring
7 = Answer on 7th ring
8 = Answer on 8th ring
9 = Answer on 9th ring
*1 = Answer on 10th ring
*2 = Answer on 11th ring
*3 = Answer on 12th ring
*4 = Answer on 13th ring
*5 = Answer on 14th ring
*6 = Answer on 15th ring
*7 = Disable Auto-Answer

(4) = "2"

(5) RECEIVER 2 USE
(Secondary C/S)
1 = Backup Reporting
2 = Split Recording

(6) DOUBLE PHONE RING
1 = Enable
2 = Disable

About these features . . .

We recommend that installers test the remote programming function with their office before leaving the site. Making another trip to the site to resolve a remote programming problem defeats the purpose of remote programming.

The RPS software allows 2.XX control/communicators to be remotely programmed and controlled using an IBM XT* computer and a Hayes Smartmodem* (1200 baud). This software is available at no charge. See your distributor or sales representative for details. The software allows remote programming of all programming options as well as complete keypad control and control of 4 optional relays. Using the RPS software, you will be able to:

- temporarily bypass faulted zones
- shut off sounders
- convert between local and central station reporting
- arm and disarm the system (sends an opening or closing zone F when arming/disarming using RPS software)
- change combinations
- activate door strikes, pumps, and other electrical devices
- disable non-paying accounts

Even if you do not plan to use the remote programming and control features of the control communicator, you might want to program them into each system installed. Later, if you change your mind, you have the ability, with no need to go to every premise to initialize the option. Since you program the access phone number in Memory Locations 53 - 55, you will have complete security over remote programming access.

Always program the digit **2** in position (4).

RECEIVER 2 can be used for either Backup Reporting or Split Reporting. Receiver 2 cannot be used for both Backup and Split from the same panel. Digit Position **(5)** determines whether the Receiver 2 account number, phone number, and formats will be used for split or backup reporting.

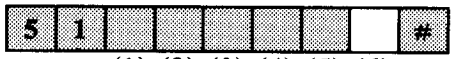
If Backup Reporting is selected, both alarms and system reports will first call Receiver 1. If it is unable to complete the transmission to Receiver 1 after two dialing attempts, then Receiver 2 will be called. If it is unable to complete the transmission to Receiver 2 after two dialing attempts, the cycle will be repeated, starting with Receiver 1 again. This cycle will be repeated up to four times, if necessary, after which the Report LED will flash.

If split recording is selected, each loop alarm (Memory Locations 31-39, Position (2)) and each system report (Memory Locations 41-49, Position (2)) can be programmed to call either Receiver 1 or Receiver 2. Up to eight tries will be made to complete the transmission.

Any loops or reports programmed for the RPS receiver will always report to that receiver, regardless of split or backup reporting.

IF BACKUP REPORTING IS SELECTED, all loops (Memory Locations 31-39) must be programmed **1** or **5** in Position **(2)**. Any loops programmed 2 or 6 will not report. Likewise, all systems reporte (Memory Locations 41-49) must be programmed **5** in Position **(2)**. Any reports programmed 6 will not report.

Split reporting can be used to make your central station operation more efficient. Program the alarms to come into one pair of digital receiver rotary hunting phone lines and all supervisory signals to come into a different pair of rotary hunting phone lines. When the dispatchers see signals from the alarm phone lines, they know that an emergency condition exists that they must respond to promptly. Signals coming in on the supervisory phone lines can be responded to as time permits.

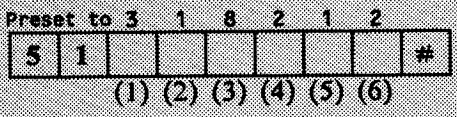


Digit Position **(6)**. Double Ring causes the 2.XX to count two rings as one. This is useful when the phone system causes a double ring instead of a single ring for each ring cycle. This is normally left disabled.

If you enable the Double Ring you can cause the remote programmer modem to hang up before it establishes communication with the panel. Your remote programmer modem is initialized by the RPS software for a specific carrier-wait time. After dialing to the 2.XX , if it fails to detect carrier within its time, it will hang up. In COMMANDER version 1.0, this is set for 8 rings. In MONITOR and MASTER DISPATCHER V, this is set for approximately 20 rings. If you have programmed Auto-Answer Ring Count for 8, and you have enabled Double Ring, the communicator will count 16 rings before answering. MONITOR and MASTER DISPATCHER V will answer, but COMMANDER version 1.0 will disconnect after the 8th ring.

* Contact the C&K Customer Service Department to obtain compatibility requirements for Hayes modems and MS-DOS computers.

COMMUNICATION CONTROL 2



(1) DIAL TYPE
- 4 = 5 pulses/sec
- 2 = 10 pulses/sec
- 1 = 5 tones/sec (DTMF)
- 3 = 10 tones/sec(DTMF)

(2) DELAY BEFORE DIAL

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

(3) RPS AUTO-ANSWER RING COUNT
(for remote programming/operation request)
- 1 = Answer on 1st ring
- 2 = Answer on 2nd ring
- 3 = Answer on 3rd ring
- 4 = Answer on 4th ring
- 5 = Answer on 5th ring
- 6 = Answer on 6th ring
- 7 = Answer on 7th ring
- 8 = Answer on 8th ring
- 9 = Answer on 9th ring
- *1 = Answer on 10th ring
- *2 = Answer on 11th ring
- *3 = Answer on 12th ring
- *4 = Answer on 13th ring
- *5 = Answer on 14th ring
- *6 = Answer on 15th ring
- *7 = Disable Auto-Answer

(4) = "2"

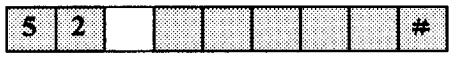
(5) RECEIVER 2 USE
(Secondary C/S)
- 1 = Backup Reporting
- 2 = Split Recording

(6) DOUBLE PHONE RING
- 1 = Enable
- 2 = Disable

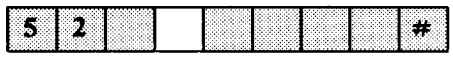
About these features . . .

