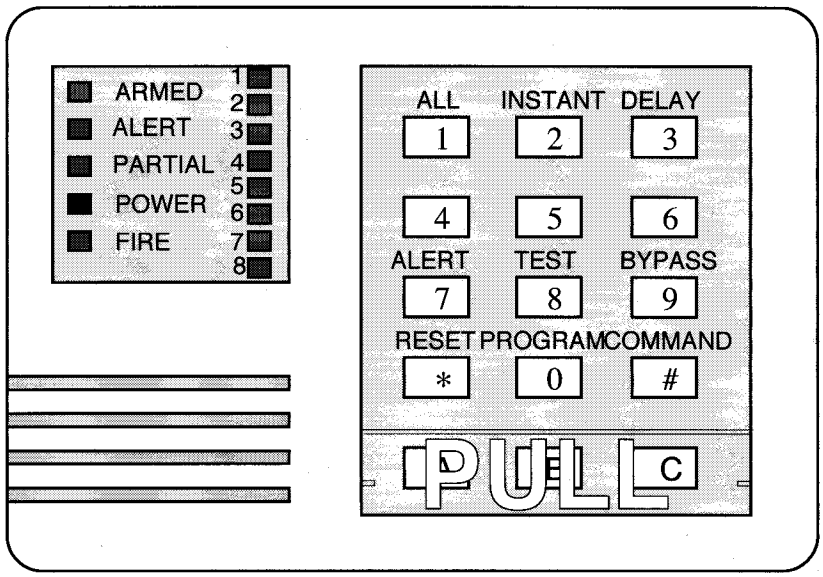
Installation and Programming Manual
7090i Security / Fire Control

including 7090TMi 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 Dial out	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 Control Code** followed by COMMAND

Time-of-Day Programming
(7090TMi only)

Enter time-of-day programming mode by entering a Master Code followed by COMMAND 0 7. Refer to the 7090TMi Time Managers User's Guide P/N 25746 for further help in setting the time parameters.

	Address
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

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Fax: (716) 223-9180

7090i and 7090TMi Specifications

Housing

The standard enclosure is manufactured from 20 Ga., cold-rolled steel, and measures 12.5 in. Wide, by 14.5 in. High, by 3 in. Deep. A keyed lock is included, and this enclosure has provision for an optional tamper switch for monitoring the door.

Temperature

- +32° to +120°F
  (0° 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 recharge in 24 hours)
• Auxiliary power voltage range	10.2 to 14.0VDC
• Optional Standby battery Model P334	12V, 1.2 to 7.0 AH 6AH battery = 10 hours
• Control panel standby current	60mA.
• 7092 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	Form A, 1.5 Amp contact connected to auxiliary power. Can be programmed for steady or pulsed output.
• Optional Aux relay	Form C, 1 Amp contact. Can be used for alarm, arming state, or access control. Can be programmed for steady or pulsed output.

Keypads

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

Note: In order to use the DS7140 with the DS7090i, the keypad must be ROM version 2.06 or higher.

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, 3/1 Ext., 4/1, 4/2, BFSK, and VFSK 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

Lightning Protection

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

Burglar Zone Inputs

• Number of circuits	8 Circuits
• End of line resistor	2.2k 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	2.21k ohms
• Supervisory current	5 mA.
• Minimum current for alarm	12 mA.
• Maximum short circuit current	22 mA.
• Maximum circuit resistance	30 ohms
• Circuit voltage range	8.5 to 14.1VDC
• Maximum impedance for alarm	914 ohms
• Maximum detectors per zone	20 detectors (2 wire)
• Total detector standby current	2.5 mA.

Table of Contents

Installing the Enclosure and Control/Communicator

The DS7090i control/communicator and the enclosure are shipped in separate boxes. Hardware for mounting the enclosure to a wall, and the control to the enclosure is located in a separate hardware pack.

