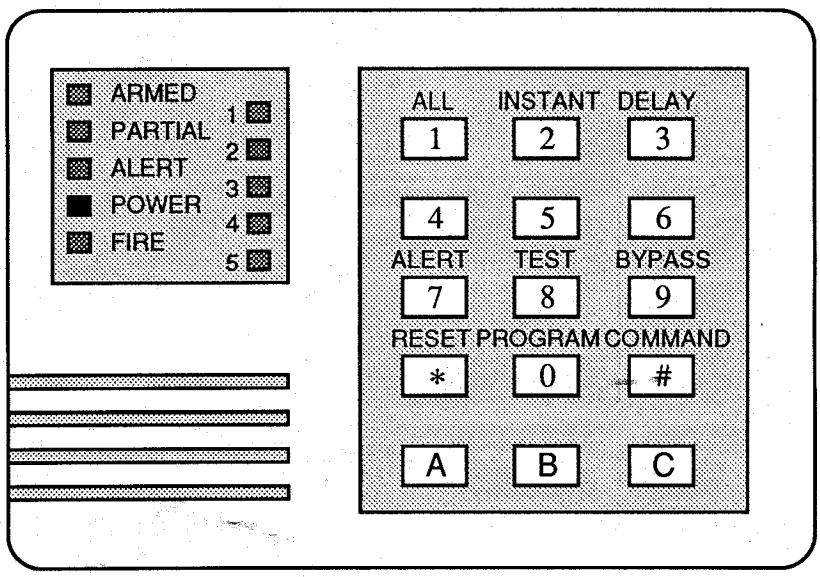
Installation and Programming Manual

7090 Security / Fire Control

including 7090TM option



KEYPAD QUICK REFERENCE GUIDE

TURNING ON (arming) YOUR SYSTEM

Turn on all protection	COMMAND 1
Occupied no entry allowed	COMMAND 2
Occupied entry allowed	COMMAND 3

Custom Arming — COMMAND 4 for _____
COMMAND 5 for _____
COMMAND 6 for _____

Force Arming — Enter arming command above followed by 9

Area Bypass — COMMAND 9 followed by the AREA number

TURNING OFF (disarming) YOUR SYSTEM

Enter your **USER CODE** followed by COMMAND

COMMANDS FOR OTHER SYSTEM FEATURES

Alert Mode	COMMAND 7
Area Test	COMMAND 8 1
Alarm History	COMMAND 8 9
Alarm History Reset	COMMAND 8 9 *
Battery Test	COMMAND 8 0
Communicator Test	COMMAND 8 2
Fire Reset	COMMAND 8 0
Indicator Light and Display Test	COMMAND 8 4
Remote Program Dialout	COMMAND 8 3
Remote Program Answer	COMMAND 8 6
Sounder Test (alarm sounding devices)	COMMAND 8 5
Trouble Display	COMMAND 8 7
Trouble Display Reset	COMMAND 8 7 *

ACCESS CONTROL — Enter your **Access Code** followed by COMMAND

TIME OF DAY PROGRAMMING

(7090TM only)

Enter time-of-day programming mode by entering a Master Code followed by COMMAND 0 7. Refer to the 7090TM Time Managers User's Guide 22163 for further help in setting the time parameters.

Current Time - 0 1
Current Day Of Week - 0 2
Opening & Closing Window Length - 0 3
Automatic Arming Time - 0 5

Monday Open Time - 1 1
Monday Close Time - 1 2
Tuesday Open Time - 2 1
Tuesday Close Time - 2 2
Wednesday Open Time - 3 1
Wednesday Close Time - 3 2

Thursday Open Time - 4 1
Thursday Close Time - 4 2
Friday Open Time - 5 1
Friday Close Time - 5 2

Saturday Open Time - 6 1
Saturday Close Time - 6 2
Sunday Open Time - 7 1
Sunday Close Time - 7 2

Weekday AUX Relay On At - 8 1
Weekday AUX Relay Off At - 8 2
Saturday AUX Relay On At - 8 3
Saturday AUX Relay Off At - 8 4
Sunday AUX Relay On At - 8 5
Sunday AUX Relay Off At - 8 6

7090 and 7090TM Specifications

Housing

The standard enclosure is manufactured from 20 Ga., cold-rolled steel, and measures 11.5 in. Wide, by 11.5 in. High, by 3 in. Deep. A keyed lock is included and this enclosure has provision for an optional tamper switch to monitor the door.

The optional attack resistant enclosure is manufactured from 18 Ga., cold-rolled steel, and measures 12.75 in. Wide, by 17.5 in. High, by 3.5 in. Deep. A keyed lock is included. Order model 7090CC. This enclosure has provision for tamper switches to monitor the door and the wall.

Temperature	+32°F. to +120°F. (0°C. to +49°C.)

Power

Input power (TR-16 transformer supplied)	16.5VAC 20VA Max. 50 or 60 Hz.
Auxiliary regulated power	12VDC 500mA.
UL Listed Auxiliary power	12VDC 400mA. (limited to guarantee full battery re-charge in 24 hours)
Auxiliary power voltage range	10.2 to 14.0VDC
Optional Standby battery Model P334	12V 1.2 to 6.5 AH 6AH battery = 10 hours
Control panel standby current	60mA.
7091 keypad standby current 4 5/8" H, 4 7/8" W, 1" D	45mA.
7140 keypad standby current 4 5/8" H, 8 3/16" W, 1" D	100mA.

NOTE: Total current for all auxiliary devices, including keypads and smoke detectors is 500mA standby (400ma UL) and 1.5 Amps in alarm (1.4 Amps UL burglar and 700ma for UL Household Fire)

Outputs

Alarm voltage	1 Form A, 1.5 Amp contact connected to auxiliary power. Can be programmed for steady and pulsed output.
Optional Aux relay	1 Form C, 1 Amp contact. Can be used for alarm, arming state or access control. Can be programmed for steady and pulsed output.

Keypads

Number of keypads	4 Keypads
Maximum wire length each	500 feet
Wire type	4 conductor #22 AWG "Telephone quad"

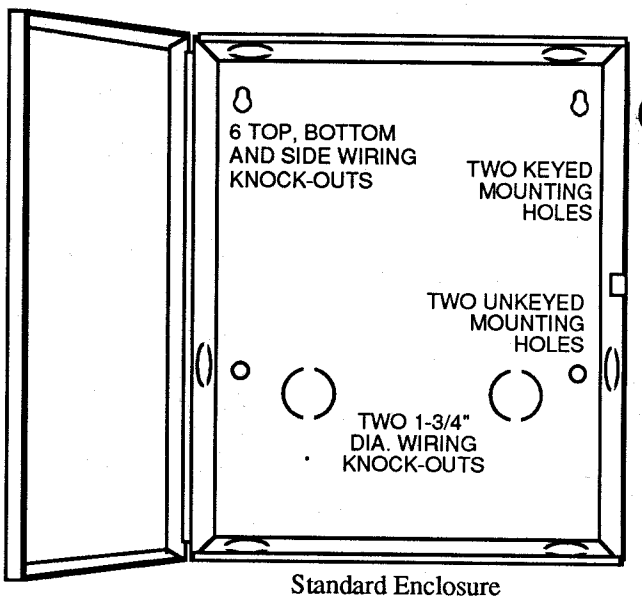
Keyswitches

Keyswitches can be used instead of keypads (keyswitches and keypads can not be used together). Red and green light drives are supported. One burglar zone input is used.

Communicator

Will report to two phone numbers with full single, double and back-up reporting. Communicates in 3/1, 4/1, 4/2 and BFSK with optional extended reporting.

FCC Registration Number is ESV5WH-60687-AL-E
DOC Registration Number is 1249 3387 A
The ringer equivalence is 0.1B



Standard Enclosure

Lightning Protection

MOVs and spark gaps provide protection to lightning surges and static discharges.

Burglar Zone Inputs

Number of circuits	5 Circuits
End of line resistor	2210 ohms

Fire Signal Initiating Circuit (2 wire mode)

Fire circuit will work with 2 or 4 wire detectors and has optional alarm verification.

Number of circuits	1 Circuit
Type of circuit	Class B, latching
End of line resistor	2210 ohms
Supervisory current	5 ma.
Minimum current for alarm	12 ma.
Maximum short circuit current	80 ma.
Maximum circuit resistance	150 ohms
Circuit voltage range	10.2 to 14Vdc
Maximum impedance for alarm	850 ohms
Maximum detectors per zone	20 detectors (2 wire)
Maximum smoke detector standby current	2.0 ma.

Fire Listings

UL Household Fire
NFPA number 74 (Household Fire Systems)
California State Fire Marshall - Pending

Intrusion Listings

UL Household Burglary
UL Local Alarm Grade A
UL Police Station Connect
UL Central Station Grades A, B and C

NOTE: See UL compatibility section for the above listing requirements.

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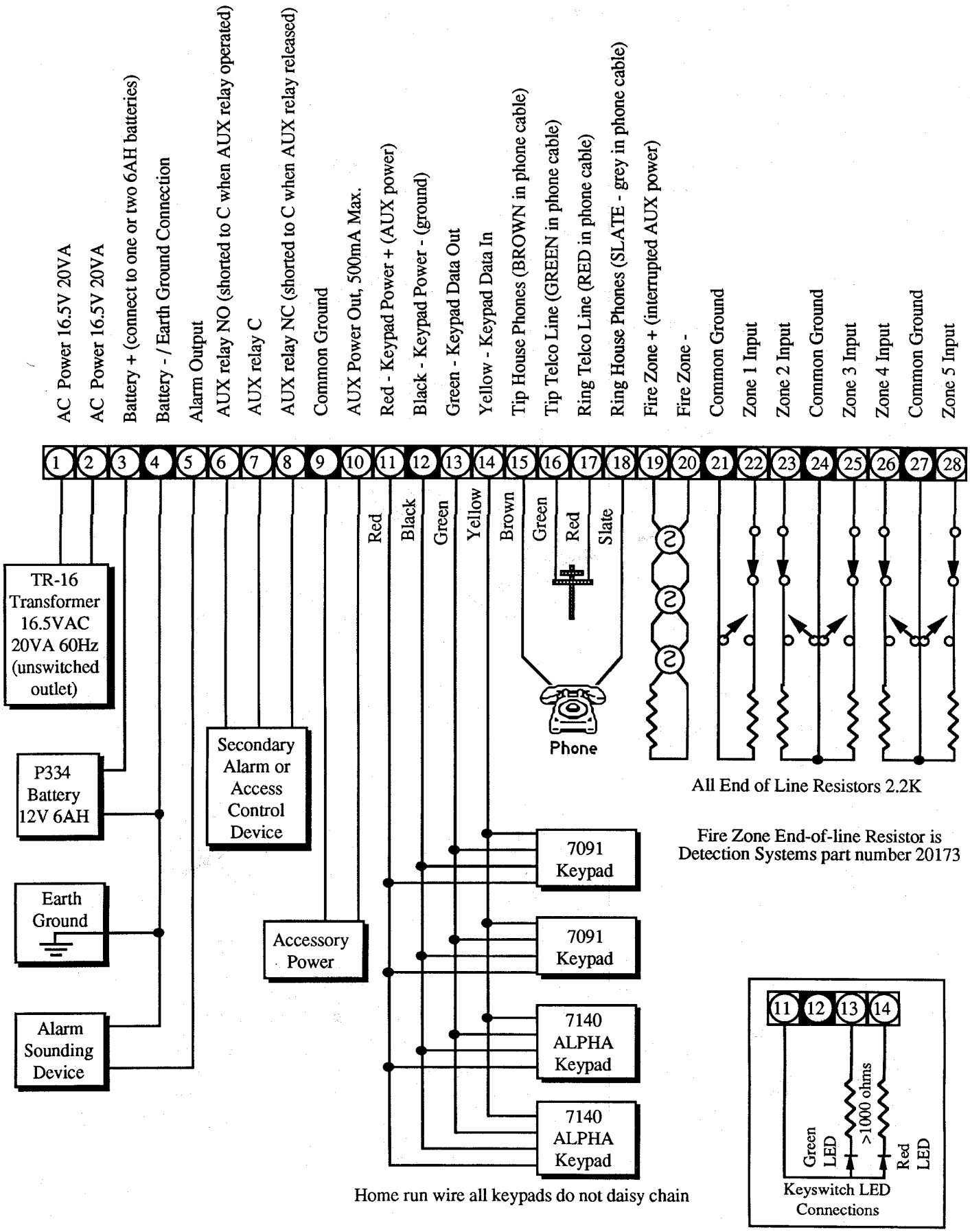
CONTROL TERMINAL WIRING



TERMINAL FUNCTIONS

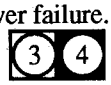
16.5 VAC POWER INPUT **Terminals** 

Connect terminals 1 and 2 to the 16.5 VAC, 20 VA transformer (TR-16) supplied with the control using no smaller than #18 AWG wire (50 feet maximum). ***DO NOT INSTALL THE TRANSFORMER UNTIL AFTER ALL OTHER WIRING CONNECTIONS HAVE BEEN MADE,*** but locate it near a 120 VAC outlet **not** controlled by a switch. A dedicated service should be used, ***DO NOT SHARE THE TRANSFORMER.*** Operating input limits for supplied transformer; 120 VAC, +10%, -15%.

When AC power fails, the control continues to operate from battery power. As energy is drawn from the battery, its voltage will drop. When the battery voltage drops to 12VDC, Low Battery and AC Failure reports will be issued. (See section PR.4, lines 49 and 50.)

When the battery voltage drops to 10.2VDC, the AUX relay and alarm voltage will turn off to save the battery. The control and communicator will continue to function to 8.0VDC, when it will shut down.

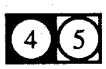
After a total power failure (AC and battery), when AC power is restored the control will return to the arm/disarm state (including any bypasses) that it was in when the power failed. The control will function normally except that a zone violation will not issue an alarm for 4 minutes (if the control was armed) to allow the sensors to power up and function normally. All system parameters are saved through the power failure.

STANDBY BATTERY **Terminals** 

Connect one or two rechargeable 12 volt, 6 amp-hour, P334 sealed lead-acid batteries To terminals 3 (+) and 4 (-). No special harness is required to support two batteries. Use only lead acid batteries. Locate the batteries on the bottom of the enclosure, ***BUT DO NOT CONNECT TO THE CONTROL UNTIL AFTER ALL OTHER WIRING CONNECTIONS HAVE BEEN MADE.*** One P334 battery = 10 hours minimum standby. Two P334 batteries = 20 hours. The control is not battery dependent. The battery charger is temperature compensated to prevent the battery from drying out.

The manufacturer recommends battery replacement every 3 to 5 years under normal use.

Connect the battery minus terminal 4 directly to a good earth ground such as a metallic cold water pipe using at least #14 AWG wire. If near the water meter, choose the city side for the ground clamp connection. **Do not** share the ground wire with any other equipment, or use the third wire in an electrical outlet, or rely on conduit for grounding. **Don't connect a second ground wire** from any other point in the system to earth ground. A good ground is also required for ground start telephone lines.

ALARM VOLTAGE OUTPUT **Terminals** 

Total system current is rated at 1.5 amp max in alarm. Terminal 5 output is controlled by a zone alarm. Terminal 4 is the ground reference for this output. This output may be programmed to be pulsed or steady. This output is protected by a self resetting circuit breaker. The use of vibrating horns is not recommended with this control.

Each zone can be programmed to provide individual control of the alarm output and AUX relay. The burglar zones are programmed in section PR.1, data digit 1, and the fire zone is programmed in section PR.12, data digit 1. **The fire zone has priority, and no matter what state the alarm output and AUX relay are in, they will go to the state programmed for the fire zone when it alarms.**

In the case of alarms other than fire, if the alarm output is on continuous and a new zone alarms that is programmed for a pulsing alarm output, it will cause the alarm output to pulse. However, if the alarm output is pulsing and new zone alarms that is programmed for continuous, it will have no effect on the alarm output. Pulsing always overrides continuous output for the alarm output and AUX relay independently. If the alarm output is pulsing and the AUX relay is off when a new zone alarms that is programmed for continuous alarm output and AUX relay, will have no effect on the alarm output but the AUX relay will come on continuous.

For UL residential fire installations one audible device must be indoors.

AUX RELAY **Terminals** 

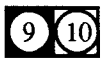
Terminals 6, 7 and 8 are the AUX relay which requires an optional K102 relay plugged into the AUX relay socket (observe the direction arrow on the relay when plugging the relay into the socket). The K102 relay is not supplied with the control. Output is controlled by a zone or fire alarm, the armed state of the panel or an access code from a keypad. Contacts are form C and they are rated at 1 amp maximum. The contacts are not powered (dry), wire to auxiliary power if powered contacts are desired. The output may be programmed to be steady or pulsing in zone programming section PR.1. Selected zones can be programmed to operate the AUX relay to turn on a CCTV camera for example.

When a zone is programmed to control the AUX relay, the operation of the AUX relay may be delayed for the number of seconds programmed in line 60 of PR.6 (**AUX Relay Alarm Delay**). If line 60 is programmed to zero there is no delay. For example an inside siren could be activated instantly from the alarm output and an outside siren could be delayed when it is driven from the AUX relay.

When used as an **access output** its operation is programmed in section PR.6 on line 67. If programmed to a value between 1 and 255, the AUX relay will change state for that number of seconds and then return to its previous state each time an access code is entered at the keypad. One or more user codes must be programmed as an access code to activate this feature. If a fire alarm is programmed to operate the AUX relay and an access control code is programmed to allow access when the AUX relay operates, then a fire alarm will remove the access restriction.

If line 67 is programmed to zero, then each time an access code is entered at the keypad, the state of the AUX relay will change and it will remain in the new state until the access code is entered again.

In data digit 1 of line 85 the AUX relay may be programmed to operate when the control is armed (but not in exit delay) and to be released when the control is disarmed or in exit delay. This can be used to control PIR memory circuits, multiplex interfaces and radio receivers. When programmed this way, a zone or fire alarm or access control code will **not** change the state of the AUX relay.

12V AUXILIARY POWER **Terminals** 

Regulated 12 VDC at up to 500mA continuous to power auxiliary devices is supplied by terminal 10. Terminal 9 is the ground reference for this circuit. To determine the maximum current available, subtract the total AUX power current, the total fire zone current and total keypad current from 500mA. The voltage will vary from 10.2 to 14VDC under normal operation (AC and battery power). This output is protected by a self resetting circuit breaker.

KEYPAD CONNECTION Terminals 11 12 13 14

Terminals 11 (keypad power), 12 (keypad ground), 13 (data out) and 14 (data in) will support four 4-Wire keypads. A maximum of 500 feet (150 m) of #22 AWG, non-shielded, 4-conductor cable is permitted in the wiring to each keypad. Each keypad should be home run separately.

When keyswitch arming is programmed, terminal 13 will drive a ground for the green status light and terminal 14 will drive a ground for the red armed status light on the keyswitch plate. The other side of the lights must be wired to AUX power. Remember to provide a dropping resistor (minimum 1000 ohms) for the LEDs. The keyswitch contacts are wired into a zone input. The keyswitch light connections must be removed when a keypad is added to the control for programming.

TELEPHONE Terminals 15 16 17 18

The standard telephone cable connections are:
Green = Outside Telco Tip on terminal 16.
Red = Outside Telco Ring on terminal 17.
Brown = House Phone Tip on terminal 15.
Slate (grey) = House Phone Ring on terminal 18.

The telephone line is not supervised by the control. The phone cord can be supervised if plugged into a RJ38X jack by wiring the orange and blue wires to a zone input as a normally closed contact. Also see Phone Line Test on Arming in Keypad Programming closing ringback section.

GROUND START RELAY

Requires an optional K101 relay plugged into the ground start relay socket (observe the direction arrow on the relay when plugging the relay into the socket). The K101 relay is not supplied with the control. Use only on ground start telephone lines. Requires no programming. The control must be connected to a good earth ground. Ground start telephone lines can not be used in UL systems.

FIRE ZONE Terminals 19 20 21

Terminal 19 supplies regulated 12 VDC AUX power for fire detection devices. The voltage will be between 10.2 and 14 volts in normal operation. The voltage is interrupted by a code from any keypad for detector reset. Optional automatic fire verification will also interrupt power for detector reset. Battery test does interrupt the fire (smoke) detector power.