DELAYS / FORCE ARM / AUDIBLES

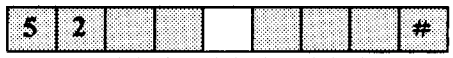
Memory Location 52 programs many of the 2.XX timing functions.



Digit Position **(1)** selects the length of time for long entry delays. Which loops actually use the long delay is selected in Position **(6)** of Memory Locations 31 - 39.



Digit Position **(2)** selects the length of time for the short entry delay. Loops that use this delay time are selected in Memory Locations 31 - 39.

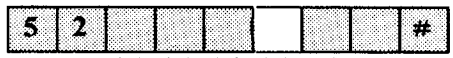


Position **(3)** selects whether the system can be FORCE-ARMED/AUTO-SHUNTED and/or AUTO HOME armed. If system force-arming is enabled here, then those loops which have been programmed in Memory Locations 31 through 38, Position **(6)** to allow shunting, will force-arm if they are in violation at the time of arming.

AUTO HOME armed creates an electronic wall of detection around the customer's premise. Loops that have been programmed with the digit **1** in Digit Position **(3)** of Memory Locations 31 - 38 will be automatically shunted out of the system if an entry/exit loop is not faulted during exit delay time (Memory Location 52, Position **(4)**).

$ Interior shunting is normally associated with residential alarm systems. There are many applications in commercial businesses as well. Customers that must work in their stores after hours, such as gun shops, jewelry and coin shops, and pharmacies are excellent prospects for "FORTRESS GUARD". So are stores that lock their employees in the premise at night while they are stocking or cleaning. This is common in the grocery and drug store businesses. (See UL-A)

$ If you use the RPS remote programming software, you do not have to give the subscriber force-arming. If the subscriber cannot arm the system due to a faulted zone, you can remotely force-arm the system. Do this by manually shunting the faulted loops, then arming them by using the Arm Unit command. This keeps the subscribers security at a higher level since they do not have to give shunting or force-arming authority to the employees. Force-arming or shunting from the central station also provides an additional source of revenue since many alarm companies charge $10 - $30 per remote operation.



Digit Position **(4)** selects the length of the exit delay, from 10 to 150 seconds.

Do not use the key entry *** 7** for entry or exit delay functions. It will cause erratic operation including elimination of any entry or exit time.

continued

DELAYS / FORCE ARM / AUDIBLES

Preset to 4 2 1 6 6 2

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

(1) LONG ENTRY DELAY
(2) SHORT ENTRY DELAY
(4) EXIT DELAY

1 = 10 sec	*1 = 100 sec
2 = 20 sec	*2 = 110 sec
3 = 30 sec	*3 = 120 sec
†4 = 40 sec	*4 = 130 sec
5 = 50 sec	*5 = 140 sec
† †6 = 60 sec	*6 = 150 sec
7 = 70 sec	(DO NOT USE *7)
8 = 80 sec	
9 = 90 sec	

† Maximum Entry Delay for UL
† † Maximum Exit Delay for UL

(3) ENABLE

	FORCE ARM	AUTO HOME
1 =	No	No
2 =	Yes	No
5 =	No	Yes
6 =	Yes	Yes

(5) PREALERT ENABLE
2 = Disable
6 = Enable

(6)AUDIBLE ALARM ENABLE

1 = 2.5 min	*1 = 25 min
†2 = 5 min	*2 = 27.5 min
3 = 7.5 min	*3 = 30 min
4 = 10 min	*4 = 32.5 min
5 = 12.5 min	*5 = 35 min
6 = 15 min	*6 = 37.5 min
7 = 17.7 min	*7 = No Cutoff
8 = 20 min	
9 = 22.5 min	

† Minimum time for UL

About these features . . .

5	2							#

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

Position (5) controls the prealert function. The 2.XX keypads have a built-in buzzer that can be programmed to sound during the entry delay. This is very useful in reducing subscriber-caused false alarms. If the keypad is not mounted near the control, the intruder is more likely to be attracted to the keypad. This gives the control greater protection and more time to transmit its alarm information.

5	2							#

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

Position (6) selects the length of time that the audibles will sound during an alarm. Even if all zones are silent, there should be a time programmed in this position. This will enable the subscriber to generate a CANCEL report if they turn off the alarm during this programmed time. Programming a * 7 in this position will cause the audibles to sound until the system is disarmed.

The 2.XX gives you the option to program burglar alarms as silent. If the phone system is out of service your subscriber will have no protection. The justifications for silent alarms are protection and capture. While a silent holdup alarm would seem to increase the client's protection from harm, actually, there is very little personal danger involved in a burglary. Alarm companies experienced in guard response know that there is very little chance of capturing a burglar during a silent alarm. However, if you use audibles, as soon as they hear the audibles they are likely to leave the building, reducing damage and danger to the occupants.

RPS PHONE NUMBER

5	3							#
5	4							#
5	5							#

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

There are three memory locations used to store the RPS phone number. This is the phone number that the 2.XX will dial if it recognizes a call from the RPS software. All 18 Digit Positions must be programmed. Be sure that the last digit of the phone number ends in position (6) of Memory Location 55. Place zeros to the left of the phone number as fillers. The 2.XX will not dial these leading zeros.

THE RPS PHONE NUMBER can also be used as a third receiver. With the Model 2.12 you can select alarms (Memory Locations 31-39) and/or events (Memory Locations 41-49) which will report to this phone number. You must be running C&K's MONITOR or MASTER DISPATCHER V software. Signals will always transmit in the CFSK message and receiver formats. The account number will always be Account Number 1.