1.0 Install the Enclosure

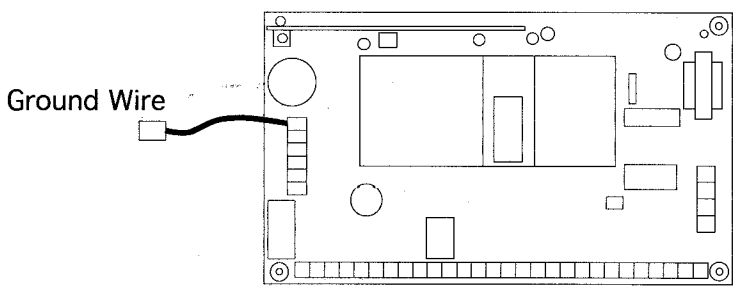
- Use the enclosure as a template and mark the top mounting holes on the mounting surface.
- Pre-start the mounting screws for these two holes. Slide the enclosure onto these mounting screws so that the screws move up into the thinner section of the holes. Tighten the screws.
- Screw in the remaining two screws in either set of bottom mounting holes.
- Knock out the desired wire entrances on the enclosure.

2.0 Install the Control/Communicator

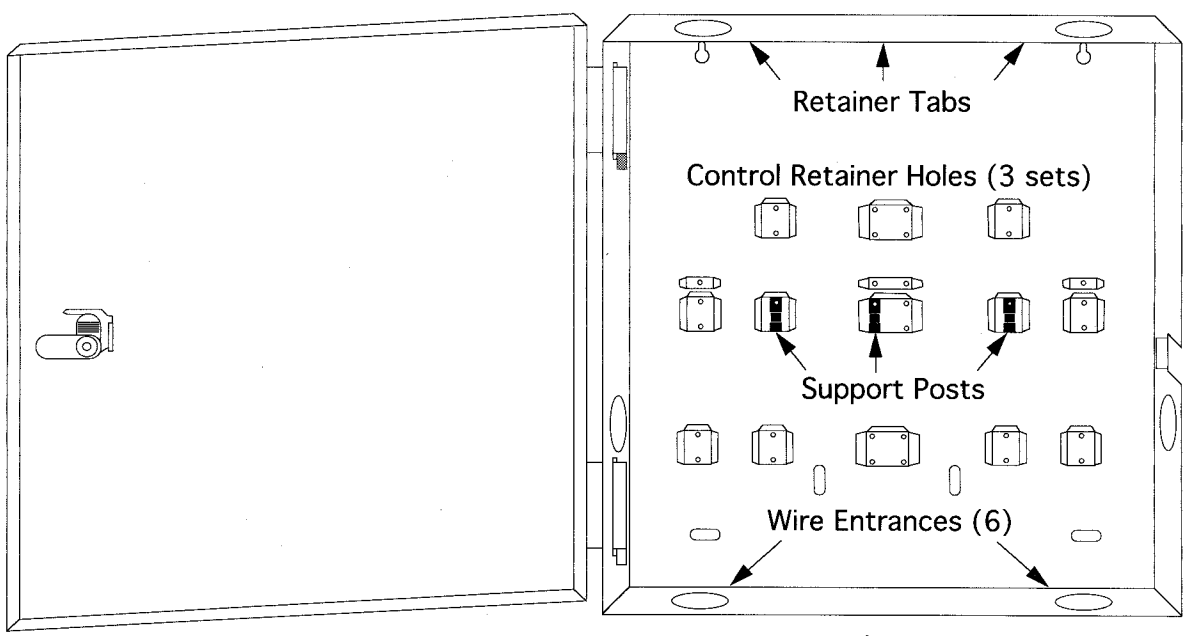
CAUTION: The control is static sensitive. Make sure you touch ground before handling the control. This will discharge any static electricity in your body. Example: Run the ground wire to the enclosure before handling the control. Then keep holding the ground wire while installing the control.

- Insert the three support posts into the control retainer holes as shown in the diagram.
- Slide the top of the control into the retainer tabs (the slots under the top frame).
- Once in the retainer tabs, the control will rest on the three support posts.
- Secure the bottom of the enclosure by screwing the bottom three holes through the support posts and through to the control retainer holes.

CAUTION: Once the control is installed, be sure to connect its ground wire to the top hinge of the enclosure (the unpainted tab).