Up to 20 DS200 2-wire smoke detectors may be wired to the fire zone. Connect the positive terminal of the smoke detector to terminal 19 of the control. Do not connect intrusion detectors to this terminal.

Terminal 20 is the 2-Wire circuit return. Wire the negative of the 2-wire detector to terminal 20. Do **not** wire 2-wire smoke detectors to a Common Ground terminal on the control. The loop is considered normal when the voltage on fire zone minus is between 0.6 and 1.3 VDC. An alarm results if the voltage is higher than 2.5 VDC.

The control is designed to work with 12VDC 25mA 2-wire detectors like the DS200.

4-Wire smoke detectors may be used with this fire zone by wiring the smoke detectors positive power terminal to terminal 19 on the control. The negative detector power terminal should be wired to terminal 21 on the control. The alarm contacts on the smoke detector must be wired in parallel with an end-of-line resistor to terminals 19 and 20 respectively. An end-of-line relay should also be used.

PROGRAMMABLE ZONE INPUTS

Terminals 21 22 23 24 25 26 27 28

There are five (5) programmable zone inputs on the control panel for the connection of "dry" contact N/C and N/O protective device loops. Do not apply voltage to these terminals. Each zone is permitted a maximum of 300 ohms of resistance in the wiring loop, and requires the supplied 2.21K ohm EOL resistor for supervision. *Connect an EOL resistor across the terminals of any unused loop or program the loop for permanent shunt.* Note that a common ground terminal is shared by two (2) loops. A normal (non faulted) loop will measure between 2 and 3 VDC from the loop input to ground. A loop is considered shorted if it measures 1.5 VDC or less and it is open if the voltage is 3.8 VDC or greater. Loop response time may be programmed for 120 or 600 milliseconds (see section PR.1 data digit 4).

COMMUNICATIONS BASICS

3/1 FORMAT

This format is shown on the next page. A three digit account code is sent followed by a one digit reporting code. A double round is sent so the receiver can verify the data. This format is usually transmitted at 10 pps or 20 pps (pulses per second).

3/1 EXTENDED FORMAT

This format works by sending two transmissions, each looking like the 3/1 format above. In the first transmission the account code is sent followed by the first digit of the reporting code. The second transmission repeats the first digit of the reporting code three times (in place of the account code) followed by the second digit of the reporting code. This format is usually transmitted at 10 pps or 20 pps

For example if the account code was 345 and the first and second digits of the reporting code were F and 9, the first transmission would send two rounds of 345 F. The second transmission would be two rounds of FFF 9.

3/1 FORMAT with PARITY

This format differs from 3/1 in that only a single round of account code and reporting code is sent followed by a parity digit. The double round is not needed because the parity digit is used to verify the data. This format is usually transmitted at 40 pps.

3/1 EXTENDED FORMAT with PARITY

This format works by sending two transmissions, each looking like the 3/1 format with parity above. In the first transmission the account code is sent followed by the first digit of the reporting code. The second transmission repeats the first digit of the reporting code three times (in place of the account code) followed by the second digit of the reporting code. This format is usually transmitted at 40 pps.

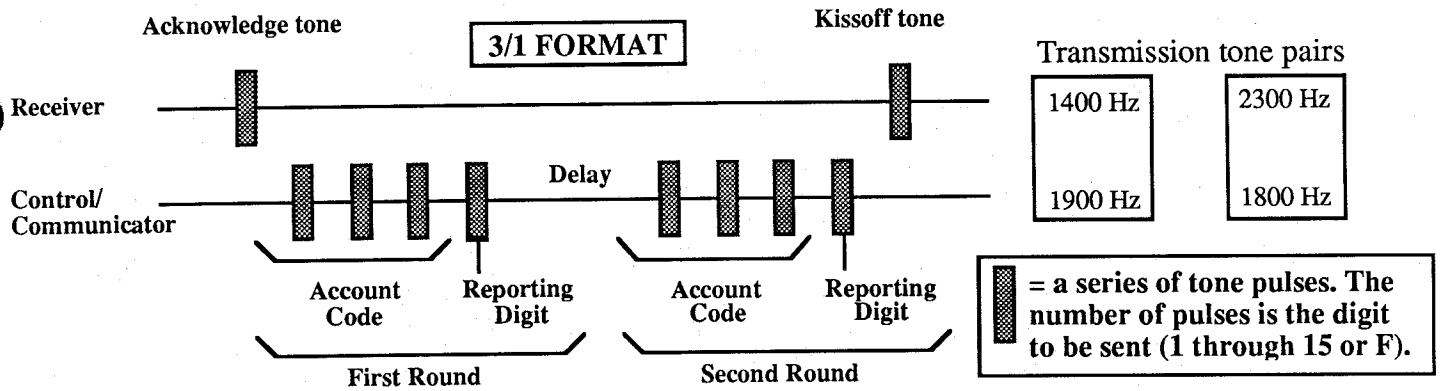
4/1 FORMAT

This format works the same as the 3/1 format above except that four digits of account code are sent rather than three in both of the double rounds. This format is usually transmitted at 10 pps or 20 pps

4/2 FORMAT (Silent Knight)

This format transmits like 3/1 except four digits of account code and two digits of reporting code are sent in each of the two rounds. This format is usually transmitted at 10 pps or 15 pps.

COMMUNICATION BASICS



BFSK

BFSK sends three digits of account code and two digits of reporting code in a single transmission that consist of constant tones. The format has built in error checking and therefore does not need a double round.

RECEIVER PRINTED OUTPUT

In the 3/1 extended format example a transmission of 345 F was followed by a transmission of FFF 9. Depending on the type of receiver the printed output from these transmissions would typically take one of three different forms.

1) 345 F
   FFF 9
2) 345 F9
3) 345 TROUBLE ZONE 9

All three printed messages above are the result of the same transmissions into three different receivers.

COMMUNICATOR PROGRAMMING

AC POWER FAIL REPORT

AC power failure does not initiate an immediate report to the central station. The report will be sent to the central station only if the power is still failed when another report is generated for some other reason. Typically this would be a low battery report. This is done to prevent many calls to the central station that would be caused by a massive power outage covering a large area. Programmed in section PR.4 line 49.

AUTOMATIC TEST REPORT

This report will be sent to the central station automatically at the interval programmed in section PR.16 line 85 digit 4. This report is used as an automatic test of the digital communicator. Programmed in section PR.5 line 58.

AUTOMATIC TEST REPORT OFFSET

The number of hours until the next automatic test report will be sent is programmed in line 69 of section PR.6.

CALL WAITING

We do not recommend connecting control panels to phone lines equipped with a call waiting feature. If the control panel must be connected to a line with call waiting, then the programmed central station phone number should be preceded by the call waiting disable code and a three second delay. This will prevent incoming call(s) from interrupting a communication. For example, call waiting can be disabled in many areas by dialing *70 before the phone number for tone dial and 1170 for pulse dial. The phone numbers are programmed in section PR.7 lines 71 and 72.

CANCELLED ALARM REPORT

A cancelled alarm report will be issued if an alarm is silenced while the alarm sounders are sounding (line 57, section PR.5). When the exception opening report is programmed (line 53, section PR.5), don't program the cancelled alarm report.

CLOSING REPORT

This report is sent to the central station **only** when COMMAND 1 arming is used to arm the system (or a keyswitch arms at level 6). Any other form of arming will not send a closing report. Programmed in section PR.5 line 56.

COMMUNICATOR TEST REPORT

The communicator test report is programmed in line 59 of section PR.5. When programmed a [Command/#]-[8]-[2] entered at the keypad will generate a test report. The power light on the keypad will pulse during the test. If the report is successful the power light will return to normal, and a long keypad beep will be heard. If the communication is unsuccessful after the programmed number of retries, the power light will continue to flash, and the keypad beeper will come on continuously. Pressing [RESET] will quiet the beeper, but a communication error is latched into the system trouble display.

DIALER DELAY

The number of seconds that the communicator will wait before an alarm report is sent to the central station. This delay allows a false alarm to be cancelled before it is reported. Typically used only in residential. Programmed in section PR.6 line 68.

DURESS REPORT

This report is sent to the central station when a users code one digit higher, in the last digit, than a valid users code is used to disarm the system (duress code). The duress report is used to indicate that you have disarmed the system under "duress". If both the opening and duress reports are programmed, the duress and not the opening report will be sent when the system is disarmed with a duress code as outlined above. A duress report is not delayed by the dialer delay, and it can't be cancelled. Programmed in section PR.5 line 52.

EXCEPTION CLOSING REPORT

This report is sent to the central station **only** when [Command/#]-[1] arming is used to arm the system and one or more zones have been bypassed or forced armed. This report does not require the closing report to be programmed. If both the closing and exception closing reports are programmed, the exception closing and not the closing report will be sent when the system is armed with bypassed or force armed zones. Before the exception closing report is sent, a trouble report will be sent for each zone bypassed or force armed. Programmed in section PR.5 line 55.

EXCEPTION OPENING REPORT

This report is sent to the central station **only** the first time the system is disarmed after an alarm has occurred during an armed period. This report does not require the opening report to be programmed. If both the opening and exception opening reports are programmed, the exception opening and not the opening report will be sent the first time the system is disarmed after an alarm. Programmed in section PR.5 line 53.

LATE to CLOSE and LATE to OPEN REPORTS

Opening and closing windows may be programmed in the 7090TM control only. Each window composed of a start time and a length. Refer to the front cover or the 7090TM Time Managers User's Guide 22163 to set the time parameters.

The start time determines the time of day the window will activate, while the length determines how long the window will remain active. Openings and closings that occur during the appropriate windows are not reported as these are normal occurrences. However, openings and closings that occur outside of these windows will be reported. All openings and closings are stored in the 7090TMs history buffer, whether or not they occur within a window.

Late to close reports will be sent if the control is not closed (armed) at the end of the closing window. Late to open reports will be sent if the control is not open (disarmed) at the end of the opening window. Setting the window length = 0 will cause the late to open and late to close reports to occur at the window start time, without suppressing any open or close reports.

Late to open or late to close reports will be reported only from a 7090TM if enabled on lines 08 and 09 in PR.5.

MULTIPLE REPORT

When selected up to 8 reports may be sent in one phone call to the central station. This is the default setting and it should be used with all but the oldest receivers. Programmed in section PR.9 lines 75 and 76 data digit 1.

OPENING REPORT

This report is sent to the central station **only** the first time the system is disarmed after [Command/#]-[1] arming was used to arm the system. An open after any other form of arming will not send a opening report. Programmed in section PR.5 line 54.

REPORT CODE

The report code is the reporting digit sent after the account code in 3/1, 4/1 and BFSK reporting. It is also the first reporting digit sent after the account code in 4/2 reporting. It is programmed in the first data digit in sections PR.4 and PR.5. If a report of "Zone 0" is to be sent to the receiver program this location with a RESET key followed by 0 (HEX A). If this report is enabled never program this location with a 0 which will disable this digit from being sent.

REPORT EXTENDED

The report extended digit is the extended report digit sent in the second round of an extended 3/1 or 4/1 report. It is also the second reporting digit sent after the account code in 4/2 reporting. It can not be used for alarm reporting in BFSK. It is programmed in the second data digit in sections PR.4 and PR.5. If a report of "Zone 0" is to be sent to the receiver, program this location with a RESET key followed by 0 (HEX A). When this location is programmed with a 0, this report will not be extended (it will only send one report in 3/1 and 4/1). This digit must be programmed to a non zero value for 4/2 reporting. For zone trouble reporting (line 48 section PR.4) if this digit is programmed as a zero then the alarm reporting code for the troubled zone will be sent as the extended reporting code in 3/1, 4/1, 4/2 and BFSK formats.

REPROGRAM REPORTING

Reprogram reporting is used to inform the central station that the system has been remotely programmed or keypad programmed. After a successful remote program session the report code and report extended reports will be sent to the central station. If the remote program session failed after the remote programmer was allowed access to the system the restoral code and restoral extended reports will be sent. This function is programmed in section PR.4 on line 07.

RESTORAL CODE

The restoral code is the reporting digit sent after the account code in 3/1, 4/1 and BFSK restoral reporting. It is also the first reporting digit sent after the account code in 4/2 restoral reporting. It is programmed in the third data digit in section PR.4. If a report of "Zone 0" is to be sent to the receiver program this location with a RESET key followed by 0 (HEX A). When this location is programmed with a 0, restoral reporting for this report will be disabled.

RESTORAL EXTENDED

The restoral extended digit is the extended report digit sent in the second round of an extended 3/1 or 4/1 restoral report. It is also the second reporting digit sent after the account code in 4/2 reporting. It is programmed in the fourth data digit in section PR.4. If a report of "Zone 0" is to be sent to the receiver program this location with a RESET key followed by 0 (HEX A). When this location is programmed with a 0, this restoral report will not be extended (it will only send one report in 3/1 and 4/1). This digit must be programmed to a non zero value for 4/2 restoral reporting. For zone trouble restoral reporting (line 48 section PR.4) if this digit is programmed as a zero then the alarm reporting code for the restored zone will be sent as the extended restoral reporting code in 3/1, 4/1, 4/2 and BFSK formats.

SINGLE REPORT

When selected only one report may be sent in one phone call to the central station. This is setting should be used only with the oldest receivers which can receive only one report per phone call. Programmed in section PR.9 lines 75 and 76 data digit 1.

SYSTEM TROUBLE REPORT

This report will be sent to the central station when the system has detected an internal fault and is still in good enough working order to report. Programmed in section PR.4 line 51.

TONE DIALING

Tone or pulse dialing is programmed in data digit 1 of section PR.9. When programmed for tone dial, the first half of the programmed attempts will use tone dial, and the last half of the attempts will use pulse dialing. For example, if programmed for 10 attempts, then the first 5 would use tone dial and the last 5 (if needed) would use pulse dialing

USER CODE REPORTING

The control has 15 user codes.

User Codes 1 through 6 may be restricted from sending opening and closing reports by appropriately programming data digit 4 of line 81 in section PR.13.

Users code extended reporting in open, close and exception close reports may be suppressed by programming line 85 digit 2 in section PR.16.

Users code extended reporting in exception open, cancel and duress reports may be suppressed by programming line 85 digit 2 in section PR.16.

For those receivers that can only receive decimal codes program section PR.16 line 85 digit 3 to limit extended user code reporting to decimal codes. When decimal reporting is used only 10 unique users codes can be reported to the central station.

ZONE TROUBLE REPORTING

The zone number reported in a trouble report is not the physical zone number. For 4/2 reporting, the alarm report extended digit for that zone is sent as the zone number (see section PR.4 lines 31 through 35). For 3/1, 4/1 and BFSK, the alarm report code is sent as the zone number. This assures the central station sees the same zone number in alarm and trouble reports. Also see section PR.16 line 85 digit 3 if the extended reporting digit is the zone number rather than the reporting digit.

KEYPAD PROGRAMMING

ALARM HISTORY DISPLAY

If a zone alarms during an armed period, its zone light will flash. When the control is disarmed that zone light will continue flashing only until the control is armed again. If a zone displaying a flashing alarm is faulted during the disarm period, its zone light will come on steady while that zone is faulted. When that zone is restored its light will return to flashing.

When [Command/#]-[8]-[9] is pressed the zone status lights of those zones that alarmed in the last armed period that had an alarm will flash for 10 seconds. Pressing [Reset/*] while the alarm history is being displayed will clear the alarms from history and cancel the display (it will also clear the zone light from flashing during disarm).

CLOSING RINGBACK

If the control is programmed for "Phone Line (Dial Tone) Test on Arm" (section PR.13, data digit 2), a beep will sound when arming the control, but only after the dial tone is detected. If the dial tone is not detected, the control will still arm, but the beep will not sound. Simulates "closing ringback" without placing a call.

If programmed for both "Phone Line Test on Arm" and a Closing Report (section PR.5, line 56), a keypad beep will occur only after the closing report is received at the central station (Ringback). The exit delay timer will not start until the beep is heard, or a communicator failure is detected.

If so programmed (section PR.13, data digit 2), the AUX Relay (if not programmed for access control) and Alarm output will operate for two seconds at the same time that the ringback beep sounds at the keypad. If the ringback test fails, no beep or alarm sounder will be heard. A low battery condition will prevent the closing ringback from being heard.

COMMERCIAL and RESIDENTIAL MODES

The control can be programmed for Commercial or Residential mode of operation (see section PR.13 data digit 1). In the commercial mode, a User Code or a Programmer Code must be entered before any command is entered, except emergency alarms. For example to arm the system enter a users code followed by # 1. In the residential mode, the user code is used only to disarm the control and to silence alarms. Therefore, the user code is not entered before commands. For example to arm the system just enter # 1 (do not enter your users code first).

CUSTOM ARMING

Three custom arming configurations may be provided, thereby eliminating the need to do individual zone bypasses (see section PR.3).

Keys [4], [5] and [6] can be programmed to custom arm the control. When one of the these keys is programmed, it can bypass any combination of zones and override the entry delay if desired.

EMERGENCY KEYPAD ALARMS

Fire Alarm [A Key]

Pressing the [A] key for two seconds will cause a Fire alarm in all keypad modes except the Programmer mode. The report is enabled by line 30 in section PR.4. To enable the Fire alarm key [A] see section PR.16, data digit 3. Keypad Fire alarms will light the fire light and must be reset by [Command/#]-[8]-[0] the same way fire zone alarms are reset (the sounders must be silenced first).

Panic Alarm [B Key]

Pressing the [B] key for two seconds will cause a Panic alarm in all keypad modes except the Programmer mode. The report is enabled by line 46 in section PR.4. To enable the Panic alarm key [B] program section PR.13, data digit 4. For silent keypad panic see section PR.13 data digit 1.

Silent Alarm [C Key]

Pressing the [C] key for two seconds will cause a silent alarm in all keypad modes except the Programmer mode. The report and [C] key are enabled by programming line 45 in section PR.4.

FORCE ARM

If any of the red zone status lights are on steady when an arming command is entered, the control may be force armed. To enable force arming, program section PR.13, data digit 3 with the number of zones that may be force armed. If programmed to zero, force arming is disabled. Force arming is also disallowed if one of the violated zones is programmed as a non-bypassable zone (section PR.1 data digit 3). When force arming is allowed, and an arming command is entered with any of the red zone status lights on steady, the keypad beeper will sound for five seconds. If the [Bypass/9] key is pressed during the five second beep, the control will be forced armed. Otherwise the control will not arm. If the control is programmed to report exception closing (section PR.5, line 53), then a trouble report will be issued for each zone bypassed, followed by a closing report.

If swinger shunting is off (section PR.13, data digit 1), then the force armed zones are truly bypassed and will not restore even if they return to normal. If swinger shunt is programmed "on", then the force armed zones are not bypassed and will restore if they return to normal and are programmed to restore (section PR.1, data digit 3).

OCCUPIED (interior bypass) ARMING

The control may be armed by [Command/#]-[2] to bypass the interior and place the control in instant so no one may enter. Arming by [Command/#]-[3] also bypasses the interior but leaves the entry delay in place so anyone with a valid users code may enter. If these arming modes are not desired they may be disabled in data digit 2 of line 85.

SWINGER SHUNT

Swinger shunt is intended to reduce central station traffic from burglar zone "swingers". If a zone is programmed for restoral (section PR.1 data digit 3), and swinger shunt is on (section PR.13 data digit 1), that zone will restore only two times. On the third and last time that this zone reports an alarm, a trouble report is sent in the same phone call indicating that the zone is now in "swinger shunt" and will not report again until the control is disarmed.

NOTE for FORCE ARMING: If swinger shunting is off (section PR.13 data digit 1), then force armed zones are truly bypassed, and will not restore even if they return to normal. If swinger shunt is programmed "on", then the force armed zones are not bypassed, and will restore if they return to normal and are programmed to restore (section PR.1 data digit 3).

TROUBLE DISPLAY

Control problems are indicated by a pulsing green Power indicator light.