The third receiver allows you to use split and backup reporting and still send selected information to a third receiver. This can be used to transmit system service information to your office if a contract central station provides normal monitoring. It also allows you to sell proprietary alarm monitoring. Your customer can now use their PC compatible computer to monitor selected information while you provide normal monitoring and remote programming. Contact your C&K distributer representative for more money-making ideas using MONITOR and MASTER DISPATCHER V.

Programming the telephone number is explained in Memory Locations 23 - 25. It is suggested that you re-read that information before programming this Memory Location.

The RPS software allows you to have complete control of your accounts regardless of the size of your alarm company. We usually refer to the central station when discussing RPS programming. You do not have to operate the RPS software from your central station. The phone number that the 2.XX has programmed for the RPS computer could just as easily be your service managers office, service dispatcher's desk, or your general office. If you are monitored by another company, this option allows you to have complete control and security over your account by reprogramming from your office and not the contract central station.

We discussed Call Waiting interference in Memory Locations 23 - 25. They can be a nuisance in signal transmissions, creating delays, call backs, and excessive phone charges when trying to remotely program or control the 2.XX However, the sophisticated error checking used in the RPS-to-2.XX data link will prevent these errors from being programmed into the EEPROM. If your customer subscribes to Call Waiting, you should require them to also subscribe to "tone blocking". The customer pays a small monthly amount for this programming feature. If the phone numbers programed into the communicator in Memory Locations 53 - 55 are preceded by *70 (* 2 7 0), the call waiting tone will be blocked for interactive programming phone calls. This will not affect the subscriber's normal phone operation.

DELAYS / FORCE ARM / AUDIBLES

Preset to 4 2 1 6 6 2

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

(1) LONG ENTRY DELAY
(2) SHORT ENTRY DELAY
(4) EXIT DELAY

1 = 10 sec	*1 = 100 sec
2 = 20 sec	*2 = 110 sec
3 = 30 sec	*3 = 120 sec
†4 = 40 sec	*4 = 130 sec
5 = 50 sec	*5 = 140 sec
† †6 = 60 sec	*6 = 150 sec
7 = 70 sec	(DO NOT USE *7)
8 = 80 sec	
9 = 90 sec	

† Maximum Entry Delay for UL
† † Maximum Exit Delay for UL

(3) ENABLE

	FORCE ARM	AUTO HOME
1 =	No	No
2 =	Yes	No
5 =	No	Yes
6 =	Yes	Yes

(5) PREALERT ENABLE
2 = Disable
6 = Enable

(6)AUDIBLE ALARM ENABLE

1 = 2.5 min	*1 = 25 min
†2 = 5 min	*2 = 27.5 min
3 = 7.5 min	*3 = 30 min
4 = 10 min	*4 = 32.5 min
5 = 12.5 min	*5 = 35 min
6 = 15 min	*6 = 37.5 min
7 = 17.7 min	*7 = No Cutoff
8 = 20 min	
9 = 22.5 min	

†Minimum time for UL

RPS PHONE NUMBER
Interactive Redial

Preset to BLANK

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

Leave RPS PHONE NUMBER blank if remote programming and third receiver reporting are not used.

About these features . . .

EXCEPTION REPORTING SCHEDULE

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

Memory Location 56 is used to set up to 3 different opening and closing schedules. This will allow you to apply different opening and closing times to different days of the week. To use exception reports, an optional real time clock module (C&K model 9.X RTC or 9.X RTC/M) must be installed on the 2.XX circuit board. If the real time clock is not used, this Memory Location will be ignored.

If the user arms and disarms within the opening/closing window (+/- 30 minutes), no report will be sent. If they open or close early, an opening or closing report will be sent, along with their user ID. If there has been no arming or disarming at the end of the window, the 2.XX will send the Unit Status report followed by extension 4 (failed to open) or extension 5 (failed to close). If the 2.XX is programmed for 24-Hour Check-In, the armed status will be reported as an extension of the test code. Extension 1 = armed. Extension 2 = disarmed.

Schedules may be programmed to make Exceptions of only Open or only Close reports. For example, program *7 for a schedule Open time and program a valid time for a Close window. This will allow 2.XX to report all Openings, but to report closings only when they occur outside the programmed window.

If you do not need to use all the schedules available, enter *7 in all digit positions not used.

5	7	#

Keying in 5 7 # will cause the 2.XX to operate as programmed for both operations and communications. This is the normal programming entry in Memory Location 57.

LOCAL

5	7	1	1	1	1	1	1	#
(1)	(2)	(3)	(4)	(5)	(6)			

During installation or service, it is sometimes desirable to operate the 2.XX in a local mode, with all transmission options disabled. To accomplish this, program Memory Location 57 with six 1's. All ALARM, RESTORE, TROUBLE, SHUNT, OPENING, CLOSING, DURESS, CANCEL, 24-HOUR CHECK-IN, and UNIT STATUS reports will be ignored. This is a lot easier than going to the reporting Memory Locations and making the changes, then going back to them to restore the changes.

When installation or service is complete, you must be sure to change the 2.XX back to a reporting system by re-programming this Memory Location with 5 7 # .

Even if this system is sold as a local system, it is recommended that you install the telephone jack and connector cord (C&K model 9.X PC/P). This will allow you to easily and inexpensively re-program, troubleshoot, and control the system from your office. If the subscriber does not want to pay the additional expenses, you might want to absorb the expenses. Then, if you service the account from your office, you can still charge a higher service fee. Just one service call will pay back the additional expenses many times over.

The ability to easily convert between local and central station offers you a clever way to upgrade a residential account from local to central station. If you sell a local system, program in all the central station information. When the customer goes on vacation, offer them a VACATION GUARD special. You will provide them with central station monitoring for a one time connection charge of $50 (or what you feel comfortable with) and your normal monitoring fees. If you have programmed Memory Locations 51 (Position (3)) and 53 - 55 for the 2.XX RPS software, and connected the 2.XX to the phone line as a part of the installation, you will be able to activate the central station reporting feature from your central station or service office.