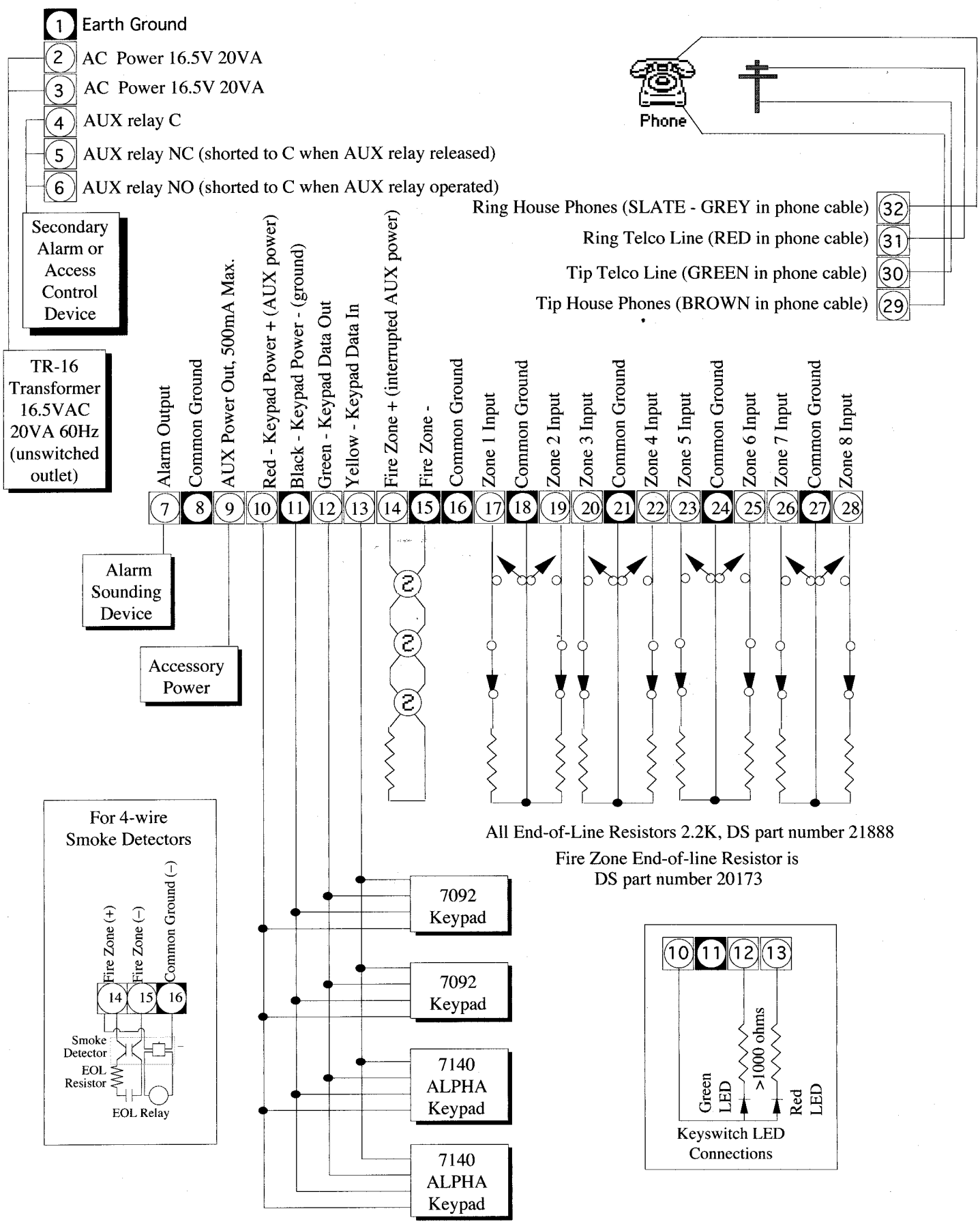


Control/Communicator



Enclosure

1.0 Control Terminal Wiring



Home run wire all keypads. Do not daisy chain.

2.0 Terminal Functions

2.1 Earth Ground, terminal 1.

Connect terminal 1 directly to the top hinge of the enclosure. Slide it onto the unpainted tab. See the diagram on page 4.