To display the problems, enter [Command/#]–[8]–[7], and observe the zone lights. The display will last for ten seconds. Entering [Command/#]–[8]–[7] when there are no control problems will cause the three beep error tone to sound.

Light 1 = AC power failure. *To arm without AC, enter the arming sequence then press [Bypass/9].*

Light 2 = Battery problem. Missing or low voltage. If system has just been through a power failure, wait at least two hours for the battery to begin recharging to full potential, then enter the Battery Test command

Light 3 = Communicator failed to communicate.

Light 4 = AUX power shorted.

Light 5 = Internal system fault (EEPROM).
Fire Light = Internal system fault (EPROM, RAM).

TROUBLE RESET

After the problems have been corrected, the flashing power light may be reset by first entering [Command/#]–[8]–[7], then pressing [Reset/*] while the problems are being displayed.

ZONE PROGRAMMING

DAY MONITOR

If a zone is programmed for day monitor (section PR.1, data digit 2), any violation of that zone while the control is disarmed will cause the keypad beepers to sound continuously. While the alarm is sounding that zone's light will flash indicating the day monitor alarm. The keypad beepers can only be silenced by entering a valid disarm user code, which will also stop the zone light from flashing. No central station report will be made for a day monitor violation. Day monitor alarms are placed in the alarm history display.

ENTRY and EXIT DELAYS

When a zone is programmed as an entry/exit delay zone, it's entry delay time is programmed in line 66. The exit delay is programmed in line 65. If that zone is also programmed for auxiliary entry delay (section PR.1, data digit 4), that zone's entry delay will be programmed in line 64 (the entry delay setting in line 66 will not be used for this zone).

INVISIBLE ZONE

When a zone is programmed invisible, there is **no** outward indication that this zone is faulted. The zone is silent, and even the red zone light on the keypad gives no indication that this zone is faulted. This feature is programmed in section PR.1, data digit 1. It is intended for use on money clips and other similar applications.

KEYSWITCH ZONE

One zone may be programmed in section PR.1 for keyswitch arming. The keyswitch contacts are wired into that zone's input. **When a keyswitch is programmed no keypads may be used in the system.** The keyswitch must be momentary, and must short the zone lines together. The keyswitch zone is end-of-line supervised, and opening (cutting) the loop results in a trouble while the system is disarmed and an alarm when the system is armed. This allows the keyswitch to be tampered by a separate switch that opens the loop. Key switches can't be used on UL systems. If line 23 is programmed the keyswitch will arm bypassing those zones programmed.

When keyswitch arming is programmed, terminal 13 will provide a ground for the green status light and terminal 14 will provide a ground for the red armed status light on the keyswitch plate. The other side of the lights must be wired to AUX power. Remember to provide a dropping resistor for the LEDs (1000 ohms minimum). The keyswitch light connections must be removed when a keypad is added to the control for programming. To enter the keypad programming mode, after connecting a keypad to the system, short the program pads together on the lower right of the control board. If the keypad programming mode is exited the keypad will not respond, short the program pads to re-enter the keypad program mode if desired.

SPECIAL AREA PROTECTION

Any compliment of zones may be programmed as a special area (section PR.1 data digit 3). When one or more zones are programmed as special area zones, only users codes 11 through 15 may bypass or disarm the special area.

The control must be in the commercial mode (section PR.13 data digit 1) for this feature to function properly. This requires the user code to be entered before all keypad commands are issued.

One of the special arming keys [4], [5] or [6] should also be programmed (section PR.3) to bypass all zones except the special area zones. Bypassed zones must also include zones that are permanently shunted. When programmed to arm the special area, only a special area user will be allowed to enter the command and engage special area protection (it will not bypass the indicated zones).

Any user code may arm the control using [Command/#]-[1] arming and all protection including the special area is armed. The keypad indicator lights will follow their normal pattern, red ARMED light flashing for the exit delay, yellow PARTIAL light off and the yellow ALERT light off.

If a non-special area user (codes 1 through 10) disarms the control, the red ARMED light will go off, the yellow PARTIAL light will be off, and the zone lights will start following the current zone status. The yellow ALERT light will start flashing to indicate that the special area is still armed. Any violation of the special area at this point will cause an alarm.

When a special area user (codes 11 through 15) enters the building, they should enter their user code which would remove the special area protection and stop the yellow ALERT light from flashing.

If the special area user desires to rearm the special area without rearming the entire control, they would use the special arming key 4, 5, or 6 sequence programmed above. This will start the yellow ALERT light flashing, and arm the special area protection zones.

The zone alarm response (section PR.1 data digit 1) can be programmed to any desired response. Often, it is programmed to sound the keypad beepers only when disarmed (red ARMED status light off), and the siren when the entire control is armed (red ARMED status light on).

If a special area zone is programmed as interior it will not be bypassed by [Command/#]-[2] or [Command/#]-[3] arming.

A special area zone MUST NOT be programmed as a delay zone!

TROUBLE (BURGLAR ZONE)

A zone may be programmed to monitor for zone loop problems or tamper (section PR.4 line 48 and section PR.1 data digit 4). In this mode of operation, non-24 hour zones report trouble only when the loop opens and the control is disarmed. During armed periods, an alarm is generated on either an open or shorted loop condition. For 24 hour zones trouble is reported anytime the loop opens whether the control is armed or disarmed. An alarm is generated anytime the loop is shorted .

The zone number reported in a trouble report is not the physical zone number. For 4/2 reporting, the alarm report extended digit for that zone is sent as the zone number (see section PR.4 lines 31 through 35). For 3/1, 4/1 and BFSK, the alarm report code is sent as the zone number. This assures the central station sees the same zone number in alarm and trouble reports. Also see section PR.16 line 85 digit 3 if the extended reporting digit is the zone number rather than the reporting digit.

ZONE RESTORAL

When a zone restores (returns to normal) from alarm or troubl,e the zone restoral report (section PR.4 data digits 3 and 4) will be sent. The zone restoral may be programmed in section PR.16 line 85, to occur when the zone restores or when the alarm sounders silence (to reduce reporting traffic).

ZONE VERIFICATION

Any combination of zones may be programmed to be verified in section PR.2. If programmed for zone verification the system will be placed in one of the two modes below:

Background Test Mode: Each programmed zone is monitored for at least one violation during this disarm period. Zones which have not been violated will be displayed as rapidly flashing zone lights (for 10 seconds) and a three beep error tone will be heard, when an arming command is entered. The Control may not be armed until the User then causes a violation in each of the previously unviolated zones.

This test will be disabled if the control is armed within one hour from the time it was disarmed. This allows someone to enter the building after hours for a short time without having to walk all of the protection.

Mandatory Walk Test Mode: When arming, enter the arming sequence. The red zone status lights for the zones programmed above will flash rapidly and the control will not arm. All the zones that are flashing must be violated now (within 10 minutes). As a zone is violated its zone light will return to normal operation. After all the programmed zones are violated the arming sequence must be entered again within 10 minutes. The control will then arm normally. If either of the 10 minute timers time out or any other keypad sequence is entered, the process must be repeated.

Users may bypass the verified zones in either mode above, but not force arm. This causes an Exception Close report to be reported (a trouble report, for each zone bypassed, followed by a close report. See section PR.5 line 55).

FIRE ALARM

If a Fire alarm occurs, then the FIRE light on the keypads will flash. The system sounders can be silenced by entering a valid user code. The FIRE light will continue to flash. Entering [Command/#]-[8]-[0] will reset the alarm light on the smoke detector, and cancel the flashing FIRE light. The system sounders must be silenced using a valid user code before the fire reset command will work. If the fire zone has not been reset the control must be force armed.

FIRE TROUBLE

A fire trouble signal will be sounded if a break occurs in the fire loop or a smoke detector is removed. When a fire trouble occurs, then the keypads FIRE light will come on continuously. The keypad beepers will sound a short beep every five seconds. The beepers can be silenced by entering a valid user code. The FIRE light will continue to display. This display can be cancelled only by correcting the cause of the fire trouble, and then entering a valid users code.

REMOTE PROGRAMMING

The control is remotely programmable. The remote programmer may change all programming and monitor the state of and bypass zones. The control may be armed and disarmed and the state of all outputs and troubles are monitored. The control may be remotely programmed by the CP7000 IBM PC software.

PHONE LINE ANSWERING

The control may be programmed to answer the phone line when it is armed and/or when it is disarmed. The answer ring count can be set for a different number of rings, armed and disarmed. The number of rings is programmed in section PR.11 on line 79 digits 3 and 4.

Even if you are not planning to use a remote programmer now, you may desire to program line 79 to 0099 so that the control will answer the phone. This allows remote programming to be used in the future without a trip to the job site. This will set the panel to answer the phone after 14 rings (1 minute and 24 seconds).

The control can be forced to seize the phone line by pressing [COMMAND #]-[8]-[6] on its keypad. This is useful if the control is not programmed to answer the phone or if you are already talking to the operator of the remote programmer on the control's phone line. This feature also allows direct connection to the remote programmer without a phone line for bench programming.

ANSWERING MACHINE OVERRIDE

If the control is programmed to answer the phone line then answering machine override is automatically enabled. If an answering machine answers the phone before the control, hang up and call the control back. If the control detects the phone line ringing within one minute of when the last ringing cycle stopped then it will answer on the first ring and seize the phone line. To disable answering machine override in commercial accounts set section PR.11 data digit 4 to answer the phone on 12 rings while disarmed.

ARMING STATUS PHONE TEST

The control may be programmed to answer the phone in line 79 of section PR.11 (even if remote programming is not used). If the number of rings at which the control answers is different for arm and disarm states by at least two, then it is possible to call the control's phone number and count the rings before it answers to see if the control is armed or disarmed.

REMOTE AGENCY CODES AND PASSWORDS

There are 10 HEXadecimal digits for passcodes to gain remote entry to a control (5 digits of agency code and 5 digits of remote password). The remote programmer must give the correct 10 digit passcode when it contacts a control or the control will hang-up immediately without allowing access.

When the control is shipped or the EEPROM is reset to initial conditions the agency code and remote password are made wildcards. This means that the first time a control is called from a remote programmer any agency code and remote password is accepted and access will be granted. The control will retain the agency code and remote password that it was given on that first access and that code must be given on all future calls or access will be denied.

The agency code and remote password can not be viewed or changed from keypad programming except if the entire EEPROM is reset to initial conditions.

CALLING THE REMOTE PROGRAMMER

There is a third phone number in the control to allow the control to call the remote programmer (see section PR.7 line 77). This phone number should be programmed with the phone number of the remote programmer. In order for the remote programmer to identify the panel calling in, phone number 1 (line 71 section PR.7) and account number 1 (line 73 section PR.8) must be programmed.

When the third phone number is programmed, pressing [COMMAND #]-[8]-[3] on the keypad instructs the control to call the remote programmer. This covers those cases where the programming has been changed at the keypad and those changes are to be recorded in the remote programmer.

Callback is a feature that increases the security of remote access by having the panel hang-up on the remote programmer before granting access and calling the remote programmer back on a preprogrammed (third) phone number. This allows only the remote programmer at the central station to be used to program this panel. It has the further advantage of charging the cost of a toll call to the customer, since the longer second phone call will be originated by the panel.

The disadvantages of callback are that the panel can only be programmed from one phone number which prevents hand held and other portable remote programmers from being used to assist in closing or for after hours support. A further disadvantage is that the operator must not only wait for the initial call to be setup and answered by the panel but must also wait the time required for the panel to hang up and call back.

The control optionally supports callback on an individual panel basis by programming line 79 digit 2 of section PR.11. Phone number 1 (line 71 section PR.7) and account number 1 (line 73 section PR.8) must also be programmed.

The remote programmer can be set to modify the control's EEPROM programming when the control calls in. The remote programmer doesn't have to be attended for this to occur. This allows you to modify the control's programming without having to waste an operators time establishing a phone connection and waiting for the download to occur.

ANTI-TAKEOVER

From the remote programmer the control can be programmed to lockout all keypad programming or to only prevent the changing of the three phone numbers and the resetting of the EEPROM programming. This prevents someone from taking over one of your accounts and using the panel in place. This data can be changed by the remote programmer only if you know the agency code and remote password.

AUTOMATIC DIALOUT

To support unattended remote programming and history buffer transfer the 7090TM can automatically call the remote programmer on a programmed time of day and day of week. This allows the Remote Programming software to generate open and closing and other custom reports that can reduce your central station costs.

To support automatic dialout the following must be programmed:

- The third phone number, section PR.7 line 77.
- The automatic history report time, section PR.10 line 78.
- The reporting day of the week, section PR.11 line 79.
- Phone number 1, section PR. 7 line 71.
- Account number 1, section PR.8 line 73.

When the above items are programmed the 7090TM will automatically callout to the remote programmer at the programmed time and day. Should communications fail to be established after 6 attempts the panel will wait for one hour and try again, one time per hour, until it is successful. When this feature is enabled the panel will also call out when an AC power failure has lowered the battery to the point of a low battery report or when 70 unreported events are recorded in the 96 event history buffer.

If the third phone number and reporting day of the week are programmed but the time of day is not programmed, then the panel will only call out on a low battery report with AC power fail, or when 70 unreported events are recorded in the 96 event history buffer. The disadvantage of this mode is that the remote programmer must be left on line all the time in automatic answer mode waiting for unscheduled calls. Also if weekly open and close custom reports are to be generated the the data may not have been automatically transferred to the remote programmer in time to print the custom report.

The remote programmer can be set to modify the 7090TM's EEPROM programming when the 7090TM calls in. The remote programmer doesn't have to be attended for this to occur (the remote programmer must be left on its login screen for auto answer). This allows you to modify the 7090TM's programming without having to waste an operators time establishing a phone connection and waiting for the download to occur.

CONTROL TESTING

BATTERY TEST

The battery is automatically load tested every 24 hours. By entering [Command/#]–[8]–[5] the battery is tested with the alarm sounder load. Entering [Command/#]–[8]–[0] will test the battery without the sounders sounding. If the green Power indicator light continues to flash the battery is low. See Trouble Display in the Keypad Programming section.

SYSTEM TEST

The control board and memory as well as AUX power and AC power are automatically tested continuously. If a problem is found the green Power indicator light will flash. See Trouble Display in the Keypad Programming section.

ZONE TEST also Voltmeter and Phone Line Test

To test the zones, enter [Command/#]–[8]–[1]. The Zone Test is used to assure detectors connected to a zone will report an alarm to the control. While in Zone Test, the yellow *Partial* and red *Armed* lights will pulse on and off together.

Each time the *Zone Test* sequence is entered, all the zone lights will flash. As each zone is tested that zone's light will come on continuously. When the zone is restored then its zone light will go out.

While in Zone Test, *all* keypad sounders will turn *ON* continuously while any zone is alarmed.

Zone Test works on all burglary areas. However, the Fire zone is not affected, and will function normally. While in Zone Test, no Control alarms will occur with the exception of a fire alarm which will override the Zone Test function.

While in the zone test mode pressing and holding a key will cause the zone lights to act as a **voltmeter** as follows:

1 = Zone 1	Light 1 = 0 to 1 volt (Zone shorted)
2 = Zone 2	Light 2 = 1 to 2 volts
3 = Zone 3	Light 3 = 2 to 3 volts (Zone supervised)
4 = Zone 4	Light 4 = 3 to 4 volts
5 = Zone 5	Light 5 = 4 to 5 volts (Zone open)

Pressing the 6 key will test the Fire Zone. If lights 1 or 2 light the voltage is too low (trouble). Light 3 indicates a properly supervised Fire zone. Light 4 indicates a Fire zone between alarm and supervision (problem). An alarm is indicated by light 5.

	Light 1 = 9 to 10 volts
7 = AUX power	Light 2 = 10 to 11 volts
8 = Battery	Light 3 = 11 to 12 volts (Battery Low)
	Light 4 = 12 to 13 volts (Battery OK)
	Light 5 = 13 to 14 volts (AUX power OK)

Pressing the 9 key will cause the control to seize the **phone line** and test for dialtone. The 5 light will come on until dialtone is detected and then all of the zone lights will come on. If dialtone is not detected all of the zone lights will not come on.

To exit the Zone Test mode, press [Reset/*].

FCC COMPLIANCE NOTICE

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

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

CANADIAN DEPARTMENT OF COMMUNICATIONS

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

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

FCC PHONE CONNECTION NOTICE TO USERS

This control complies with Part 68 of the FCC rules.

On the inside of the enclosure is a label that contains, among other information, the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment. You must, upon request, provide this information to your local telephone company.

The REN is useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company to determine the maximum REN for your local calling area.

This equipment may not be used on coin service provided by the telephone company. This control should not be connected to party lines.

Should this equipment cause harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, they will notify you in advance. But if advanced notice isn't practical, you will be notified as soon as possible. You will be informed of your right to file a complaint with the FCC. The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. If they do, you will be notified in advance to give you an opportunity to maintain uninterrupted telephone service.

If you experience trouble with this equipment, please contact the manufacturer for information on obtaining service or repairs.

The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning. The repairs to this equipment must be made by manufacturer and not by the user.

To guard against accidental disconnection, there is ample room to mount the Telco jack to the inside of the Control cabinet.

The operation of this Control may also be affected if events such as accidents or acts of God cause an interruption in telephone service.

SMOKE DETECTOR PLACEMENT

Proper location of detection devices is one of the most critical factors in a properly installed and operating fire alarm system. For best results, the detectors should be located in accordance with National Fire Protection Association (NFPA) recommendations. For commercial or industrial installations, refer to NFPA Standard 72E "Automatic Fire Detectors". When considering the detectors for residential applications, refer to NFPA Standard 74, "Household Fire Warning Equipment". These standards are available at a nominal cost from: The National Fire Protection Association, Batterymarch Park, Quincy, MA., 02269.

In all installations, good engineering judgement should prevail. Following are some general considerations:

√ Smoke detectors should not be installed close to ventilating or air-conditioning outlets where smoke might be circulated away from the detector. Locations near return air inlets should be favored.

√ Avoid areas subject to normal smoke concentrations such as kitchens, near fireplaces, and in garages.

√ Do not install smoke detectors where normal ambient temperatures are above 100 degrees F. (38 degrees C.) or below 32 degrees F. (0 degrees C.), nor in "dead air" spaces. Areas of high humidity and dust concentrations should also be avoided.

√ The nearest edge of ceiling mounted detectors should not be closer than 4 inches (10 cm) from any wall.

√ Locate the top edge of wall mounted detectors between 4 and 12 inches (10 to 30 cm) from the ceiling.

For residential installations, the following is a Basic Requirement excerpt from NFPA Standard 74:

2-1 Required Protection

2-1.1 This standard requires the following detectors within the family living unit.

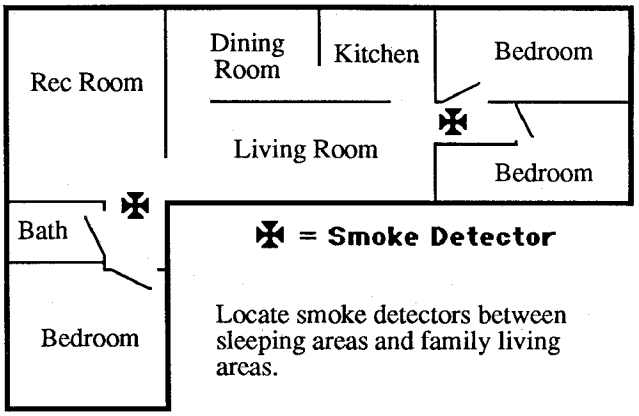
2-1.1.1 Smoke detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family living unit including basements and excluding crawl spaces and unfinished attics.*

2-1.1.2 For family living units with one or more split levels (i.e., adjacent levels with less than one full story separation between levels), a smoke detector required by 2-1.1.1 shall suffice for an adjacent lower level, including basements.