When the customer returns and calls you to disconnect the system, tell them that you are so busy with new installations that you will convert them back to central station in several weeks, but that you will immediately convert the billing back to local charges. This two week period will allow the customer to learn of the warm fuzzy feelings associated with central station monitoring. During this time, respond to all signals as you would for any monitored account. In two weeks, send a sales person to the premise to "disconnect" the system. Make sure that the wife is home and that your sales person brings along a monitoring contract.

continued

EXCEPTION REPORTING SCHEDULE

Preset to BLANK

5	6							#

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

(1) SCHEDULE A OPEN (a.m.)
(2) SCHEDULE A CLOSE (p.m.)
(3) SCHEDULE B OPEN (a.m.)
(4) SCHEDULE B CLOSE (p.m.)
(5) SCHEDULE C OPEN (a.m.)
(6) SCHEDULE C CLOSE (p.m.)

1 = 1:00	5 = 5:00	9 = 9:00
2 = 2:00	6 = 6:00	*1 = 10:00
3 = 3:00	7 = 7:00	*2 = 11:00
4 = 4:00	8 = 8:00	*3 = 12:00

*7 = Disable Exception Check
(Open or Close Report sent regardless.)

SYSTEM ENABLE

Preset to BLANK

5	7							#

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

NORMAL
Operation Enabled
Reporting Enabled

5	7	#

LOCAL
Operation Enabled
Reporting Disabled

5	7	1	1	1	1	1	1	#

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

KILL
Operation Disabled (except charging and remote programming)
Reporting Disabled

5	7	3	3	3	3	3	3	#

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

Enter the keyboard sequence shown to select the type of system operation desired.

EXIT PROGRAMMING MODE

0	0	#

About these features . . .

When first getting an alarm system, many subscribers are afraid of using the system because of potential false alarms. To get them comfortable in the shortest period of time, start the system as a local for the first few weeks. This will give them a chance to learn the system without the fear of police response. At the end of two weeks, send a customer service or sales representative to the premise to work with the central station in converting the account to central station. Your person on-site is actually there to get referrals since all programming can be done from your office with no one at the protected premise. Your representative checks the installation for completeness, reviews the operation of the system with the subscriber, AND gets the names of four people who could use your services. These will be some of the best leads you will get. The customer still remembers the fears that caused them to get an alarm system, and they have not had the system long enough to have had any problems with it.

Since your representative was testing the system and operating it with the customer, the sounders should have been sounding off and on. Before visiting the premise, they should go to the neighbors to apologize, explain the sounds AND make appointment to review their security needs.

Sometimes a customer wants to change from a central station to a local system. With the 2.XX this is easily and inexpensively done from your central station. Now, you can keep the account and it doesn't cost you $30 to $60 in service time to go out to convert them to a service that reduces your income. Since the 2.XX is still connected to the phone line, you can inexpensively service or modify the account from your office.

KILL

5	7	3	3	3	3	3	3	#
		(1)	(2)	(3)	(4)	(5)	(6)	

There are times when you have to shut down all operations of a 2.XX . Typically this would be caused by a customer not paying their bill, or moving out from a premise that has a leased alarm system. The KILL option allows you to shut off all operations except remote programming and battery charging. When the bill has been paid, or a monitoring contract signed with the new occupants of the building, you can revive the 2.XX by programming the panel with **5 7 #** from your office or the keypad.

Before killing a panel, be sure you have taken all the legal steps required in informing the client. We suggest that you establish the procedures and form letters with the aid of your company's lawyer.

EXIT PROGRAMMING

0	0	#

When you have completed programming the 2.XX , key-in **0 0 #** to exit the programming mode.

When you have completed the installation, be sure to test all devices including the 2.XX for proper programming and operation. Programming modifications are easy to make, either from your office, using the RPS software, or from the keypad. Be sure to update all program records (site and office) with the programming changes.

SYSTEM ENABLE

Preset to BLANK

5	7							#
		(1)	(2)	(3)	(4)	(5)	(6)	

NORMAL
Operation Enabled
Reporting Enabled

5	7	#

LOCAL
Operation Enabled
Reporting Disabled

5	7	1	1	1	1	1	1	#
		(1)	(2)	(3)	(4)	(5)	(6)	

KILL
Operation Disabled (except charging and remote programming)
Reporting Disabled

5	7	3	3	3	3	3	3	#
		(1)	(2)	(3)	(4)	(5)	(6)	

Enter the keyboard sequence shown to select the type of system operation desired.

EXIT PROGRAMMING MODE

0	0	#

WHAT THE KEYPAD LED's MEAN

GREEN "READY"

OFF	when protective loop(s) is in violation.
FLASHING	when arming is possible, but a warning condition exists, such as shunts, AC power loss, Annunciator Memory, or Service Required. When armed, during alarm and alarm memory.
ON	when system is normal and is ready to be armed.

YELLOW "TROUBLE" (also see Fire Alarms.)

OFF	when loop(s) programmed as "Supervisory" (FIRE) are normal.
FAST FLASH	when a Supervised circuit is shunted.
SLOW FLASH	when an alarm condition on a supervised circuit is acknowledged by the user and the alarm condition still exists.
ON	to indicate "trouble".

RED "ARMED"

OFF	when disarmed.
FLASHING	when instant armed.
ON	when protective circuits are armed.

GREEN "AC"

Indicates that AC power is supplied to the unit and the battery charger is operating. Indicator turns off during power interruptions, during the daily battery test, and during the 4 minutes after a 24-hour check-in if you have programmed for dynamic battery testing..

YELLOW "REPORT"

OFF	when in normal state.
ON	when the unit is communicating to the monitoring station.
FLASHING	with the incoming ring signal. when unit fails to communicate with monitoring station after eight attempts. (Can be cleared by pressing the 4 and 8 keys.)

YELLOW "SERVICE"

OFF	when in normal state.
FLASHING	on start-up on self-test failure on daily battery test
ON	when service is required. Low BAttery (10.5V or less) Battery Test Failure Blown Fuses AC Power Loss longer than 15 minutes

If the service condition has returned to normal, the SERVICE LED can be cleared by simultaneously pressing the 4 and 8 keys (Lamp Test).

RED "ZONES" (8)

OFF	when zone is normal
SLOW FLASH	during Alarm and Alarm Memory (memories clear when unit rearms). Note: In Alarm Memory, zone LED's time out after 5 minutes. Touch any digit to reactivate alarm Memory.
FAST FLASH	when zone is temporarily bypassed.
ON	when zone is violated (alarm state, but system is disarmed). Does not light steadily on "24-Hours" zones or a supervised zone is in trouble.

Note: Zones can be programmed to be invisible. Invisible zones will not display ZONE lights or the REPORT light during the transmission of that zone alarm.

WHAT THE KEYPAD SOUNDER MEANS

SHORT TONE:

1. Once each time a zone is violated from a normal state if you have programmed the Door Chime option. If you have enabled the Door Chime option in Memory Locations (31-39), the system will have chimes enabled when you come out of the programming mode
2. Each time a key is pressed while in Program Mode.
3. On the 4th "#" of "####" used by subscriber to turn the Door Chime off or on.

LONG TONE:

1. When you disarm the system.

TWO LONG TONES

1. When you arm the system.
2. After a closing report is sent to the central station.

PULSING TONE:

1. On activation of Prealert unless Prealert is disabled. The Prealert pulses once every second to provide real-time counting.
2. On loop fault of day/instant or day/delay zone when control is disarmed (day trouble).
3. Incorrect programming entry.

CONTINUOUS TONE:

1. On supervised circuit trouble (fire trouble). Can be silenced only by loop restoral or by shunt sequence.

USING THE KEYPAD

ARMING the System

When arming the system, the green READY light must be on steady or flashing. If this light is off, it indicates that a protective device is faulted.

With the green READY light on or flashing, enter the six- digit Master Combination or any four-digit Arming Combination at any keypad. The piezo-buzzer at the keypad will sound twice and the red ARMED light in the keypad will come on. This indicates that the system is armed. Leave immediately, and secure the Entry/Exit door.

ARMED "AWAY"

If the user arms the system and exits during the programmed exit delay time, the system arms in the AWAY mode. In this mode the system will allow a delay time for disarming upon returning through a specified Entry/Exit door.

ARMED "INSTANT"

If the user holds down the last key of the combination for three seconds while arming, the system instantly arms. There are no entry or interior delays. The Red ARMED LED will flash.

ARMED "HOME"

If the user arms the system and does not open any Entry/Exit doors during the exit delay time, the system arms in the HOME mode.

ARMED "INSTANT HOME"

If the user holds down the last key of the combination for three seconds, *and* Auto Home is enabled, *and* an exit zone is not faulted, the system arms INSTANT HOME. There are no entry delays. All interior zones are automatically shunted out of the system. The Red ARMED LED will flash.

continued

DISARMING

The six-digit Master Combination or any four-digit disarm combination will disarm the control.

When re-entering the premises, the system must be disarmed within the programmed entry delay time to prevent an alarm condition. The Prealert tone, if enabled, will sound during this time to remind the user to disarm the system. If the green READY light was flashing before disarming, an alarm condition had occurred while the system was armed. The zone memory light will clear when the 4 and 8 buttons are pressed at the same time.

FIRE ALARMS

If some of the zones are programmed for fire protection, they remain armed 24 hours a day and are controlled automatically by the 2.XX Control unit. If a fire condition occurs, the audible device sounds and a signal is sent to the central station. This pulsing audible sound will override a steady audible sound if they occur simultaneously.

If a fire alarm occurs, enter any Arming Combination or the Master Combination to silence the audible alarm. If the Fire condition is still present after the combination is entered, the amber SERVICE light will begin to flash. This "Supervisory Bypass" indication shows that the alarm signal was manually acknowledged and bypassed. When the fire condition clears, the amber light will automatically reset (extinguish) to indicate that the fire zone has restored. If the zone restores then re-alarms, the audible alarm will sound again and the communicator will transmit another alarm to the central station.

If a fire alarm is not silenced, the audible alarm will sound for the programmed AUDIBLE ALARM DURATION (Memory Location 52), then silence. The 2.XX will reset to await future alarms.

EMERGENCY/PANIC ALARM.

Pressing the * and # keys simultaneously triggers an emergency alarm. It may be silent (holdup) or audible (panic), depending on the options programmed.

BYPASSING (SHUNTING) ZONES

Zones can be temporarily bypassed (shunted) from the system while other zones remain active. Shunts are cleared when the system is disarmed or an alarm is acknowledged. To bypass a zone, enter the following 6-key entry:

#, [Any valid Auxiliary Combination], [1 - 9 (desired zone)]
The keys must be pressed within 1.5 seconds of each other. When the system is armed with any zones bypassed, either manually or when Force-Arming, a report is sent to the central station. The Master Combination cannot be used to bypass zones manually. Automatic bypassing (force-arming) is permitted only if so programmed. If Force-Arming is programmed, all zones that are violated at time of arming automatically shunt themselves out of the system when any user code arms the system.

Bypassing example: The arming combination is 1234. To bypass zone 3, enter # 1 2 3 4 3

ACKNOWLEDGING ALARMS

To acknowledge an alarm, enter the six-digit Master Combination or a four-digit Arming Combination. The audibles will silence and a Cancel report will be sent to the central station if so programmed.

The system can be programmed to delay before dialing. The audibles will sound, however, as soon as the zone goes into alarm.