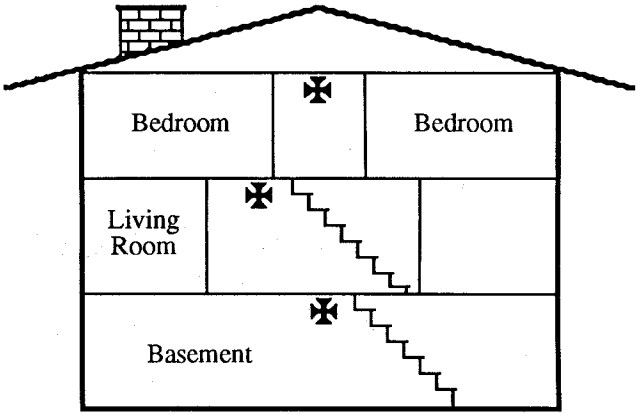
Exception: Where there is an intervening door between one level and the adjacent lower level, a smoke detector shall be installed on the lower level.

* The provisions of 2-1.1.1 represent the minimum number of detectors required by this standard. It is recommended that the householder consider the use of additional smoke or heat detectors for increased protection for those areas separated by a door from the areas protected by the required smoke detectors under 2-1.1.1 above. The recommended additional areas are: living room, dining room, bedroom(s), kitchen, attic (finished or unfinished), furnace room, utility room, basement, integral or attached garage, and hallways not covered under 2-1.1.1 above. However, the use of additional detectors remain the option of the householder.

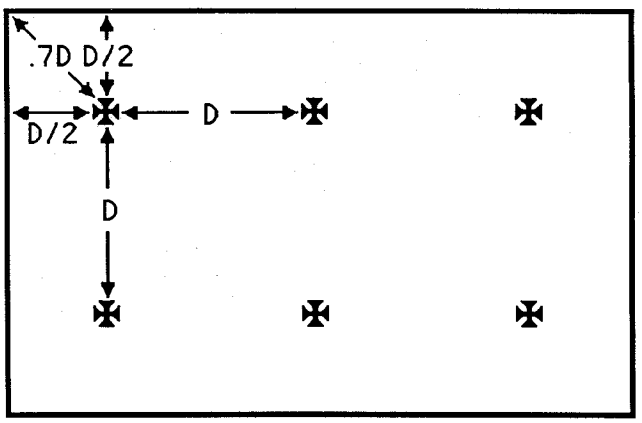
End of excerpt from NFPA Standard 74.



Locate smoke detectors between sleeping areas and family living areas.



A smoke detector should be located on each story including basements, but excluding crawl spaces and unfinished attics.



Commercial Installations:
Smooth ceiling application where D=30 feet (9m) may be used as a guide as required by NFPA 72E.

PROGRAMMING MODE

The Program Mode may be activated by entering the program mode entry code at any keypad. Also shorting the *Program Mode Entry* contactor (located on the control unit's circuit board) for two (2) seconds will enter the program mode. The contactor serves the purpose of allowing direct entry into the Program Mode in the event the programmer code is lost, and the control requires reprogramming.

The Program Mode may be activated by keypad entry only when the control is *disarmed.* However, the *Program Mode Entry* contactor allows the mode to be activated when the control is *armed or disarmed.*

While in the Program Mode, the 5-second timer for keypad entries is disabled. However, if no keys are pressed for four (4) minutes, the three beep error tone will sound and the control will exit the Program Mode to the disarmed state. The 4-minute timeout is the only timer running in the Program Mode.

During the time the unit is in the Program Mode, the control will remain in an inactive state (complete disarm), *and will process no alarms including fire alarms.* When the Program Mode is exited, the control will return to the normal disarm state regardless if the Program Mode was activated when the control was armed or disarmed.

When the Program Mode is successfully entered, a long beep will sound and the keypad lights will alternately flash indicating the control is in the program mode.

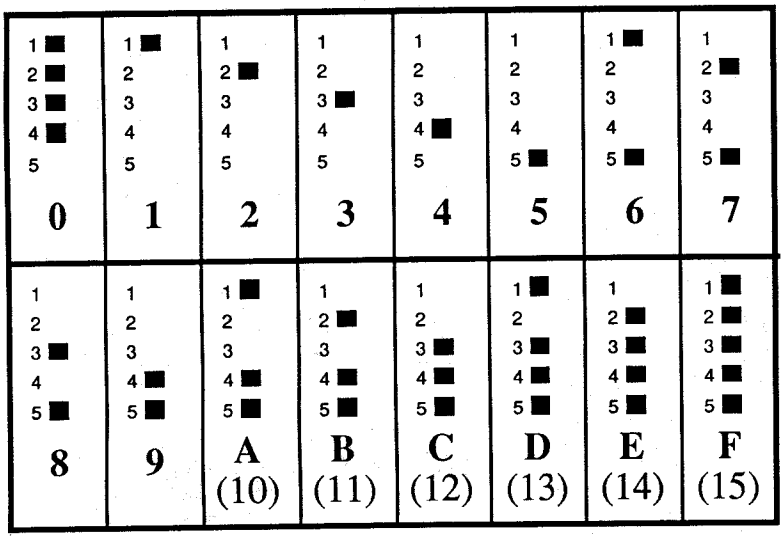
At this time, a function, zone, etc., may be programmed by entering the 2-digit ***Line Number*** followed by the exact number of data entries, then terminated by [Command/#].

If the completed entry sequence is accepted by the control, a long beep will sound, and the program data will be recorded in memory. If an error is made (bad line number, bad data value, or wrong number of data values), the three beep error tone will sound and the existing data in memory will not be changed.

After the long acceptance beep or three beep error tone is sounded, the keypad lights will alternately flash and the control is ready to accept the next entry.

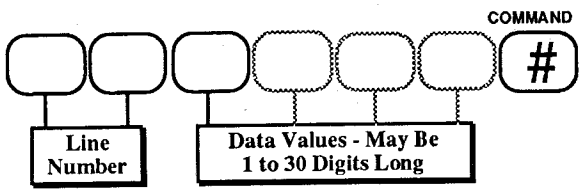
Pressing [Reset/*] at any time in the Program Mode will cause the three beep error tone to sound, and cancels any entry sequence in progress. Exceptions to this general rule are noted in the Phone Number and Account Code programs.

To cancel the Program Mode, press the [Reset/*] key for two (2) seconds, then release. The three beep error tone will sound when the key is first depressed, followed by a long acceptance beep when the key is released. When the Program Mode is successfully cancelled, the indicator lights will return to normal operation and the control will return to the disarm state. If ALPHA data has been just changed at a ALPHA keypad the program mode will not cancel until the ALPHA transfer has completed.



Shown to the left are the representations for all sixteen values that will be displayed in the keypad lights to program and read back the data in the control.

BASIC FORMAT FOR PROGRAMMING ENTRIES



All programming entries will follow the same basic format. It may help to think of the entry sequence as consisting of three blocks of information; Line Number, Data values, and sequence terminator.

The **Line Number** will always consist of the first two (2) digits of the sequence. These two digits are actually telling the control which data items to reprogram.

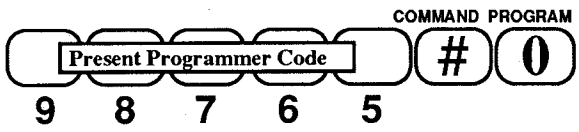
Next the new data to be programmed into that line number of the control is entered. Depending on the line number the data entries may be from 1 to 30 digits long.

The last digit of the sequence is the [Command/#] terminator which tells the control that input has ended, and to execute the change if valid.

KEY SWITCH SYSTEM PROGRAMMING

The keyswitch light connections must be removed when a keypad is added to the control for programming. To enter the keypad programming mode, after connecting a keypad to the system, short the program pads together on the lower right of the control board. If the keypad programming mode is exited the keypad will not respond, short the program pads to re-enter the keypad program mode if desired.

ACTIVATE THE PROGRAM MODE

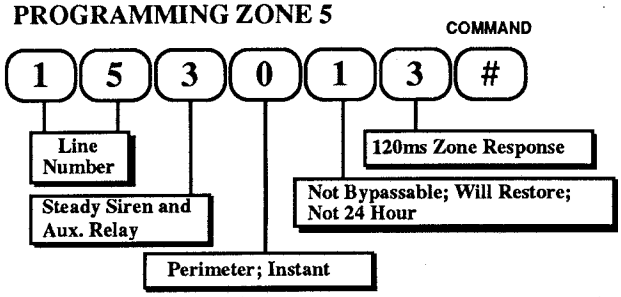


To activate the Programmer Mode, either short the Program Mode Entry contactor located on the Control Unit's circuit board for two seconds, or enter the present programmers code at a keypad, followed by [Command/#]–[Program/0].

For the example at the left, we are still using the 5-digit *factory pre-set* programmers code 9 8 7 6 5, and the entry sequence at a keypad is then [9]–[8]–[7]–[6]–[5]–[Command/#]–[Program/0]. Remember that the control must be *disarmed* when activating the Program Mode via a keypad.

If the Program Mode has been entered successfully, a long beep will sound and the keypad lights will alternately flash.

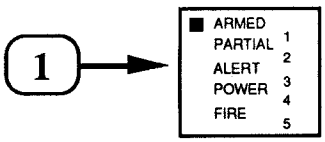
PROGRAMMING ZONE 5



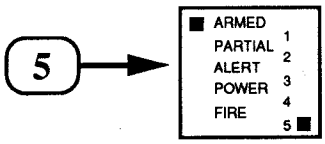
We wish to program zone 5 to perform within the following parameters: (See zone programming section PR.1)

- Provide a steady siren and steady Auxiliary output upon alarm
- Function as a perimeter zone with instant alarm
- Can *not* be bypassed
- Follow control's arm and disarm state; not a "24 Hour" zone
- Respond when zone is violated for any time greater than 120 milli-seconds.

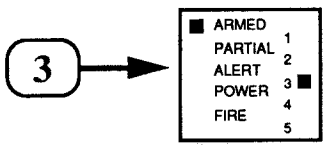
The example to the left shows the proper entry sequence to achieve the zone response we are looking for in the example above.



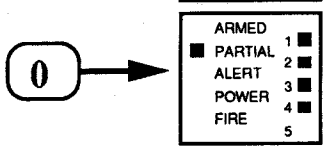
The first key pressed represents the first digit of the 2-digit *Line Number*. The first digit will appear in the left column of keypad lights.



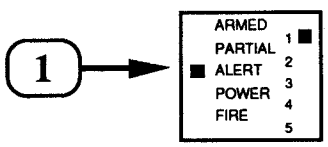
The second digit will appear in the right column of keypad lights, now both digits of the Line Number are displayed.



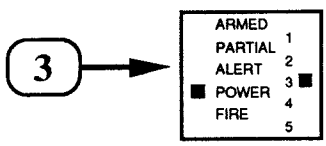
The third digit entered is the start of the data values. When entered, the line number will be replaced in the left column of lights by the representation for the number 1, which is the count of data entries (data digit number). The representation for the number 3, appears in the right column of lights, is the value of the key just pressed (the new data digit value to be programmed).



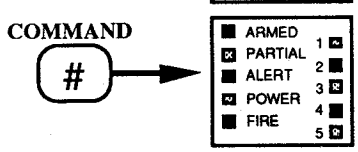
When the next key is pressed, the left column of lights advances to the representation for the number 2 to indicate the second data digit has been entered, while the right column of lights displays the value of the key just entered (a zero which will be stored in data digit two).



A one is entered as data digit 3.



A three is entered as data digit 4.



The [Command/#] key is now pressed to end the input sequence. At that time, the sounder should indicate a long beep verifying that the control has accepted the input sequence, and the keypad lights will display the alternating pattern to indicate that the control is ready for the next programming input sequence. If a three beep tone is heard the programming changes were not accepted.

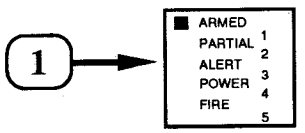
PROGRAM DATA READ BACK

Program data information can be read back for verification at any time while in the Program Mode.

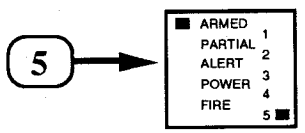
Starting with the keypad in the alternating light display, first enter only the 2-digit Line Number for the data that you wish to read back. As the line number is entered, the first digits representation will be displayed in the left column of lights and the second digit of the line number will be displayed in the right column of lights.

Rather than enter data at this point press the [Command/#] key. The first time the [Command/#] key is pressed, the left column of lights will display the representation of 1, the current data digit count. The value stored in the control in data digit 1 will be displayed in the right column of lights. From that point, continue to momentarily press the [Command/#] key to display all the data values stored in program memory.

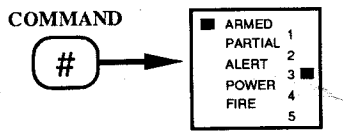
The three beep error tone will be heard and the display will return to the alternating light pattern when the [Command/#] key is pressed and there are no more data values to be displayed at this line number.



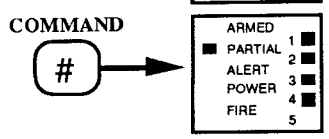
The example to the left shows the read-back verification for the example used on the previous page. Enter 1 as the first digit of the line number.



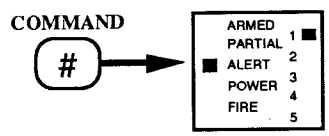
Next enter 5 as the second digit of the line number.



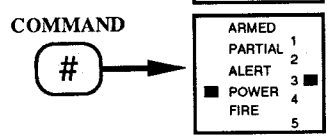
Pressing the [Command/#] key will replace the line number with a display indicating that the first data digit is a 3.



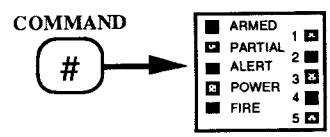
Pressing the [Command/#] key a second time displays the second data digit, which is a zero (0).



Pressing the [Command/#] key a third time displays the third data digit, which is a one (1).



Pressing the [Command/#] key a fourth time displays the fourth data digit, which is a three (3).



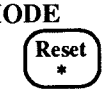
Pressing the [Command/#] one more time will return the display to the alternating light pattern indicating the control is ready for another input sequence.

NOTE: *After entering the Line Number and pressing the [Command/#] the first time, entering any other key but the [Command/#] key will cause the three beep error tone, and the keypad lights will return to the alternating light pattern.* The program being displayed will not change, and the control is ready for the next input.

FACTORY DEFAULT PROGRAMMING

To reset the EEPROM memory to factory defaults enter [8]-[3]-[9]-[Command]. The keypad beeper will come on continuously. Short the PROGRAM contacts on the lower right of the control board and the beeper will stop. When the flashing display returns, the EEPROM has been returned to the factory default programming, shown on the programming sheet on the back page of this manual.

CANCEL THE PROGRAM MODE



DEPRESS AND HOLD FOR TWO SECONDS

To cancel the Program Mode, press the [Reset/*] key for two (2) seconds, a three beep tone will sound. Wait for the three beep tone to stop then release the [Reset/*] key. A long beep will be heard after the key is released. This signals cancellation of the Program Mode, and the control will return to the disarm state.

PR.1 ZONE PROGRAMMING

COMMAND #

Line Number:

11 = Zone 1 (default 1200 entry/exit)
12 = Zone 2 (default 1000 perimeter)
13 = Zone 3 (default 1000 perimeter)
14 = Zone 4 (default 1000 perimeter)
15 = Zone 5 (default 1200 interior)

Data Digit 1:

0 = Silent
1 = Steady Alarm and Sounder; Aux. Relay no change
2 = Steady Aux. Relay and Sounder; Alarm no change
3 = Steady Alarm, Sounder and Aux. Relay
4 = Steady Alarm- Armed; Pulsed Sounder- Disarmed
5 = Pulsed Alarm and Sounder; Aux. Relay no change
6 = Pulsed Aux. Relay and Sounder; Alarm no change
7 = Pulsed Alarm, Sounder and Aux. Relay
8 = Invisible Zone; Silent and No Display
9 = Silent, but Steady Alarm on Communicator Failure

Data Digit 2:

0 = Perimeter Instant Zone, no Day Monitor
1 = Interior Instant Zone, no Day Monitor
2 = Entry/Exit Delay Zone, no Day Monitor
3 = Interior Entry/Exit Delay Follower Zone, no Day Monitor
4 = Perimeter Instant Zone with Day Monitor
5 = Interior Instant Zone with Day Monitor
6 = Entry/Exit Delay Zone with Day Monitor
7 = Interior Entry/Exit Delay Follower Zone with Day Monitor
8 = Entry/Exit Delay Zone on Circuit Open, but Perimeter Instant on Circuit Short
9 = Interior Delay Follower Zone on Circuit Open, but Instant on Circuit Short

Data Digit 3:

0 = Bypassable;	Will Restore;	Not 24 Hour
1 = Not Bypassable;	Will Restore;	Not 24 Hour
2 = Bypassable;	Will *not* Restore;	Not 24 Hour
3 = Not Bypassable;	Will *not* restore;	Not 24 Hour
4 = Bypassable;	Will Restore;	24 Hour
5 = Not Bypassable;	Will Restore;	24 Hour
6 = Bypassable;	Will *not* Restore;	24 Hour
7 = Not Bypassable;	Will *not* restore;	24 Hour

8 = Bypassable only by User Codes 1 and 2; Will Restore; 24 Hour
9 = Special area zone

Data Digit 4:

0 = 600 msec Zone Response; No Trouble
1 = 120 msec Zone Response; No Trouble
2 = 600 msec; No Trouble; Aux Entry Delay
3 = 120 msec; No Trouble; Aux Entry Delay
4 = 600 msec Zone Response; Trouble
5 = 120 msec Zone Response; Trouble
6 = 600 msec; Trouble; Aux Entry Delay
7 = 120 msec; Trouble; Aux Entry Delay
8 = Arm/Disarm Keyswitch Input
9 = Permanent Shunt

No Trouble = Alarm on Circuit Short or Open; No Trouble Indication.

Trouble on non 24 hour zones = alarm on short or open when armed; trouble on open only when disarmed. 24 hour zones = alarm on circuit short; trouble on open, armed or disarmed.

Aux Entry Delay = Use auxiliary entry delay on this zone. See program line 64.

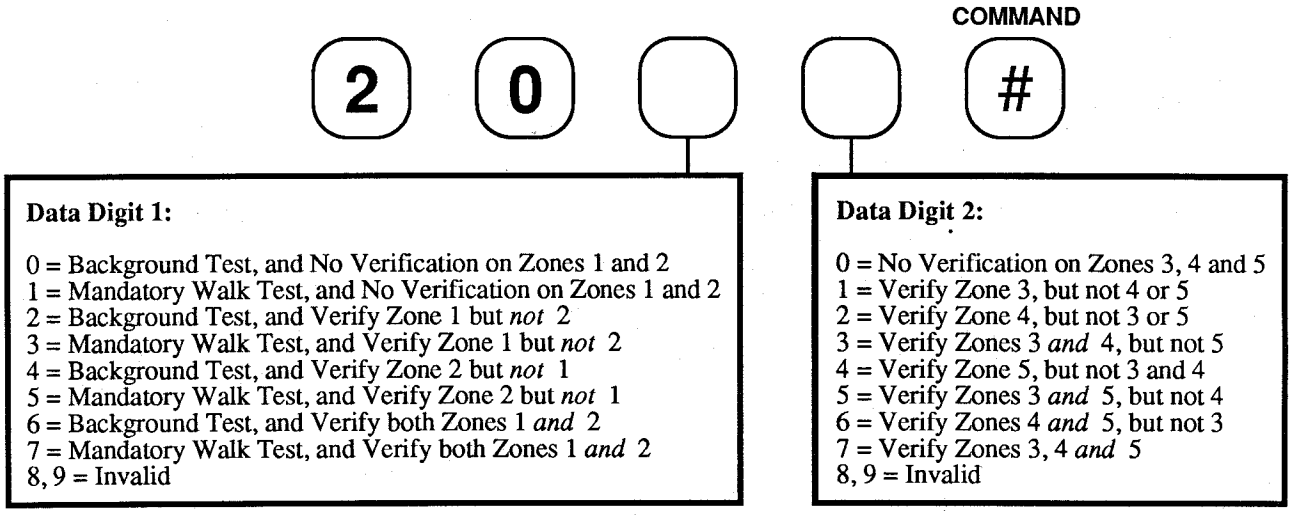
Arm/Disarm Keyswitch input not to be used on UL installations.

RECOMMENDED ZONE PROGRAMMING

		Restoral No trouble	Restoral Trouble	No restoral No trouble	No restoral Trouble
Perimeter:	Entry/exit - no day monitor	1200	1204	1220	1224
	with day monitor	1600	1604	1620	1624
	Instant - no day monitor	1000	1004	1020	1024
	with day monitor	1400	1404	1420	1424
	Entry/exit on open, instant on short	1800	1804	1820	1824
Interior:	Delay - no day monitor	1300	1304	1320	1324
	with day monitor	1700	1704	1720	1724
	Instant - no day monitor	1100	1104	1120	1124
	with day monitor	1500	1504	1520	1524
	Delay on open, instant on short	1900	1904	1920	1924
24 Hour zones:	Panic (silent)	0050	0054	0070	0074
	Panic (invisible)	8050	8054	8070	8074
	Panic (loud)	1050	1054	1070	1074
Keyswitch:	silent tamper alarm	0008			
	loud tamper alarm	1008			
Permanent shunt	0009				
Special area zone	4090				

The above codes will sound a steady alarm output, to change the output, substitute the digit one codes above for the first digit.

PR.2 ZONE VERIFICATION PROGRAMMING Default 00, zone verification disabled



Background Test:

When programmed above each zone is monitored for at least one violation during this disarm period. Zones which have not been violated will be displayed as rapidly flashing zone lights (for 10 seconds) and a three beep error tone will be heard, when an arming command is entered. The Control may not be armed until the User then causes a violation in each of the previously unviolated zones.

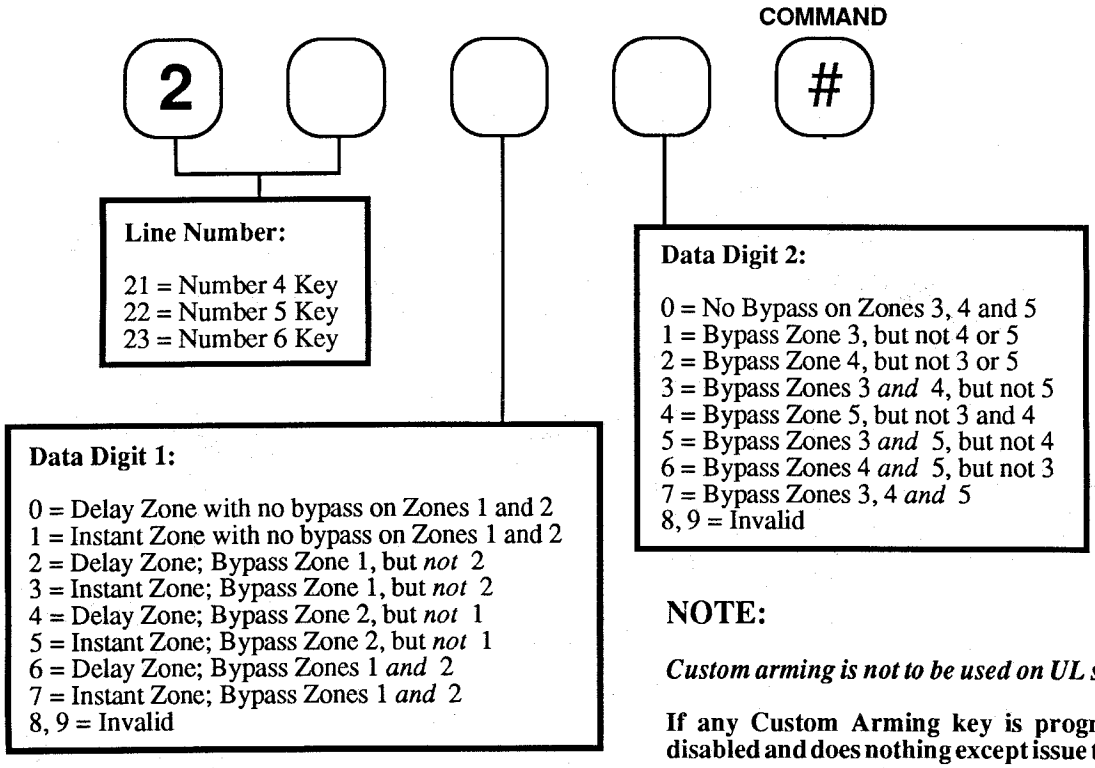
This test will be disabled if the control is armed within one hour from the time it was disarmed. This allows someone to enter the building after hours for a short time without having to walk all of the protection.

Mandatory Walk Test:

When arming, enter the arming sequence. The red zone status lights for the zones programmed above will flash rapidly and the control will not arm. All the zones that are flashing must be violated now (within 10 minutes). As a zone is violated its zone light will return to normal operation. After all the programmed zones are violated the arming sequence must be entered again within 10 minutes. The control will then arm normally. If either of the 10 minute timers time out or any other keypad key sequence is entered then the process must be repeated.

IF BOTH DATA DIGITS ABOVE ARE PROGRAMMED TO ZERO, ZONE VERIFICATION IS DISABLED.

PR.3 CUSTOM ARMING PROGRAMMING Default 00, custom arming disabled (4) (5) (6)

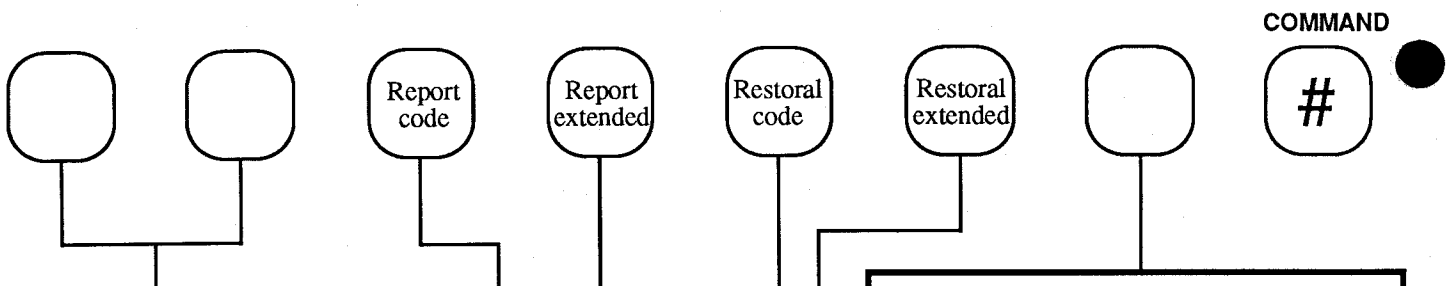


NOTE:

Custom arming is not to be used on UL systems.

If any Custom Arming key is programmed 00, that key is disabled and does nothing except issue the 3 beep error tone.

PR.4 REPORT PROGRAMMING FOR REPORTS WITH RESTORAL



Line Number:

30 = Fire Alarm (default 60E61)
31 = Zone 1 Alarm (default 10E11)
32 = Zone 2 Alarm (default 20E21)
33 = Zone 3 Alarm (default 30E31)
34 = Zone 4 Alarm (default 40E41)
35 = Zone 5 Alarm (default 50E51)
45 = Keypad 'C' Key Silent Alarm (default 00000, report disabled)
46 = Keypad 'B' Key Emergency Alarm (default 00000, report disabled)
47 = Fire Trouble (default 00000, report disabled)
48 = Zone Trouble (default 00000, report disabled)
49 = Low Battery (default 00000, report disabled)
50 = AC Power Failure (Only sent when another report is generated) (default 00000, report disabled)
51 = System Trouble (default 00000, report disabled)
07 = Reprogram reporting (default 00000, report disabled)

Data Digit 5:

0 = Report Not Used (Disabled)
1 = Report to Phone Number 1, Only
2 = Report to Phone Number 2, Only
3 = Report to *both* Phone Numbers 1 and 2
4 = Invalid
5 = Report to Phone Number 1. *If unsuccessful,* then report to Phone Number 2.
6 = Report to Phone Number 2. *If unsuccessful,* then report to Phone Number 1.
7, 8, 9 = Invalid

Data Digit 4:

For 3/1 and 4/1 extended, 4/2 and BFSK enter the extended code. To disable this digit, enter zero. For a Radionics receiver, if data digit three is programmed as 0 (A) through 9, then this digit must be zero. For report 48 (Zone Trouble), if this digit is programmed as a 0, then send the Alarm Reporting Code for that zone as the extended digit.

Data digit 3:

Enter the code to be reported for a restoral. To disable restorals, enter zero. To send a report of zero enter [Reset/*] 0.

Data digit 1:

Enter the code to be reported for this report. To send a report of zero enter [Reset/*] 0.

Data Digit 2:

For 3/1 and 4/1 extended, 4/2 and BFSK, enter the extended code. To disable this digit, enter zero. For a Radionics receiver, if data digit one is programmed as 0 (A) through 9, then this digit must be zero.
For report 48 (Zone Trouble), if this digit is programmed as a 0, then send the Alarm Reporting Code for that zone as the extended digit.

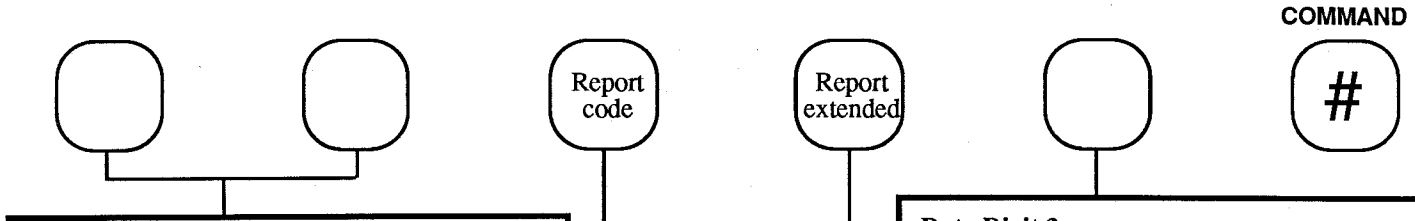
Each Data Digit may consist of the numerical digits 0 (A) through 9, or the hexadecimal (hex) characters **B** through **F**.

During the data input sequence, depressing the [Reset/*] key *once* will not cancel the sequence, but is used as a shift key. *The sequence may be terminated at any point by depressing the [Reset/*] key twice.* If [Reset/*]–[Reset/*] is used after a mistake has been made, the entire sequence must be re-entered, including the 2-digit line number.

To input the hex character **A** (0), press [Reset/*], then [0].
To input the hex character **B**, press [Reset/*], then [1].
To input the hex character **C**, press [Reset/*], then [2].
To input the hex character **D**, press [Reset/*], then [3].
To input the hex character **E**, press [Reset/*], then [4].
To input the hex character **F**, press [Reset/*], then [5].

NOTE: *While the six mini-sequences above consist of 2 key-strokes, each mini-sequence counts as only 1 digit. Any other character entered after the [Reset/*] key is invalid, with the exception of a second [Reset/*] key to cancel the sequence.*

PR.5 REPORT PROGRAMMING FOR REPORTS *WITHOUT* RESTORAL (default 000, all reports disabled)



Line Number:

52 = Duress Code Report
53 = Exception Opening
(First Opening *after* Alarm)
54 = Opening Report (Command 1 arming only)
55 = Exception Closing with Bypass
issues a trouble report for each zone bypassed or force armed, followed by this closing report.
56 = Closing Report (Command 1 arming only)
57 = Cancelled Alarm Report
58 = Automatic Test Report
59 = Communicator Test Report
08 = Late to Open (7090TM only)
09 = Late to Close (7090TM only)

Data digit 1:

Enter the code to be reported for this report. To send a report of zero enter [Reset/*] 0.

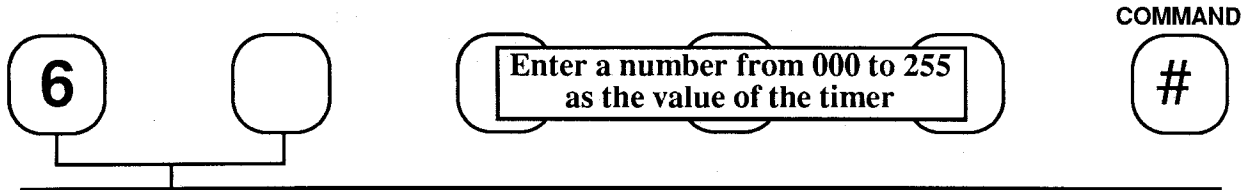
Data Digit 3:

0 = Report Not Used (disabled)
1 = Report to Phone Number 1, Only
2 = Report to Phone Number 2, Only
3 = Report to *both* Phone Numbers 1 and 2
4 = Invalid
5 = Report to Phone Number 1. *If unsuccessful,* then report to Phone Number 2.
6 = Report to Phone Number 2. *If unsuccessful,* then report to Phone Number 1.
7, 8, 9 = Invalid

Data Digit 2:

For 3/1 and 4/1 extended, 4/2 and BFSK enter the extended code. To disable this digit, enter zero. For a Radionics receiver, if data digit one is programmed as 0 (A) through 9, then this digit must be zero.
If this digit in reports 52 through 57 is programmed as a 0, then send the User Code Number. See section L.18 to suppress users code reporting in reports 52 through 57 and to limit users code numbers to decimal values.

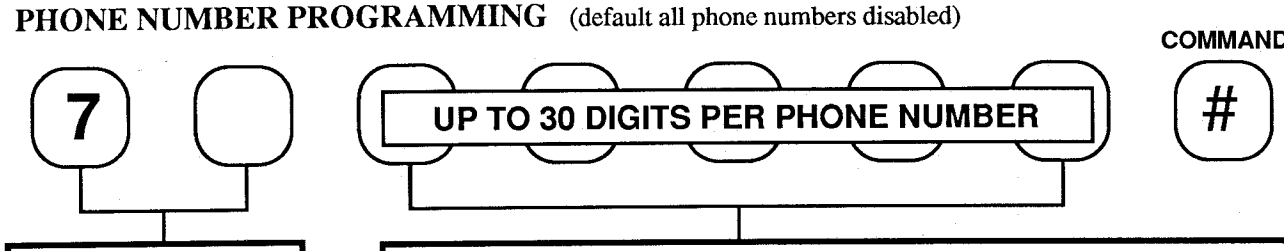
PR.6 TIMER PROGRAMMING



Line Number:

60 = **Auxiliary Relay Alarm Delay** Timer (delay the operation of the AUX relay for the programmed number of seconds). Program Data Digits for 0 to 255 seconds. Default = 00 seconds.
61 = **Bell Cutoff for Intrusion Zones**
Program Data Digits for 0 to 255 minutes. 0 minutes = No Cutoff. Default = 4 minutes.
U.L. requires 4 minutes, minimum for residential and 15 minutes minimum for commercial.
62 = **Bell Cutoff for Fire**
Program Data Digits for 0 to 255 minutes. 0 minutes = No Cutoff. Default = 4 minutes.
U.L. requires 4 minutes, minimum for residential
63 = **Bell Cutoff for Keypad Emergency**
Program Data Digits for 0 to 255 minutes. 0 minutes = No Cutoff. Default = 4 minutes.
U.L. requires output be silent or distinct from bell sounds for zone and fire alarms.
64 = **Auxiliary Entry Delay** Timer. See comments for Entry Delay Timer line 66 below.
65 = **Exit Delay** Timer.
Program Data Digits for 0 to 255 seconds. Default = 60 seconds. *U.L. allows 60 seconds, maximum.*
66 = **Entry Delay** Timer.
Program Data Digits for 0 to 255 seconds. Default = 45 seconds. *U.L. allows 45 seconds, maximum for residential and 60 seconds maximum for commercial.*
67 = **Access Output** Pulse Time.
Program Data Digits for 0 to 255 seconds. 0 seconds = Toggle On/Off. Default = 0 seconds.
68 = **Dialer delay.**
Program Data Digits for 0 to 255 seconds. 0 seconds = No Delay. Default = 0 seconds.
U.L. allows 15 seconds, maximum.
69 = **Automatic Test Report Offset.**
Report occurs 0 to 255 Hours from time this is programmed. Default = report occurs 24 hours after power up. *For UL Commercial must be set to 24 hours or less.*

PR.7 PHONE NUMBER PROGRAMMING (default all phone numbers disabled)



Line Number:

71 = Phone Number 1
72 = Phone Number 2
77 = Phone Number 3

Data Digits:

These are the digits of the phone number *exactly* as they would be dialed. 30 digits are allowed in phone number 1 and 2 (only 15 digits are allowed in phone number 3, remote programming). The characters may include the tone dial characters * and #. The program also supports a three second delay, and "wait for dial tone".

During the data input sequence, depressing the [Reset/*] key *once* will not cancel the sequence, but is used as a shift key. *The sequence may be terminated at any point by depressing the [Reset/*] key twice.* If [Reset/*]–[Reset/*] is used after a mistake has been made, the entire sequence must be re-entered, including the 2-digit line number.

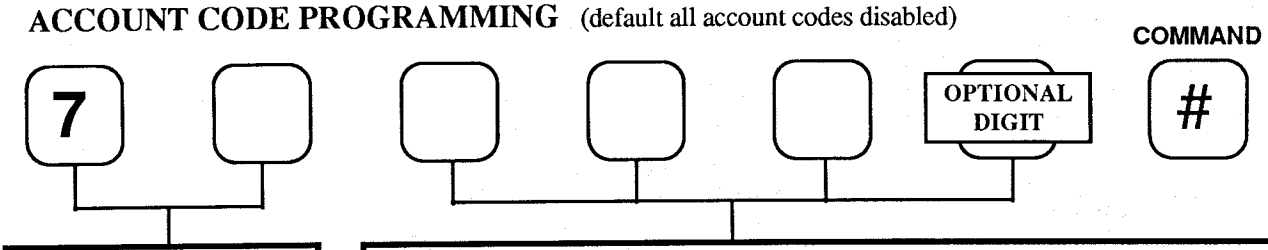
To input the keypad character *, press [Reset/*], then [1] (Hex "B").
To input the keypad character #, press [Reset/*], then [2] (Hex "C").
To input a **3 second delay**, press [Reset/*], then [3] (Hex "D").
To input a **"Wait for dial tone"**, press [Reset/*], then [4] (Hex "E"). Normally the 7090 waits seven seconds and dials without listening for dialtone. Programming the first character of the phone number as "E" will cause the 7090 to dial as soon as dialtone is detected. If the phone system is overloaded dialtone may be very slow in coming therefore an "E" will wait as long as 30 seconds for dialtone.
To disable a phone number, press [Reset/*], then [5] (Hex "F") as the first data digit, then press [Command/#]. Also program Line Number 75 or 76 as 000000.

NOTE: *While the four mini-sequences above consist of 2 key-strokes, each mini-sequence counts as only 1 digit. Any other character entered after the [Reset/*] key is invalid, with the exception of a second [Reset/*] key to cancel the sequence.*

NOTE:

It is recommended that the phone line, to which the control is connected, not have a call waiting feature. If it must have call waiting, then program the code to disable call waiting and a three second delay before the phone number. This will prevent incoming call(s) from interrupting a communication. For example, call waiting can be disabled in many areas by dialing *70 before the phone number for tone dial and 1170 for pulse dial.

PR.8 ACCOUNT CODE PROGRAMMING (default all account codes disabled)



Line Number:

73 = Account Code for Phone Number 1
74 = Account Code for Phone Number 2

Data Digits:

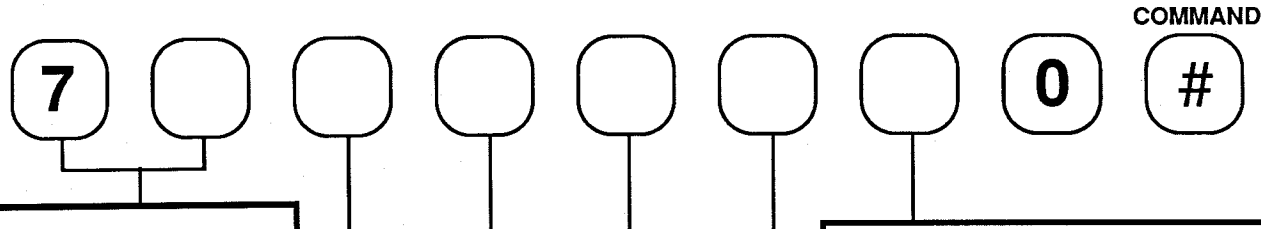
Account codes may be 3 or 4 digits long, and consist of the numerical digits 0 through 9, and the hexadecimal (hex) characters **B** through **F**. A four digit account code must be entered for 4/1 and 4/2 formats.