Troubleshooting is easier if you know what signals are supposed to be sent to the central station. It is impossible for us to list all the signals that are sent since there are so many of them. Loop codes, opening and closing codes, troubles, and restorals are programmed by the alarm company. Also, some receivers decode the information into English translations. These translations can vary from receiver to receiver.

The UNIT STATUS REPORT shows the condition of the 2.XX vital system functions. The following Zone Extensions are transmitted after the Unit Status Code programmed in Memory Location 44, Position (1).

Decimal Code	Hexadecimal Code	Event UNIT CODE Zone Extensions
1	1	Low Battery
2	2	AC Fail
3	3	Bell Fuse Fail
4	4	Failed to Open (Exception O/C)
5	5	Failed to Close (Exception O/C)
6	6	Battery Restore
7	7	AC Restore
8	8	Bell Fuse Restore
10	A	Remote Programming attempted or completed
15	F	Guard Failed to Report (Model 2.5)

CLOSING REPORTS are sent as soon as the system is turned on. Thus, transmission occurs during exit delay. Exit is extended until the colsing report is received, or until eight dialing attempts have been made. The keypad will beep twice to signify a successful closing. Closing reports (as well as Openings, Cancels, and Duress) always report the User Code following the Report Code.

OPENING/CLOSING and CANCEL Extensions

7	7	DURESS Combination opening/closing
14	E	Key Switch opening/closing
15	F	COMMANDER opening/closing

SHUNT REPORTS, if programmed, will send the shunt code followed by the zones that are shunted. It will be sent at the time of shunting, and again with the close report if the system is not immediately armed after shunting (manual shunt).

TROUBLE REPORTS are sent when loops that are programmed for supervision (Memory Locations 31-38, Digit Position (5)) go to an open condition. They are also sent when a day loop is faulted and the control is disarmed.

24-HOUR TEST REPORTS are sent every 24 hours if Memory Location 49, Position (1) has been programmed with a reporting digit. The first report will be transmitted 24 hours after the control is powered up. The time of the first 24-Hour Test Report can be changed in Memory Location 19.

The armed status of the control will be reported with the test report. The zone extension following the test code will be a 1 if the control is armed and a 2 if it is disarmed.

DURESS. If Memory Location 48, Position (1) has been programmed for a Duress reporting code, the extension reported after the Duress code will be the digit 0. An opening or closing is always sent with the Duress. The O/C will always report user #7.

TROUBLESHOOTING OVERVIEW

The operation of the control/communicator is controlled by the firmware, wiring connections, and the programming options selected. Because they are all interrelated, it is difficult to troubleshoot one without a working knowledge of all three. In the following two sections we will give some simple troubleshooting hints. Additional information will be found in the Installation Manual.

C&K's Customer Service Department is available to help you troubleshoot your panel. Before calling us you should have already tried the troubleshooting hints in sections 25 and 26. When calling us, troubleshooting will be faster if you have available a VOM, a telephone lineman's handset, manuals, and accurate information regarding the system's program, panel model number, and software revision number. The Customer Service phone numbers for Europe and Asia are listed in the back of this manual.

PROGRAMMING TROUBLESHOOTING

Cannot get into Program Mode:

1. Not entering "* [MASTER COMBINATION]" correctly or fast enough. (1.5 seconds is the maximum time between key entries until you are in Program Mode.)
2. Incorrect Master Combination.
3. Keypad not wired correctly.
4. Keypad fuse blown.

Not Operating Properly. 2.XX does not operate as programmed.

1. Verify that the programmed Memory Locations are the same as the values on the Worksheet. Use the printer tape or COMMANDER interactive printout if available.
2. Re-enter the information if necessary or in doubt.

Piezo-buzzer is pulsing continuously during Program Mode:

A programming entry error was made.

1. Re-enter the complete memory location line, starting with the 2-digit memory location, or
2. Key in **0 0 #** to exit Programming Mode.

Cannot program functions higher than Memory Location 20 (piezo-buzzer is pulsing):

1. Enter **1 9 #** to gain access to upper (installer) Memory Locations for programming.
2. Not waiting 5 seconds after entering the Master Combination.

INSTALLATION TROUBLESHOOTING

No Green READY Light:

1. Ensure that all circuits are "normal" according to how each zone was programmed.
2. Permanently shunt unused zones out of the system.

Keypad piezo-buzzer is sounding continuously and Yellow LED is on:

A zone(s) defined as "Supervised" has a "trouble" condition.

1. Verify that all EOL resistors are in place.
2. Verify that all protective loops are complete and have no foreign grounds or voltages.

System Arms with Violated Zones:

Forced Arm Enable (Auto-Shunt) was selected when the programming options were selected.

1. Reprogram if necessary.

2.XX will not dial:

1. 2.XX is programmed for local operation. Reprogram if necessary.
2. The specific loop is programmed for local. Reprogram if necessary.
3. Receiver 2 selected for report and Split Reporting not selected.
4. Illegal entries in phone number.

2.XX dials but does not break dial tone:

1. The 2.XX is programmed for tone dialing on a pulse dial phone line. Reprogram to pulse dialing.
2. The 2.XX is connected to a ground start phone line. Install a model 9.X RLX relay in socket K5.
3. The RJ31X or RJ38X telco jack is incorrectly wired.

Unit dials but does not Communicate to Central Station:

1. The 2.XX is not dialing the correct phone number. Reprogram telephone number(s)
2. The 2.XX is not dialing the correct phone number. Install EMI suppression capacitors on all bells and vibrating horns, at the sounders.
3. If Central Station is answering, but nothing else happens, verify the Reporting and/or Message format.

Bells/Horns don't sound:

1. Loop not programmed for audible. Reprogram if necessary.
2. Fuse F3 is open. Remove overload condition and replace fuse.