During the data input sequence, depressing the [Reset/*] key *once* will not cancel the sequence, but is used as a shift key. *The sequence may be terminated at any point by depressing the [Reset/*] key twice.* If [Reset/*]–[Reset/*] is used after a mistake has been made, the entire sequence must be re-entered, including the 2-digit line number.

To input the hex character **B**, press [Reset/*], then [1].
To input the hex character **C**, press [Reset/*], then [2].
To input the hex character **D**, press [Reset/*], then [3].
To input the hex character **E**, press [Reset/*], then [4].
To input the hex character **F**, press [Reset/*], then [5].

NOTE: *While the five mini-sequences above consist of 2 key-strokes, each mini-sequence counts as only 1 digit. Any other character entered after the [Reset/*] key is invalid, with the exception of a second [Reset/*] key to cancel the sequence.*

PR.9 COMMUNICATION FORMAT PROGRAMMING (default 000000, all phone numbers disabled)



Line Number:

75 = Communicator Format for Phone Number **1**
76 = Communicator Format for Phone Number **2**

Data Digit 1:

0 = Tone Dial, with Multiple Report
1 = Pulse Dial, with Multiple Report
2 = Tone Dial, with Single Report Only
3 = Pulse Dial, with Single Report Only
4, 5, 6, 7, 8, 9 = Invalid

Data Digit 2:

Enter 0 or 1 as the **ten's** digit for the number of attempts using this Phone Number (up to 15 attempts allowed). *For UL installations 5 to 10 attempts are allowed.*

Data Digit 3:

Enter a digit from 0 through 9 as the **unit's** digit for the number of attempts using this Phone Number (up to 15 attempts allowed). *For UL installations 5 to 10 attempts are allowed.*

Data Digit 4:

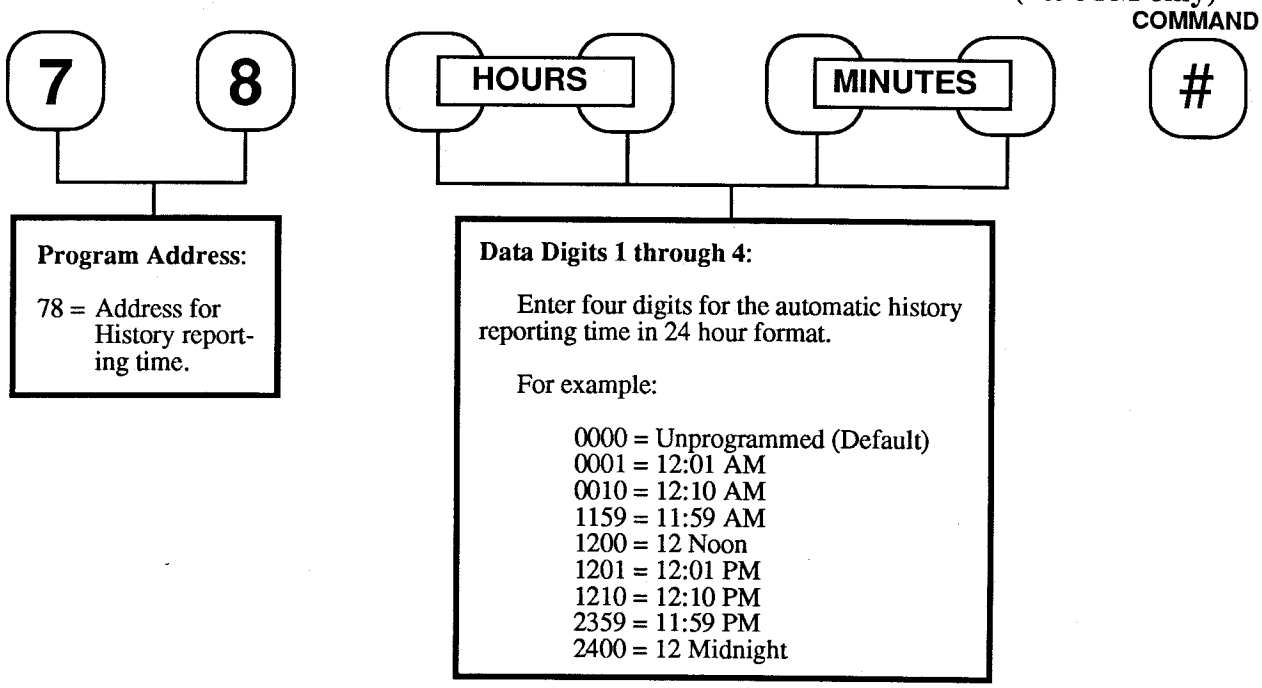
0 = This Phone Number Disabled
1 = 3/1 Format
2 = 3/1 Extended Reporting
3 = 3/1 with Radionics Parity
4 = 3/1 with Radionics Parity and Extended Reporting
5 = 4/1 (must program a 4 digit accout code)
6 = Invalid
7 = 4/2 (must program a 4 digit accout code)
8 = BFSK
9 = Invalid

Data Digit 5:

0 = 1900 Hz Data; 1400 Hz Acknowledge at 10 pps (Slow - Ademco, Silent Knight)
1 = 1800 Hz Data; 2300 Hz Acknowledge at 10 pps (Sescoa, Franklin, Radionics, DCI. Used also with BFSK where Data Digit 4=8)
2 = 1900 Hz Data; 1400 Hz Acknowledge at 20 pps (Ademco, Silent Knight)
3 = 1800 Hz Data; 2300 Hz Acknowledge at 20 pps (Franklin, Sescoa, Radionics-Fast, DCI)
4 = 1900 Hz Data; 1400 Hz Acknowledge at 40 pps
5 = 1800 Hz Data; 2300 Hz Acknowledge at 40 pps (Radionics - Super Fast)
6, 7, 8, 9 = Invalid

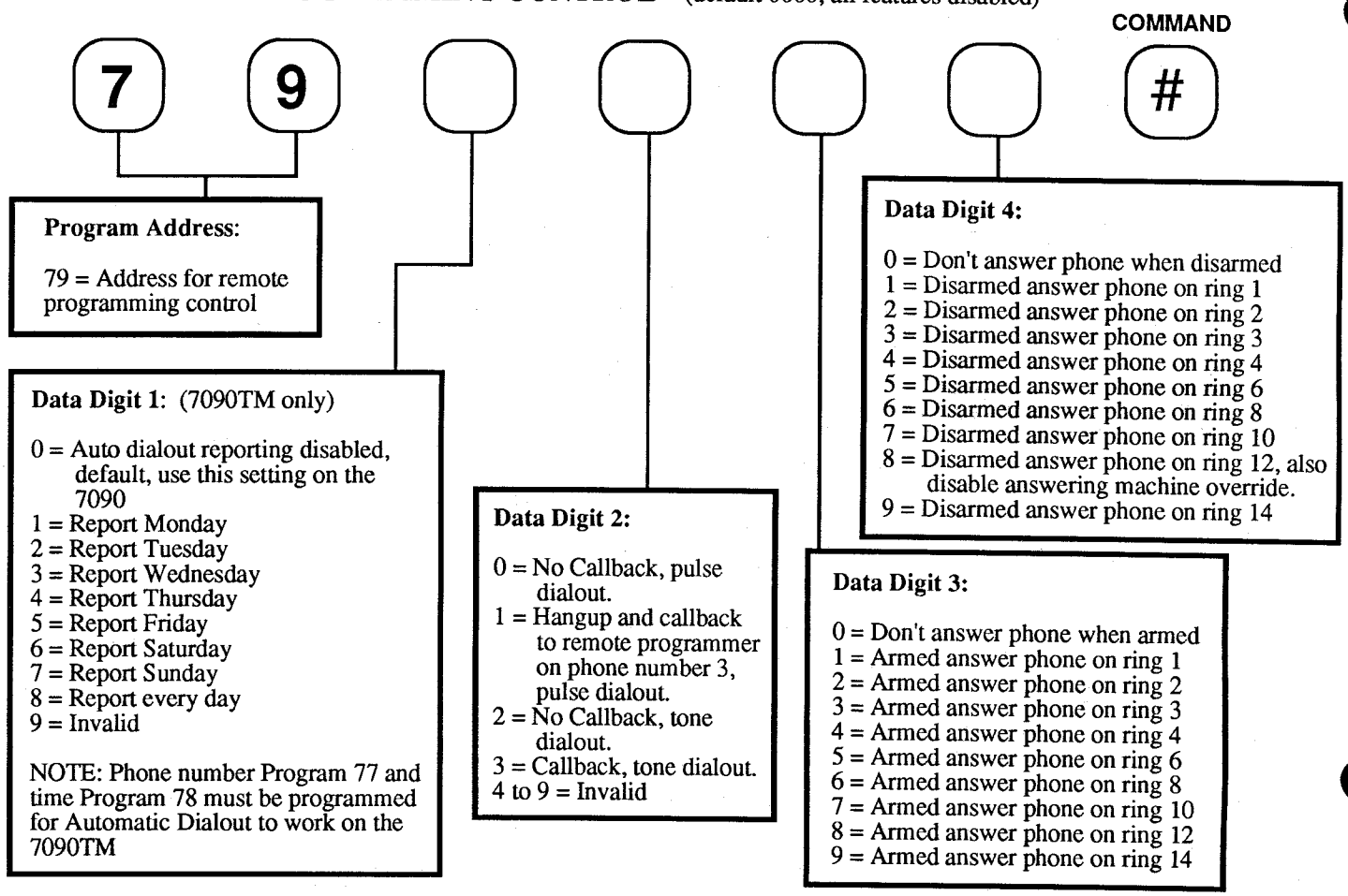
Quick set-up values:			**Quick set-up values:**		
Dialing ->	**Tone**	**Pulse**	**Dialing ->**	**Tone**	**Pulse**
BFSK (2300Hz) =	010810	110810			
3/1 10pps (2300Hz) =	010110	110110	3/1 10pps (1400Hz) =	010100	110100
3/1 20pps (2300Hz) =	010130	110130	3/1 20pps (1400Hz) =	010120	110120
EXTENDED:			**EXTENDED:**		
3/1 10pps (2300Hz) =	010210	110210	3/1 10pps (1400Hz) =	010200	110200
3/1 20pps (2300Hz) =	010230	110230	3/1 20pps (1400Hz) =	010220	110220
EXTENDED with PARITY:					
3/1 40pps (2300Hz) =	010450	110450			
4/2 10pps (2300Hz) =	010710	110710	4/2 10pps (1400Hz) =	010700	110700
4/2 20pps (2300Hz) =	010730	110730	4/2 20pps (1400Hz) =	010720	110720

PR.10 AUTOMATIC HISTORY REPORT AND REPROGRAMMING TIME (7090TM only)

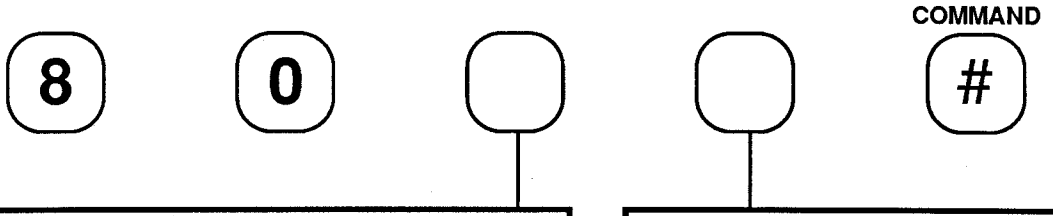


The control will automatically dial the phone number programmed in line 77, on the day programmed in line 79, digit 1, and at the time of day programmed in line 78. When the remote programmer answers, the history buffer will be automatically transferred. The control may also be automatically reprogrammed by an unattended remote programmer at that time. This will also cause an automatic dial-out at 70 unreported events (out of the 96 event buffer), and if a low battery is detected while the AC power has failed. If the phone number in line 77 and the day of the week in line 79 are programmed, but the time of day in line 78 is not programmed, then auto dial-out will occur only at 70 unreported events, at low battery and at AC failure.

PR.11 REMOTE PROGRAMMING CONTROL (default 0000, all features disabled)



PR.12 FIRE ZONE PROGRAMMING (default 51, Pulsed Alarm and sounder with verification)



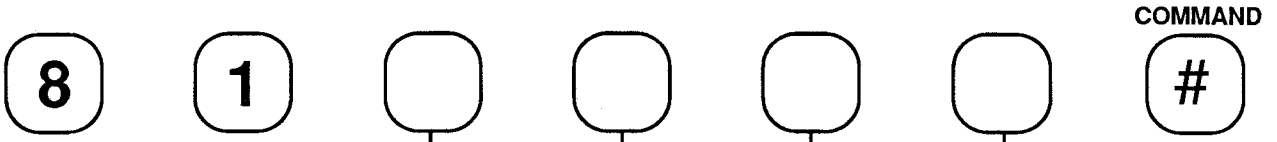
Data Digit 1:

0 = Invalid, *do not use.*
1 = Steady Alarm and Sounder; Aux. Relay no change
2 = Steady Aux. Relay and Sounder; Alarm no change
3 = Steady Alarm, Sounder and Aux. Relay
4 = Invalid, *do not use.*
5 = Pulsed Alarm and Sounder; Aux. Relay no change
6 = Pulsed Aux. Relay and Sounder; Alarm no change
7 = Pulsed Alarm, Sounder and Aux. Relay
8, 9 = Invalid, *do not use.*

Data Digit 2:

0 = Immediate Alarm
1 = Automatic Verification Reset; **No** Trouble Signal at End of Verification if No Alarm
2 = Automatic Verification Reset, with Trouble Signal at End of Verification if No Alarm
3 = Non-latching. Automatic Verification Reset; **No** Trouble Signal at End of Verification if No Alarm. Use when keyswitch arming is used. A normally closed switch must be connected in series with smoke power to reset the smoke detectors.
4, 5, 6, 7, 8 = Invaild, *do not use.*
9 = Permanently Shunted

PR.13 GENERAL CONTROL PROGRAMMING (default 4030, residential mode, keypad emergency disabled, force arm 3 zones, no tests on arming and swinger shunt enabled.)



Data Digit 1:

0 = Residential; *Loud* Keypad Emergency; NO Swinger Shunt
1 = Commercial; *Loud* Keypad Emergency; NO Swinger Shunt
2 = Residential; Silent Keypad Emergency; NO Swinger Shunt
3 = Commercial; Silent Keypad Emergency; NO Swinger Shunt
4 = Residential; *Loud* Keypad Emergency; with Swinger Shunt
5 = Commercial; *Loud* Keypad Emergency; with Swinger Shunt
6 = Residential; Silent Keypad Emergency; with Swinger Shunt
7 = Commercial; Silent Keypad Emergency; with Swinger Shunt
8, 9 = Invalid

UL installations may only be programmed 1 or 3.

Data Digit 2:

0 = **No** Phone Line Test or Bell test upon Arming
1 = Test Phone Line but **Not** Bell upon Arming
2 = Test Bell but **Not** Phone Line upon Arming
3 = Test Phone Line **and** Bell upon Arming
4, 5, 6, 7, 8, 9 = Invalid

For UL residential program 0, for UL commercial program 3.

Data Digit 3:

Enter a digit from 1 through 5 as the **Number of Zones Allowed to Force Arm.** If 0 (zero) is entered, Control will not Force Arm.
UL installations must be programmed 0.

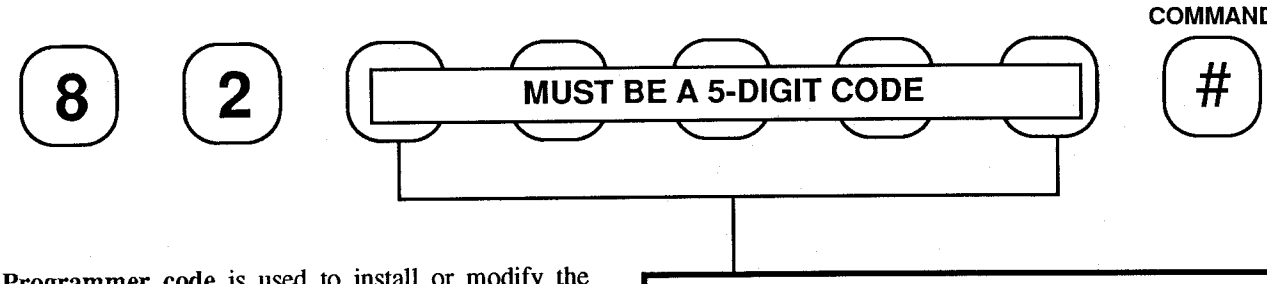
Data Digit 4:

0 through 3 = Disable the 'B' Emergency Key
4 through 7= Activate 'B' Emergency Keys *for silent or loud see digit one.*

0 or 4 = Send open and close for all users.
1 or 5 = Don't send open and close for user 1 - 2.
2 or 6 = Don't send open and close for user 1 - 4.
3 or 7 = Don't send open and close for user 1 - 6.

8, 9 = Invalid

PR.14 PROGRAMMER CODE PROGRAMMING (default programmers code 98765)

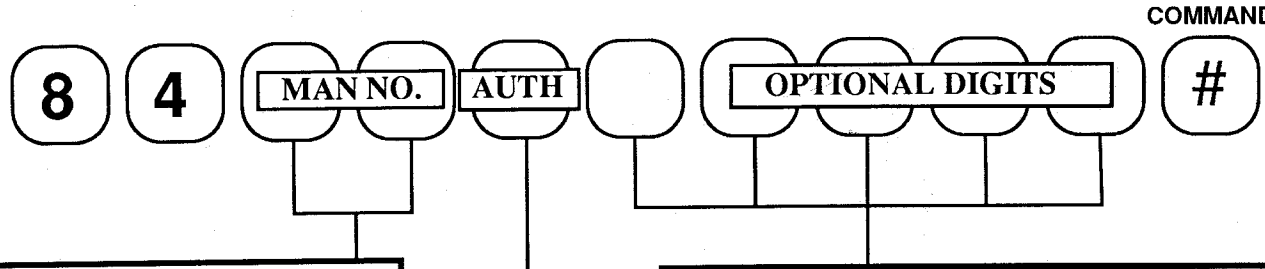


The **Programmer code** is used to install or modify the parameters of many of the Customer Unique programs. It may also be used to change User codes, but can not be used to recall (display) any existing user codes, nor arm or disarm the system. In the Commercial mode of operation, the Programmer Code may also be used to enter any of the Program Commands that use the [Test/8] key. *The factory-shipped (default) Programmer code is the five digit sequence of 9 8 7 6 5. This code should be changed before the system is placed into service.*

Data Digits:

These are the digits of the *new* Programmer's Code. Please note that the code must contain five (5) digits. The code numbers must be unique and, therefore, can not be the same as one of the user codes.

PR.15 USER CODE PROGRAMMING (default users code 1 is 1234, all other users codes are disabled)



Data Digits 1 and 2:

Enter two digits for the Man Number. The range of Man numbers that may be used is 01 to 15.

Remember that Man number 01 must be a Master Code.

Data Digits 4 through 8:

Enter from 1 to 5 digits as the User Code. Each code must be different from any other assigned code, including the Programmer's Code.