Bells/Horns sound weak:

1. Wire gauge is too small for the length of Sounder wiring runs.
2. Sounder baffle plate is obstructed.
3. Low battery.

AC LED not on:

1. Test for 20VAC nominal across transformer terminals (1 & 2). The transformer voltage should read slightly higher than the transformer's rated voltage.
2. Panel in 4-minute power-up delay.
3. Dynamic battery test in progress.

Zone programmed "Interior" does not trigger alarm:

1. If auto-home was programmed and the delay zone was not faulted during exit delay, all interior loops are automatically shunted until system is disarmed.

Keypad Panic not working:

1. Check panic programming options.

No Auxiliary Power (+12VDC) on terminal 6:

1. Remove external aux power line and test for short or overload condition.
2. Replace fuse F1.

No sound on BATTERY/BELL Test (2 & 9 keys pressed simultaneously):

1. Check for no battery or battery failure.
2. Check fuse F3 (bell fuse).

Arming combination will not arm or disarm:

1. Invalid arm/disarm combination.
2. Digit entries must occur within 1.5 seconds of each other.
3. Selected combination is restricted to arm only or disarm only.
4. If an incorrect key is pressed or more than 1.5 seconds elapse between key depressions during entry of any of the user combinations, the arm/disarm program routine will abort. Wait 1.5 seconds before starting over.
5. Check fuse F2.

UL COMPLIANCE VERIFICATION

The 2.1 Control/Communicator is in compliance with Underwriters Laboratories, Inc. Standards UL 985, Household Fire Warning System Units; UL 1023, Household Burglar-Alarm System Units; and UL 1635, Digital Burglar Alarm Communicator System Units. As a flexible, programmable system, certain programming options may not be used under these standards. The following are charts of the programming restrictions which must be observed in order to meet the standards.

UL 985

1. The audible alarm must be programmed to sound for at least 4 minutes before silencing. ML 52, Position (6)
2. No zone may be programmed as a silent alarm. ML 31-39, Position (4)
3. Fire zones must be programmed for a **pulsing** audible alarm. ML 31-39, Position (4)
4. Burglar zones must be programmed for a **steady** audible alarm. ML 31-39, Position (4)
5. An Arm/Disarm switch may not be used (terminal 14).
6. A lock must be installed on the cabinet.
7. Audible devices must be UL Listed.

UL 1023

1. The audible alarm must be programmed to sound for at least 4 minutes before silencing. ML 52, Position (6)
2. No zone may be programmed as a silent alarm. ML 31-39, Position (4)
3. No Entry Delay greater than 45 seconds may be programmed. ML 52, Position (1), (2)
4. No Exit Delay greater than 60 seconds may be programmed. ML 52, Position (4)
5. No Delay Before Dial may be programmed for the communicator. ML 31-39, Position (2)
6. An Arm/Disarm switch may not be used (terminal 14).
7. The unit must not be programmed to dial a police station.
8. A lock must be installed on the cabinet.
9. Audible devices must be UL Listed.

UL 1635

1. The audible alarm must be programmed to sound for at least 4 minutes before silencing. ML 52, Position (6)
2. The Unit Status Report must be enabled. ML 44, Position (1)
3. The 24-Hour Check-In must be enabled. ML 49, Position (1)
4. The Dynamic Battery Test must be enabled. ML 48, Position (6)
5. No Entry Delay greater than 45 seconds may be programmed. ML 52, Position (1), (2)
6. No Exit Delay greater than 60 seconds may be programmed. ML 52, Position (4)
7. Burglar loops (non-24-hour loops) must be programmed for NO/NC. ML 31-38, Position (5)
8. No Delay Before Dial may be programmed for the communicator. ML 31-39, Position (2)
9. An Arm/Disarm switch may not be used (terminal 14).
10. A tamper switch must be installed on the cabinet.
11. A lock must be installed on the cabinet.
12. Audible devices must be UL Listed.

ZONE PROGRAMMING

The following loop configurations will meet UL Standards:

Fire Loop:

- No Delay Before Dial
- 24-Hour Arming
- Pulsing Audible
- Supervised
  - Latched for Heat
  - Resetable for Smoke
- Not Shuntable

Burglary Loop:

- No Delay Before Dial
- Steady Audible
- NC/NO with EOL circuit

DISCLAIMERS

A. This product has not been investigated by Underwriters Laboratories Inc. for UL 609, Local Burglar-Alarm Units and Systems; UL 365, Police Station Connected Burglar-Alarm Units and Systems; UL 1076, Proprietary Burglar-Alarm Units and Systems; or UL 1610, Central-Station Burglar-Alarm Units.

B. This product has not been investigated by Underwriters Laboratories Inc. for UL 294, Access Control System Units.

C. This product has not been investigated by Underwriters Laboratories Inc. for UL 508, Industrial Control Equipment, Electric.

Wholesale Distribution By:

C&K SYSTEMS, Incorporated

107 Woodmere Road
Folsom, CA 95630
Tel: (916) 351-1131
(800) 227-8065
Fax: (916) 985-0352

Cunliffe Drive
Kettering
Northamptonshire NN16 8LF
England

Tel: 0536-521147
Fax: 0536-410867
Tlx: 34672 CK SWIT

2/F Taikoktsui Centre
11-15 Kok Cheung Street
Taikoktsui, Kowloon
Hong Kong

Tel: 3915311
Fax: 7892062
Tlx: 30883 CKHK

6985 Davand Drive
Unit 14
Mississauga, Ontario L5T 1L5
Canada

Tel: (416) 670-7733
Fax: (416) 670-5753

Unit A2, 23 Windsor Road
Northmead, N.S.W. 2152
Australia

Tel: (02) 683 1555
Fax: (02) 683 6165

236A Lennox Street
Richmond, Victoria 3121
Australia

Tel: (03) 429 6162
Fax:: (03) 428 2985

Avenida Valgrande 14-4
28100 Alcobendas
Madrid
Spain

Tel: 010 341 653 8569/6641
Fax: 010 341 653 6608

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2.1 INSTALLATION WORKSHEET

SUBSCRIBER _____ 2.XX Phone _____

Address _____

Control Location _____ Transformer Location _____

Circuit Breaker Location _____ Circuit Breaker Number _____

Panel Serial Number _____ Installation Date _____

Installer _____ Programmer _____

POWER MEASUREMENTS

AC Power (term. 1 & 2) _____ volts Aux. Power (DC) (term. 5 & 6) _____ volts

Battery Voltage Connected _____ Disconnected _____

POWER CONSUMPTION

Auxiliary Devices (term. 5 & 6) _____ mA (Fuse F1)

Keypads (number of keypads x 20 mA) _____ mA (Fuse F2)

Listen-in Board _____ mA

Remote Relay Board _____ mA

TOTAL Power Consumed _____ mA (Must not exceed 1000mA)

Sounder Power (while sounding) _____ mA (Must not exceed 1000mA)

See the Installation Manual for limits when used in UL installations.

PROGRAMMING RECORD ON REVERSE SIDE

LOOP 1 Description _____ Resistance _____ Voltage _____

LOOP 2 Description _____ Resistance _____ Voltage _____

LOOP 3 Description _____ Resistance _____ Voltage _____

LOOP 4 Description _____ Resistance _____ Voltage _____

LOOP 5 Description _____ Resistance _____ Voltage _____

LOOP 6 Description _____ Resistance _____ Voltage _____

LOOP 7 Description _____ Resistance _____ Voltage _____

LOOP 8 Description _____ Resistance _____ Voltage _____

INSTALLATION COMPLETION CHECKLIST

☐ Premises Cleaned Up ☐ Decals Installed ☐ All Devices Tested

☐ Subscriber Instructed ☐ Central Station Notified

Ground Resistance _____ ohms

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2.1 Control Communicator PROGRAMMING RECORD for _____

1 1 _ _ _ _ _ _ #	MASTER COMBINATION - USER 1
1 2 _ _ _ _ _ _ #	ARM/DISARM COMBINATION - USER 2
1 3 _ _ _ _ _ _ #	ARM/DISARM COMBINATION - USER 3
1 4 _ _ _ _ _ _ #	ARM/DISARM COMBINATION - USER 4
1 5 _ _ _ _ _ _ #	ARM/DISARM COMBINATION - USER 5
1 6 _ _ _ _ _ _ #	ARM/DISARM COMBINATION - USER 6
1 7 _ _ _ _ _ _ #	DURESS COMBINATION
1 8 _ _ _ _ _ _ #	4-DIGIT CODE and SELECT OUTPUTS
(1) (2) (3) (4) (5) (6)	
2 1 _ _ _ _ _ _ #	COMMUNICATION CONTROL 1
(1) (2) (3) (4) (5) (6)	
2 2 _ _ _ _ _ _ #	ACCOUNT NUMBER 1
2 3 _ _ _ _ _ _ #	RECEIVER 1 PHONE NUMBER
2 4 _ _ _ _ _ _ #	
2 5 _ _ _ _ _ _ #	
(1) (2) (3) (4) (5) (6)	
2 6 _ _ _ _ _ _ #	ACCOUNT NUMBER 2
2 7 _ _ _ _ _ _ #	RECEIVER 2 PHONE NUMBER
2 8 _ _ _ _ _ _ #	
2 9 _ _ _ _ _ _ #	
(1) (2) (3) (4) (5) (6)	
3 1 _ _ _ _ _ _ #	LOOP 1 CONFIGURATION
3 2 _ _ _ _ _ _ #	LOOP 2 CONFIGURATION
3 3 _ _ _ _ _ _ #	LOOP 3 CONFIGURATION
3 4 _ _ _ _ _ _ #	LOOP 4 CONFIGURATION
3 5 _ _ _ _ _ _ #	LOOP 5 CONFIGURATION
3 6 _ _ _ _ _ _ #	LOOP 6 CONFIGURATION
3 7 _ _ _ _ _ _ #	LOOP 7 CONFIGURATION
3 8 _ _ _ _ _ _ #	LOOP 8 CONFIGURATION
3 9 _ _ _ _ _ _ #	LOOP 9 CONFIGURATION (Keyboard PANIC)
(1) (2) (3) (4) (5) (6)	
4 1 _ _ _ _ _ _ #	RESTORE REPORT / LOOP 1 / SUN
4 2 _ _ _ _ _ _ #	SHUNT REPORT / LOOP 2 / MON
4 3 _ _ _ _ _ _ #	TROUBLE REPORT / LOOP 3 / TUE
4 4 _ _ _ _ _ _ #	UNIT STATUS REPORT / LOOP 4 / WED
4 5 _ _ _ _ _ _ #	OPENING REPORT / LOOP 5 / THU
4 6 _ _ _ _ _ _ #	CLOSING REPORT / LOOP 6 / FRI
4 7 _ _ _ _ _ _ #	ALARM CANCEL REPORT / LOOP 7 / SAT
4 8 _ _ _ _ _ _ #	DURESS REPORT / LOOP 8 / DYNAMIC
4 9 _ _ _ _ _ _ #	24-HOUR TEST REPORT / LOOP 9 / POWER-UP
(1) (2) (3) (4) (5) (6)	
5 1 _ _ _ _ _ _ #	COMMUNICATION CONTROL 2
5 2 _ _ _ _ _ _ #	DELAYS / FORCE ARM / AUDIBLES
(1) (2) (3) (4) (5) (6)	
5 3 _ _ _ _ _ _ #	R P S PHONE NUMBER
5 4 _ _ _ _ _ _ #	
5 5 _ _ _ _ _ _ #	
(1) (2) (3) (4) (5) (6)	
5 6 _ _ _ _ _ _ #	EXCEPTION REPORTING SCHEDULE
5 7 _ _ _ _ _ _ #	UNIT CONTROL

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