NOTE: *Attempting to program a code using the same digits in the same sequence as an existing User's or Programmer's code will result in the three beep error tone, and the new code will not be created.*

Data Digit 3: Authority

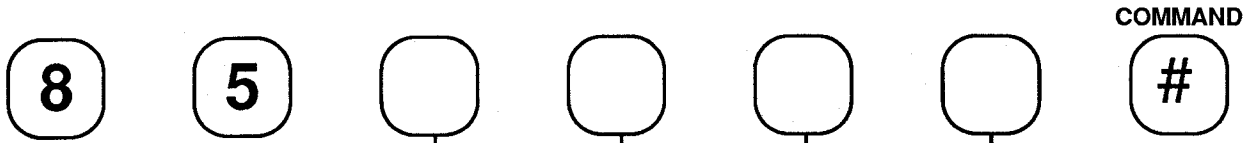
0 = Service Code, all privileges, always reports.
1 = Master Code, pass code changes, arm, disarm, force arming, bypassing, and system test.
2 = Arm, disarm, force arming, bypassing, and system test.
3 = Arm, disarm, force arming, and bypassing.
4 = Arm, disarm.
5 = Temporary code arm, disarm.
6 = Arming only, force arming and bypassing.
7 = Arming only.
8 = Temporary code arming only.
9 = Access code. Operates the AUX relay output.

NOTE: *By depressing the [Command/#] key at this point, the User Code defined in Data Digits 1 & 2 (Man number) will be deleted.*

NOTICE:

For Underwriter Laboratories' installations, User Codes must be 3 digits or longer.

PR.16 SYSTEM CONFIGURATION (default 0000, 60Hz, zone restores when the sounders silence,enable all users code reporting, test report each day, "A" key disabled)



Data Digit 1:

0 or 4 = 60 Hz AC, restore zone when sounders silence.
1 or 5 = 50 Hz AC, restore zone when sounders silence.
2 or 6 = 60 Hz AC, restore zone when zone restores.
3 or 7 = 50 Hz AC, restore zone when zone restores.

0 through 3 = Normal alarm and access control AUX relay operation.
4 through 7 = Operate the AUX relay when armed. Release AUX relay when disarmed.

8, 9 = invalid

Data Digit 4:

0 = test report each day
1 = test report each day
2 = test report each 2 days
3 = test report each 3 days
4 = test report each 4 days
5 = test report each 5 days
6 = test report each 6 days
7 = test report each 7 days
8 = test report each 28 days
9 = test report each **hour**

For UL commercial program 0.

Data Digit 2:

0 or 4 = Enable all users code reporting.
1 or 5 = Suppress users code reporting in open, close and exception close reports.
2 or 6 = Suppress users code reporting in exception open and cancel reports.
3 or 7 = Suppress users code reporting in open, close, exception close, exception open and cancel reports.

0 through 3 = Enable COMMAND 2 and 3 arming.
4 through 7 = Disable COMMAND 2 and 3 arming.

8, 9 = invalid

Data Digit 3:

0 or 4 = keypad "A" key disabled, HEX users codes sent.
1 or 5 = keypad "A" key initiates a Fire Alarm, HEX users codes sent.
2 or 6 = keypad "A" key disabled, Decimal users codes sent.
3 or 7 = keypad "A" key initiates a Fire Alarm, Decimal users codes sent.

0 through 3 = send alarm report digit as trouble extended digit for 3/1 extended and BFSK reporting (normal setting).
4 through 7 = send alarm report extended digit as trouble extended digit for 3/1 extended and BFSK reporting.

EXAMPLE PROGRAM — SECTION PR.4 — SILENT KNIGHT WITH 4/2 FORMAT

FIRE ZONE	3 0 A 2 7 2 5 #	Report zone 02 alarm and restoral on zone 72
ZONE 1	3 1 1 1 3 1 5 #	Report zone 11 alarm and restoral on zone 31
ZONE 2	3 2 1 2 3 2 5 #	Report zone 12 alarm and restoral on zone 32
ZONE 3	3 3 1 3 3 3 5 #	Report zone 13 alarm and restoral on zone 33
ZONE 4	3 4 1 4 3 4 5 #	Report zone 14 alarm and restoral on zone 34
ZONE 5	3 5 1 5 3 5 5 #	Report zone 15 alarm and restoral on zone 35
SILENT ALARM	4 5 A 4 0 0 5 #	Report the keypad 'C' key as zone 04.
EMERGENCY ALARM	4 6 A 3 0 0 5 #	Report the keypad 'B' key as zone 03.
FIRE TROUBLE	4 7 6 2 7 2 5 #	Report fire trouble as zone 62, restore as 72.
ZONE TROUBLE	4 8 8 0 3 0 5 #	Automatically report zone number on trouble.
LOW BATTERY	4 9 6 9 7 9 5 #	Report trouble 69 and restoral on 79.
AC POWER FAILURE	5 0 6 A 7 A 5 #	Report trouble 60 and restoral on 70.
SYSTEM TROUBLE	5 1 6 6 7 6 5 #	Report trouble 66 and restoral on 76.
REPROGRAM REPORT	0 7 7 1 6 1 5 #	Report reprogram 71 and trouble on 61.

SECTION PR.5

DURESS ALARM	5 2 A 9 5 #	Report zone 09 alarm.
EXCEPTION OPENING	5 3 9 0 5 #	Report as open report (9x)
OPENING	5 4 9 0 5 #	Report as open report (9x)
EXCEPTION CLOSING	5 5 5 0 5 #	Report as close report (5x).
CLOSING	5 6 5 0 5 #	Report as close report (5x).
CANCELLED ALARM	5 7 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	5 8 7 5 5 #	Report as restoral 75.
COMMUNICATE TEST	5 9 7 5 5 #	Report as restoral 75.
FAILURE TO OPEN	0 8 6 7 5 #	Report as trouble to open report 67.
FAILURE TO CLOSE	0 9 6 8 5 #	Report as trouble to close report 68.

COMMUNICATOR FORMAT 1 - (Section PR.9)	7 5 0 1 0 7 0 0 #	4/2 reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.9)	7 6 0 1 0 7 0 0 #	4/2 reporting 10 attempts.

EXAMPLE PROGRAM — SECTION PR.4 — SILENT KNIGHT SK9000 4/2 FORMAT 0

FIRE ZONE	3 0 A 6 7 6 5 #	Report "Alarm 06" and "Restore 06"
ZONE 1	3 1 A 1 7 1 5 #	Report "Alarm 01" and "Restore 01"
ZONE 2	3 2 A 2 7 2 5 #	Report "Alarm 02" and "Restore 02"
ZONE 3	3 3 A 3 7 3 5 #	Report "Alarm 03" and "Restore 03"
ZONE 4	3 4 A 4 7 4 5 #	Report "Alarm 04" and "Restore 04"
ZONE 5	3 5 A 5 7 5 5 #	Report "Alarm 05" and "Restore 05"
SILENT ALARM	4 5 A 9 0 0 5 #	Report the keypad 'C' key as "Hold Up Alarm".
EMERGENCY ALARM	4 6 A A 0 0 5 #	Report the keypad 'B' key as "Panic Alarm".
FIRE TROUBLE	4 7 6 6 7 6 5 #	Report fire trouble as "Trouble 06", restore as "Restore 06".
ZONE TROUBLE	4 8 6 0 7 0 5 #	Automatically report "Trouble" followed by zone number.
LOW BATTERY	4 9 6 9 7 9 5 #	Report "Low Battery" and "Battery Restore".
AC POWER FAILURE	5 0 6 A 7 A 5 #	Report "AC Trouble" and "AC Restore".
SYSTEM TROUBLE	5 1 3 9 0 0 5 #	Report "Data Loss".
REPROGRAM REPORT	0 7 0 0 0 0 0 #	Disable reprogram report.

SECTION PR.5

DURESS ALARM	5 2 1 5 5 #	Report "Alarm 15".
EXCEPTION OPENING	5 3 3 8 5 #	Report as "Cancel".
OPENING	5 4 9 0 5 #	Report as "Open ID" followed by user ID number.
EXCEPTION CLOSING	5 5 4 0 5 #	Report as "Close ID" followed by user ID number.
CLOSING	5 6 4 0 5 #	Report as "Close ID" followed by user ID number.
CANCELLED ALARM	5 7 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	5 8 3 A 5 #	Report as "Test".
COMMUNICATE TEST	5 9 3 A 5 #	Report as "Test".
FAILURE TO OPEN	0 8 0 0 0 #	Disable failure to open report.
FAILURE TO CLOSE	0 9 0 0 0 #	Disable failure to close report

COMMUNICATOR FORMAT 1 - (Section PR.9)	7 5 0 1 0 7 0 0 #	4/2 reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.9)	7 6 0 1 0 7 0 0 #	4/2 reporting 10 attempts.

EXAMPLE PROGRAM — SECTION PR.4 — RADIONICS HEX RECEIVER NO FIRE

FIRE ZONE	3 0 0 0 0 0 0 #	Disable the fire zone and keypad fire report.
ZONE 1	3 1 1 0 E 1 5 #	Report zone 1 alarm and restoral on zone 1.
ZONE 2	3 2 2 0 E 2 5 #	Report zone 2 alarm and restoral on zone 2.
ZONE 3	3 3 3 0 E 3 5 #	Report zone 3 alarm and restoral on zone 3.
ZONE 4	3 4 4 0 E 4 5 #	Report zone 4 alarm and restoral on zone 4.
ZONE 5	3 5 5 0 E 5 5 #	Report zone 5 alarm and restoral on zone 5.
SILENT ALARM	4 5 0 0 0 0 0 #	Disable the keypad 'C' key silent alarm.
EMERGENCY ALARM	4 6 9 0 0 0 5 #	Report the keypad 'B' key as zone 9.
FIRE TROUBLE	4 7 0 0 0 0 0 #	Disable the fire zone.
ZONE TROUBLE	4 8 F 0 E 0 5 #	Automatically report zone number on trouble.
LOW BATTERY	4 9 F 9 E 9 5 #	Report trouble zone 9 and restoral on zone 9.
AC POWER FAILURE	5 0 F A E A 5 #	Report trouble zone 0 and restoral on zone 0.
SYSTEM TROUBLE	5 1 F D E D 5 #	Report trouble zone D and restoral on zone D.
REPROGRAM REPORT	0 7 E F F F 5 #	Report restoral zone F and trouble on zone F.

SECTION PR.5

DURESS ALARM	5 2 A 0 5 #	Report zone 0 alarm.
EXCEPTION OPENING	5 3 D 0 5 #	Report as cancel report (D).
OPENING	5 4 B 0 5 #	Report as open report (B).
EXCEPTION CLOSING	5 5 C 0 5 #	Report as close report (C).
CLOSING	5 6 C 0 5 #	Report as close report (C).
CANCELLED ALARM	5 7 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	5 8 E E 5 #	Report as restoral on zone E.
COMMUNICATE TEST	5 9 E E 5 #	Report as restoral on zone E.
FAILURE TO OPEN	0 8 F B 5 #	Report as trouble on zone B (open).
FAILURE TO CLOSE	0 9 F C 5 #	Report as trouble on zone C (close).

COMMUNICATOR FORMAT 1 - (Section PR.9)	7 5 0 1 0 8 1 0 #	BFSK reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.9)	7 6 0 1 0 8 1 0 #	BFSK reporting 10 attempts.

EXAMPLE PROGRAM — SECTION PR.4 — RADIONICS HEX RECEIVER WITH FIRE

FIRE ZONE	3 0 6 0 E 6 5 #	Report zone 6 alarm and restoral on zone 6.
ZONE 1	3 1 1 0 E 1 5 #	Report zone 1 alarm and restoral on zone 1.
ZONE 2	3 2 2 0 E 2 5 #	Report zone 2 alarm and restoral on zone 2.
ZONE 3	3 3 3 0 E 3 5 #	Report zone 3 alarm and restoral on zone 3.
ZONE 4	3 4 4 0 E 4 5 #	Report zone 4 alarm and restoral on zone 4.
ZONE 5	3 5 5 0 E 5 5 #	Report zone 5 alarm and restoral on zone 5.
SILENT ALARM	4 5 0 0 0 0 0 #	Disable the keypad 'C' key silent alarm.
EMERGENCY ALARM	4 6 9 0 0 0 5 #	Report the keypad 'B' key as zone 9.
FIRE TROUBLE	4 7 F 1 E 1 5 #	Report zone 6 trouble and restoral on zone 6.
ZONE TROUBLE	4 8 F 0 E 0 5 #	Automatically report zone number on trouble.
LOW BATTERY	4 9 F 9 E 9 5 #	Report trouble zone 9 and restoral on zone 9.
AC POWER FAILURE	5 0 F A E A 5 #	Report trouble zone 0 and restoral on zone 0.
SYSTEM TROUBLE	5 1 F D E D 5 #	Report trouble zone D and restoral on zone D.
REPROGRAM REPORT	0 7 E F F F 5 #	Report restoral zone F and trouble on zone F.

SECTION PR.5

DURESS ALARM	5 2 A 0 5 #	Report zone 0 alarm.
EXCEPTION OPENING	5 3 D 0 5 #	Report as cancel report (D).
OPENING	5 4 B 0 5 #	Report as open report (B).
EXCEPTION CLOSING	5 5 C 0 5 #	Report as close report (C).
CLOSING	5 6 C 0 5 #	Report as close report (C).
CANCELLED ALARM	5 7 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	5 8 E E 5 #	Report as restoral on zone E.
COMMUNICATE TEST	5 9 E E 5 #	Report as restoral on zone E.
FAILURE TO OPEN	0 8 F B 5 #	Report as trouble on zone B (open).
FAILURE TO CLOSE	0 9 F C 5 #	Report as trouble on zone C (close).

COMMUNICATOR FORMAT 1 - (Section PR.9)	7 5 0 1 0 8 1 0 #	BFSK reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.9)	7 6 0 1 0 8 1 0 #	BFSK reporting 10 attempts.

Installation Guide for U.L. Installations

The 7090 is U.L. Listed for Household Fire Alarm, Household Burglary Alarm, Local Burglary Alarm Grade A, Police Station Connection grade A, and Central Station Burglary Alarm grades A, B, and C. The 7090 should be installed in accordance with U.L. 681, Installation and Classification of Mercantile and Bank Burglar Alarm Systems, or U.L. 1641, Installation and Classification of Residential Burglar Alarm Systems

INSTALLATION CONSIDERATIONS

- For commercial burglar installations the total current available for standby plus alarm is 1.4 Amps.
- For residential fire and burglar installations the total current available for standby plus alarm is 700 ma.
- For all UL installations the maximum standby load is 400 ma.
- The 7090 control must be mounted indoors and within the protected area.
- Enclosure tamper switches (if used) must be connected to a 24 hour zone.
- For commercial grade installations, wiring to the bell (if used) must be in conduit with no other wiring.
- For commercial grade installations requiring a bell and bell housing, the bell circuit must be made and supervised by means of metallic conductors to two ground clamps spaced at least 1/4 inch apart.
- Grounding must be to a cold water pipe where possible.
- At least one UL listed keypad with zone display must be connected.
- Zones must be connected to U.L. Listed, compatible devices with a minimum rated range of 12 to 13.8V like the Detection Systems' DS774Ti.
- 50 Hz AC input cannot be used in U.L. certificated installations.
- Optional Keyswitch cannot be used in U.L. certificated installations.
- The U.L. Listed compatible digital alarm communicator receivers (if used) are the Radionics Models 6000 and 6500, ITI CS-4000, and the Silent Knight Model 9000.

PROGRAMMING CONSIDERATIONS

- All changes made by remote or local programming should be verified before the control is placed into service.
- Alarms that are currently sounding should not be silenced by remote programming except during testing.
- The system shall not be changed from armed to disarmed from the remote programmer.

PROGRAMMING THE 7090

When used in U.L. certificated installations, the 7090 must conform to certain programming requirements. The following is a list of the required program entries and required accessories for specific U.L. certificated installations.

1. **Household Fire Alarm** using Digital Alarm Communicator Transmitter with local bell
   The 7090 must be installed in accordance with NFPA 74, and the U.L. 985 standard.

   Required Accessories: At least one Detection Systems, Inc. Model DS200-2W (2 wire), or DS200-4W (4 wire) smoke detector with EOL200 end-of-line relay, and one Wheelock 46T-G10-12 bell or 34T-12 horn (will provide 85db for UL 985 and NFPA 74 requirements; other listed compatible devices with a voltage range of 12 to 13.8V may be used) is required for this application and it must be installed inside the protected area. The standard 7090 enclosure can be used. At least one keypad must be used and configured for "Loud" operation.

   A. Report Programming:
   - Fire Zone Report (Program Address 30) must be programmed.
   - Low Battery Report (Program Address 49) must be programmed.
   - AC Failure Report (Program Address 50) must be programmed.

   B. Timer Programming:
   - Bell Cutoff Time (Program Address 62) must be programmed for not less than 4 minutes.
   - Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

   C. Communication Format Programming:
   - Telephone Control (Program Addresses 75, 76; Data Digits 2, 3) must be programmed to make 5-10 dialing attempts.

2. **Household Burglary Alarm** using Digital Alarm Communicator Transmitter with local bell
   The 7090 must be installed in accordance with the U.L. 1641, and 1023 standards.

   Required Accessories: At least one Wheelock 46T-G10-12 bell or 34T-12 horn is required for this application (other listed compatible devices with a voltage range of 12 to 13.8V may be used). The standard 7090 enclosure can be used.

   A. Zone Programming:
   - Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

   B. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
   - Low Battery Report (Program Address 49) must be programmed.
   - AC Failure Report (Program Address 50) must be programmed.

C. Timer Programming:
- Bell Cutoff Times (Program Addresses 61, 63) must be programmed for not less than 4 minutes.
- Exit Delay Timer (Program Address 65) must be programmed for not longer than 60 seconds.
- Entry Delay Timer (Program Address 66) must be programmed for not longer than 45 seconds.
- Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

D. Communication Format Programming:
- Telephone Control (Program Addresses 75, 76; Data Digits 2, 3) must be programmed to make 5-10 dialing attempts.

E. General Control Programming:
- Residential or Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 0, 1, 2, or 3).

NOTE: For combination fire and burglary alarm applications, the 7090 must be programmed to pulse the bell for a fire alarm (Program Address 80, Data Digit 1, enter 6, or 7), and produce a steady bell for a burglar alarm (Program Addresses 11-15, Data Digit 1, enter 2, or 3).

3. Local Burglary Alarm
The 7090 must be installed in accordance with the U.L. 681, and 609 standards for all grades of service.

A. Grade A Installations using Digital Alarm Communicator Transmitter with local bell
Required Accessories: The 7090 must be mounted in the AE7100 attack resistant enclosure (order the 7090CC) with a cover actuated tamper switch installed. The Ademco Model AD10-12 bell must be mounted in the Ademco Model AB-12 bell housing.

1. Zone Programming:
- Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
- Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
- Low Battery Report (Program Address 49) must be programmed.
- AC Failure Report (Program Address 50) must be programmed.
- Open Report (Program Address 54) must be programmed.
- Close Report (Program Address 56) must be programmed.
- 24 Hour Check-In Report (Program Address 58) must be programmed.
- 24 Hour Check-In Report timing (Program Address 85 data digit 4) must be programmed to a 0 (every 24 hours) or 9 (every hour).
- 24 Hour Check-In Offset (Program Address 69) must be programmed for a maximum of 24 hours.

3. Timer Programming:
- Bell Cutoff Times (Program Addresses 61, 63) must be programmed for not less than 15 minutes.
- Exit, Entry Delay Times (Program Addresses 65, 66) must be programmed for not longer than 60 seconds.
- Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

4. Communication Format Programming:
- Telephone Control (Program Addresses 75, 76; Data Digits 2, 3) must be programmed to make 5-10 dialing attempts.

5. General Control Programming:
- Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 1, or 3).
- Phone Line/Bell Test (Program Address 81, Data Digit 2) must be programmed (enter 3).

4. Police Station Connection
The 7090 must be installed in accordance with the U.L. 681, 365, and 1635 standards.

A. Grade A Installations using Digital Alarm Communicator Transmitter with local bell
Required Accessories: The 7090 must be mounted in the AE7100 attack resistant enclosure (order the 7090CC) with a cover actuated tamper switch installed. The Ademco Model AD10-12 bell must be mounted in the Ademco Model AB-12 bell housing.

1. Zone Programming:
- Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
- Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
- Low Battery Report (Program Address 49) must be programmed.
- AC Failure Report (Program Address 50) must be programmed.
- Open Report (Program Address 54) must be programmed.
- Close Report (Program Address 56) must be programmed.
- 24 Hour Check-In Report (Program Address 58) must be programmed.
- 24 Hour Check-In Report timing (Program Address 85 data digit 4) must be programmed to a 0 (every 24 hours) or 9 (every hour).
- 24 Hour Check-In Offset (Program Address 69) must be programmed for a maximum of 24 hours.

3. Timer Programming:
   - Bell Cutoff Times (Program Addresses 61, 63) must be programmed for not less than 15 minutes.
   - Exit, Entry Delay Times (Program Addresses 65, 66) must be programmed for not longer than 60 seconds.
   - Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

4. Communication Format Programming:
   - Telephone Control (Program Addresses 75, 76; Data Digits 2, 3) must be programmed to make 5-10 dialing attempts.

5. General Control Programming:
   - Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 1, or 3).
   - Phone Line/Bell Test (Program Address 81, Data Digit 2) must be programmed (enter 3).

5. Central Station Burglary Alarm

The 7090 must be installed in accordance with the U.L. 681, 1610, and 1635 standards for all grades of service.

A. Grade A Installations using Long Range Radio and Digital Alarm Communicator Transmitter

Required Accessories: The 7090 must be mounted in the AE7100 attack resistant enclosure (order the 7090CC) with a cover actuated tamper switch installed. The required communication equipment is the Ademco Model 7622CD10 Long Range Radio Transmitter with the Model 7625 Transmitter Antenna, and Model 7621AD Transmitter Interface. The Ademco Model 659EN Telephone Line Fault Monitor is required. The Ademco Model 7621AD Transmitter Interface must be mounted inside the control panel enclosure, and secured with at least two screws. The recommended mounting position is the lower right side of the back cover. If the Ademco Transmitter Interface is not powered by the 7090, the wiring connecting the Transmitter Interface and the power supply must be in conduit. The Model 7621AD Transmitter Interface's inputs must be wired to the output of the Model 659EN Telephone Line Fault Monitor and to the alarm output or the AUX relay which is programmed to operate on an intrusion alarm. If this system also monitors Fire Alarms, the burglary alarms should be programmed to activate the alarm output and the Fire Alarm should activate the AUX Relay. The alarm output is wired to both the burglary alarm sounder and to the initiating input of the Long Range Radio Transmitter.

1. Zone Programming:
   - Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9). All zones shall be programmed to operate the alarm output or AUX relay steady (which ever is wired to the transmitter interface).

2. Report Programming for the Digital Alarm Communicator Transmitter:
   - Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
   - Low Battery Report (Program Address 49) must be programmed.
   - AC Failure Report (Program Address 50) must be programmed.
   - Open Report (Program Address 54) must be programmed.
   - Close Report (Program Address 56) must be programmed.
   - 24 Hour Check-In Report (Program Address 58) must be programmed.
   - 24 Hour Check-In Report timing (Program Address 85 data digit 4) must be programmed to a 0 (every 24 hours) or 9 (every hour).
   - 24 Hour Check-In Offset (Program Address 69) must be programmed for a maximum of 24 hours.

3. Timer Programming:
   - Exit, Entry Delay Timer (Program Addresses 65, 66) must be programmed for not longer than 60 seconds.
   - Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.
   - The AUX relay alarm delay (Program Address 60) must be programmed for 000 seconds (no delay).

4. Communication Format Programming:
   - Telephone Control (Program Addresses 75, 76; Data Digits 2, 3) must be programmed to make 5-10 dialing attempts.

5. General Control Programming:
   - Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 1, or 3).
   - Phone Line Test (Program Address 81, Data Digit 2) must be programmed (enter 1).

B. Grade B Installations using Digital Alarm Communicator Transmitter with local bell

Required Accessories: The 7090 must be mounted in the AE7100 attack resistant enclosure (order the 7090CC) with a cover actuated tamper switch installed. The Ademco Model AD10-12 bell must be mounted in the Ademco Model AB-12 bell housing.

1. Zone Programming:
   - Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
   - Low Battery Report (Program Address 49) must be programmed.
   - AC Failure Report (Program Address 50) must be programmed.
   - Open Report (Program Address 54) must be programmed.
   - Close Report (Program Address 56) must be programmed.
   - 24 Hour Check-In Report (Program Address 58) must be programmed.
   - 24 Hour Check-In Report timing (Program Address 85 data digit 4) must be programmed to a 0 (every 24 hours) or 9 (every hour).
   - 24 Hour Check-In Offset (Program Address 69) must be programmed for a maximum of 24 hours.

3. Timer Programming:
   - Bell Cutoff Times (Program Addresses 61, 63) must be programmed for not less than 15 minutes.
   - Exit, Entry Delay Timer (Program Addresses 65, 66) must be programmed for not longer than 60 seconds.
   - Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

4. Communication Format Programming:
   - Telephone Control (Program Addresses 75, 76) must be programmed to make 5-10 dialing attempts (Data Digits 2, 3).

5. General Control Programming:
   - Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 1, or 3).
   - Phone Line/Bell Test (Program Address 81, Data Digit 2) must be programmed (enter 3).

C. Grade C Installations using Digital Alarm Communicator Transmitter only

Required Accessories: The 7090 must be mounted in the AE7100 attack resistant enclosure (order the 7090CC) with a cover actuated tamper switch installed.

1. Zone Programming:
   - Data Digit 3 of Program Addresses 11-15 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-35) must be programmed for those zones used.
   - Low Battery Report (Program Address 49) must be programmed.
   - AC Failure Report (Program Address 50) must be programmed.
   - Open Report (Program Address 54) must be programmed.
   - Close Report (Program Address 56) must be programmed.
   - 24 Hour Check-In Report (Program Address 58) must be programmed.
   - 24 Hour Check-In Report timing (Program Address 85 data digit 4) must be programmed to a 0 (every 24 hours) or 9 (every hour).
   - 24 Hour Check-In Offset (Program Address 69) must be programmed for a maximum of 24 hours.

3. Timer Programming:
   - Exit, Entry Delay Timer (Program Addresses 65, 66) must be programmed for not longer than 60 seconds.
   - Dialer Delay (Program Address 68) must be programmed for not longer than 15 seconds.

4. Communication Format Programming:
   - Telephone Control (Program Addresses 75, 76) must be programmed to make 5-10 dialing attempts (Data Digits 2, 3).

5. General Control Programming:
   - Commercial Mode (Program Address 81, Data Digit 1) must be programmed for NO Swinger Shunts (enter 1, or 3).
   - Phone Line Test (Program Address 81, Data Digit 2) must be programmed (enter 1).

7090 PROGRAM WORKSHEET (panel copy)

	Zone Programming (Section PR.1)	Defaults	Reporting Code (Section PR.4)	Defaults
ZONE 1 _____	1 1 |__|__|__|__| #	(1200, Entry)	3 1 |__|__|__|__|__| #	(10E11)
ZONE 2 _____	1 2 |__|__|__|__| #	(1000, Perimeter)	3 2 |__|__|__|__|__| #	(20E21)
ZONE 3 _____	1 3 |__|__|__|__| #	(1000, Perimeter)	3 3 |__|__|__|__|__| #	(30E31)
ZONE 4 _____	1 4 |__|__|__|__| #	(1000, Perimeter)	3 4 |__|__|__|__|__| #	(40E41)
ZONE 5 _____	1 5 |__|__|__|__| #	(1300, Interior)	3 5 |__|__|__|__|__| #	(50E51)
FIRE ZONE (Sect. PR.12)	8 0 |__|__| #	(51, Verification)	3 0 |__|__|__|__|__| #	(60E61)

ZONE VERIFICATION (Section PR.2)	2 0 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 4 (Section PR.3)	2 1 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 5 (Section PR.3)	2 2 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 6 (Section PR.3)	2 3 |__|__| #	(00, disabled)

REPORT PROGRAMMING

	(Section PR.4) (defaults = 00000, disabled)		(Section PR.5) (defaults = 000, disabled)
SILENT ALARM	4 5 |__|__|__|__|__| #	DURESS ALARM	5 2 |__|__|__| #
EMERGENCY ALARM	4 6 |__|__|__|__|__| #	EXCEPTION OPENING	5 3 |__|__|__| #
FIRE TROUBLE	4 7 |__|__|__|__|__| #	OPENING	5 4 |__|__|__| #
ZONE TROUBLE	4 8 |__|__|__|__|__| #	EXCEPTION CLOSING	5 5 |__|__|__| #
		CLOSING	5 6 |__|__|__| #
LOW BATTERY	4 9 |__|__|__|__|__| #	CANCELLED ALARM	5 7 |__|__|__| #
AC POWER FAILURE	5 0 |__|__|__|__|__| #	AUTOMATIC TEST	5 8 |__|__|__| #
SYSTEM TROUBLE	5 1 |__|__|__|__|__| #	COMMUNICATE TEST	5 9 |__|__|__| #
REPROGRAM REPORT	0 7 |__|__|__|__|__| #	LATE TO OPEN (7090TM)	0 8 |__|__|__| #
		LATE TO CLOSE (7090TM)	0 9 |__|__|__| #

TIMERS (Section PR.6)

AUXILIARY RELAY ALARM DELAY	6 0 |__|__|__| #	(000 seconds)	(defaults)
BELL CUTOFF TIMER FOR ZONES	6 1 |__|__|__| #	(004 minutes)	
BELL CUTOFF TIMER FOR FIRE	6 2 |__|__|__| #	(004 minutes)	
BELL CUTOFF TIMER FOR EMERGENCY	6 3 |__|__|__| #	(004 minutes)	
AUXILIARY ENTRY DELAY TIMER	6 4 |__|__|__| #	(045 seconds)	
EXIT DELAY TIMER	6 5 |__|__|__| #	(060 seconds)	
ENTRY DELAY TIMER	6 6 |__|__|__| #	(045 seconds)	
ACCESS CONTROL TIMER	6 7 |__|__|__| #	(000 seconds)	
DIALER DELAY TIMER	6 8 |__|__|__| #	(000 seconds)	
AUTOMATIC TEST TIMER	6 9 |__|__|__| #	(024 hours)	

GENERAL CONTROL - (Section PR.13)	8 1 |__|__|__|__| #	(4030)
PROGRAMMER CODE - (Section PR.14)	8 2 |__|__|__|__|__| #	(98765)
SYSTEM CONFIGURATION - (Section PR.16)	8 5 |__|__|__|__| #	(0000)

PHONE NUMBER 1 - (Section PR.7)	7 1 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 1 - (Section PR.8)	7 3 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 1 - (Section PR.9)	7 5 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 2 - (Section PR.7)	7 2 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 2 - (Section PR.8)	7 4 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 2 - (Section PR.9)	7 6 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 3 - (Section PR.7)	7 7 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
AUTO HISTORY DUMP TIME (Section PR.10)	7 8 |__|__|__|__| #	(0000) 7090TM only
REMOTE PROGRAM CONTROL (Section PR.11)	7 9 |__|__|__|__| #	(0000)

ACCOUNT NUMBER _____ INFORMATION

Name _____ Contact Person _____

Address _____ Voice Phone Number _____

_____ Panel Phone Number _____

City, State, Zip _____ Panel Answers Phone |__| Armed |__| Disarmed

ACCOUNT NOTES and Users Code Information

_____

_____

_____

_____

_____

_____

EQUIPMENT LOCATION and NOTES

AC Voltage _____ VAC Battery Voltage _____ VDC AUX Current _____ mA

Control Panel _____

Transformer _____

Telephone Jack _____

Telephone On Same Line as Panel _____

Earth Ground Connection _____

Alarm Sounder (s) _____

Keypad # 1 _____

Keypad # 2 _____

Keypad # 3 _____

Keypad # 4 _____

Zone # 1 _____

Zone # 2 _____

Zone # 3 _____

Zone # 4 _____

Zone # 5 _____

Fire Zone _____

7090 PROGRAM WORKSHEET (record copy)

	Zone Programming (Section PR.1)	Defaults	Reporting Code (Section PR.4)	Defaults
ZONE 1 _____	11 |__|__|__|__| #	(1200, Entry)	31 |__|__|__|__|__| #	(10E11)
ZONE 2 _____	12 |__|__|__|__| #	(1000, Perimeter)	32 |__|__|__|__|__| #	(20E21)
ZONE 3 _____	13 |__|__|__|__| #	(1000, Perimeter)	33 |__|__|__|__|__| #	(30E31)
ZONE 4 _____	14 |__|__|__|__| #	(1000, Perimeter)	34 |__|__|__|__|__| #	(40E41)
ZONE 5 _____	15 |__|__|__|__| #	(1300, Interior)	35 |__|__|__|__|__| #	(50E51)
FIRE ZONE (Sect. PR.12)	80 |__|__| #	(51, Verification)	30 |__|__|__|__|__| #	(60E61)
ZONE VERIFICATION (Section PR.2)			20 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 4 (Section PR.3)			21 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 5 (Section PR.3)			22 |__|__| #	(00, disabled)
SPECIAL ARMING KEY 6 (Section PR.3)			23 |__|__| #	(00, disabled)

REPORT PROGRAMMING (Section PR.4) (defaults = 00000, disabled)

			(Section PR.5) (defaults = 000, disabled)	
SILENT ALARM	45 |__|__|__|__|__| #		DURESS ALARM	52 |__|__|__| #
EMERGENCY ALARM	46 |__|__|__|__|__| #		EXCEPTION OPENING	53 |__|__|__| #
FIRE TROUBLE	47 |__|__|__|__|__| #		OPENING	54 |__|__|__| #
ZONE TROUBLE	48 |__|__|__|__|__| #		EXCEPTION CLOSING	55 |__|__|__| #
			CLOSING	56 |__|__|__| #
LOW BATTERY	49 |__|__|__|__|__| #		CANCELLED ALARM	57 |__|__|__| #
AC POWER FAILURE	50 |__|__|__|__|__| #		AUTOMATIC TEST	58 |__|__|__| #
SYSTEM TROUBLE	51 |__|__|__|__|__| #		COMMUNICATE TEST	59 |__|__|__| #
REPROGRAM REPORT	07 |__|__|__|__|__| #		LATE TO OPEN (7090TM)	08 |__|__|__| #
			LATE TO CLOSE (7090TM)	09 |__|__|__| #

TIMERS (Section PR.6)

AUXILIARY RELAY ALARM DELAY	60 |__|__|__| #	(000 seconds)	(defaults)
BELL CUTOFF TIMER FOR ZONES	61 |__|__|__| #	(004 minutes)	
BELL CUTOFF TIMER FOR FIRE	62 |__|__|__| #	(004 minutes)	
BELL CUTOFF TIMER FOR EMERGENCY	63 |__|__|__| #	(004 minutes)	
AUXILIARY ENTRY DELAY TIMER	64 |__|__|__| #	(045 seconds)	
EXIT DELAY TIMER	65 |__|__|__| #	(060 seconds)	
ENTRY DELAY TIMER	66 |__|__|__| #	(045 seconds)	
ACCESS CONTROL TIMER	67 |__|__|__| #	(000 seconds)	
DIALER DELAY TIMER	68 |__|__|__| #	(000 seconds)	
AUTOMATIC TEST TIMER	69 |__|__|__| #	(024 hours)	
GENERAL CONTROL - (Section PR.13)	81 |__|__|__|__| #	(4030)	
PROGRAMMER CODE - (Section PR.14)	82 |__|__|__|__|__| #	(98765)	
SYSTEM CONFIGURATION - (Section PR.16)	85 |__|__|__|__| #	(0000)	

PHONE NUMBER 1 - (Section PR.7)	71 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 1 - (Section PR.8)	73 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 1 - (Section PR.9)	75 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 2 - (Section PR.7)	72 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 2 - (Section PR.8)	74 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 2 - (Section PR.9)	76 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 3 - (Section PR.7)	77 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
AUTO HISTORY DUMP TIME (Section PR.10)	78 |__|__|__|__| #	(0000) 7090TM only
REMOTE PROGRAM CONTROL (Section PR.11)	79 |__|__|__|__| #	(0000)

PRODUCT UPDATE

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CONCERNS: Product Change; ROM Version 1.16

AFFECTS: DS7090 Control/Communicators

DATED: 22 September, 1993

The DS7090 Control/Communicator shipped with this "Product Update" contains ROM version 1.16.

ROM 1.16 contains the following changes that are not discussed in the Installation Manual.

1) Keyswitch Forced Arming (v1.15).

• Keyswitch forced arming is now permitted during a fire alarm. When the sounders are on this feature provides a method for silencing them by arming, then disarming the control. The keyswitch will not allow forced arming if there are no fire alarms present.

2) Addition of VFSK format (v1.12).

• The VFSK communicator format has been added to operate with Varitech receivers. To select the VFSK format, program address 75 and/or 76 data digit 4 must be a 9. If data digit 4 is programmed as a 9, then program data digit 5 as a 2 or 3 only. All other choices of data digit 5 are invalid if using VFSK format.

3) Dialing changes (v1.12).

• If the panel is programmed for tone dialing, it will dial the first digit of the phone number and determine whether the dial tone has stopped. If the dial tone has stopped, it will continue to tone dial. If not, it will start over and pulse dial. Previously, the panel would dial half the attempts tone then switch to pulse. Also, if the panel is programmed to send an asterisk (*) character, it will be replaced with '1' '1' if it changes to pulse. This will allow features such as disabling call waiting to work with pulse dialing.

Note: When dialing through with PBX systems, a three second delay should be programmed after the digit which calls for an outside line.

For example, if a 9 is required to obtain an outside line, the phone number (address 71 and/or 72) should be programmed as follows:

9	***3**	**5551212**
Request for outside line	3 second delay	Phone Number

We recommend that all Control Communicators be installed directly to an outside line and not through a PBX system. We do recognize that sometimes this is impractical.

4) Emergency Key Operation (v1.10).

• The operation of the emergency (B) key has been changed such that if it is programmed for silent operation (PR.14 General Control Programming Program address 81 data digit 1), an acknowledge tone will no longer be heard when the key is activated. This makes the key a true Silent Emergency key for holdup situations.

5) Auxiliary Relay Activation (v1.10).

• The Auxiliary relay operation has been changed to allow for auxiliary relay activation without activating the keypad sounders. This provides a silent output for use with hold-up zones.

If Data digit 1 of the intrusion zone and fire zone programming (PR.1 address 11-15 and PR.12 address 80) is programmed as a 2, the auxiliary relay will activate, but the keypad sounder will remain silent.

There will be a visual indication that the zone has alarmed at the keypad. The zone LED will flash on the DS7091, and the DS7140 will display "Not Ready — Zone XX".

Previously, this value would activate the auxiliary relay and the keypad sounder.

Note: If this feature is desired, the auxiliary relay should not be programmed to follow the arming state of the control (PR.16 Data Digit 1), because it will *only* follow the arming state of the control and will *not* activate when a zone goes into alarm.

6) Remote Program Communication Failure (v1.10).

• A communication failure occurrence when calling the remote programmer will automatically reset once the control completes a successful remote programming session, provided a failure has not occurred on central station phone numbers 1 and/or 2.

7) Siren Interaction With the Digital Communicator (v1.09).

• The siren was found to interact with the digital communicator in several instances. The digital filtering has been changed to prevent that interaction.

8) Fire zone voltage display (v1.09).

• Fire zone voltage display during walk test mode now reads correctly when the fire zone is properly supervised.

9) AC Fail Reports (v1.09).

• AC Fail and AC Restore reports will not be reported if the AC power restores before the AC Fail report is sent.

10) The Auto Arming Warning Siren (v1.09).

• The Auto Arming warning siren is now different from the 5, 10, and 15 minute warning siren. It is 2 seconds on, 2 seconds off, 2 seconds on (applies to the DS7090TM only).

11) History Buffer Read Back (v1.09).

• Hitting the end of the history buffer when going backward or forward in history display mode (#89) no longer cancels the mode. Instead, the user may hit the 6 key to move back one full event, or the 9 key to move forward one full event. The # key continues to move forward one display at a time. To cancel history display use the * reset key (applies to the DS7090TM only).

12) Fire Alarm Interlock (v1.08).

•If a fire alarm has occurred (not keypad fire) that has not been reset by #80, then the panel must be force armed. This is to prevent an end user from ignoring the fire alarm indication on the keypad and leaving the fire protection system disabled.