Do not:

- Share the ground wire with other equipment, or rely on conduit for grounding.
- Use the third wire in an electrical outlet.

2.2 16.5 VAC Power Input, terminals 2 and 3.

Connect terminals 2 and 3 to the 16.5 VAC, 20 VA transformer (TR-16) supplied with the control panel.

- Use no smaller than #18 AWG wire (50 feet maximum).
- Do not install the transformer until all other wiring connections have been made.
- The location of the control panel should be near a 120 VAC outlet not controlled by a switch.
- A dedicated service should be used.
- Do not share the transformer.
- The operating input limits for the supplied transformer are 120 VAC, +10%, -15%.

If AC power fails, the control panel will operate from battery power. As energy is depleted from the battery, voltage drops. When the battery voltage drops to 12.0 VDC, Low Battery and AC Failure reports will be issued.

When the battery voltage drops to 10.2 VDC, the AUX relay and alarm voltage will turn off to conserve battery life. The control panel and communicator will continue to function until the battery reaches 8.0 VDC, then they will also shut down.

When AC power is restored (after complete power failure, AC and battery) the control panel will return to the arm/disarm state (including any bypasses) it was in when power failed. The control panel will function normally; however, a zone violation will not issue an alarm for 4 minutes (if the control panel was armed). This allows the sensors to power-up and function normally. All system parameters are saved through the power failure.

2.3 Standby Battery

Connect one or two rechargeable 12 volt, 7 amp-hour, P334 sealed lead-acid batteries to the black and red terminal leads.

- The C311 battery expander is suggested for two batteries.
- Use only lead-acid batteries.
- Locate the batteries at the bottom of the enclosure.
- Do not connect to the control panel until all other wiring connections have been made.
- One P334 battery = 10 hours minimum standby. Two P334 batteries = 20 hours.

The control panel is not battery dependent. The battery charger is temperature compensated to prevent shortened battery life caused by overcharging.

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

2.4 Alarm Voltage Output, terminals 7 and 8.

The total system current is rated at 1.5 Amp maximum when in alarm with a battery connected. Terminal 7 output is controlled by a zone or fire alarm. Terminal 8 is the ground reference for this output.

This output may be programmed to be pulsed or steady. The output is protected by a self-resetting circuit breaker. The use of vibrating horns is not recommended with the 7090i.

Each zone can be programmed to provide individual control of the alarm output and AUX relay.

- The burglar zone is programmed in section PR.1, data digit 1.
- The fire zone is programmed in section PR.13, data digit 1

The fire zone has priority. No matter what state the alarm output and AUX relay are in, they will go to the state programmed for the fire zone upon its alarm.

In the case of alarms other than fire:

- If the alarm output is on steady and a new zone alarms that is programmed for a pulsing alarm output, it will cause the alarm output to pulse.
- If the alarm output is pulsing and a new zone alarms that is programmed for steady, it will have no effect on the alarm output.
- Pulsing always overrides steady for the alarm sounder 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 steady alarm output and AUX relay, it will have no effect on the alarm output, but the AUX relay will turn on steady.

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

2.5 Aux Relay, terminals 4, 5, and 6.

Terminals 4, 5, and 6 are connected to the AUX relay. To function, a K102 relay (optional) must be plugged into the AUX relay socket (observe the direction arrow on the relay when plugging it in).

- Output is controlled by a zone or fire alarm, the armed state of the control panel, or an access control code from a keypad.
- Contacts are form C and 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 burglar zone programming **section PR.1** and in fire zone programming **section PR.13**.
- Any zone can be programmed to operate the AUX relay to: e.g. turn on a CCTV camera.

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 **section PR.7, line 60 (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 driven by the AUX relay.

When used as an **access output,** its operation is programmed in **section PR.7, line 67.** If programmed to a value between 1 and 255, each time an access code is entered at the keypad the AUX relay will change state for that number of seconds and then automatically return to its previous state. One or more user codes must be programmed as an access control 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, a fire alarm will remove the access restriction.

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

In section PR.17, line 85, data digit 1; the AUX relay may be programmed to operate when the control panel is armed (but not in exit delay), and to be released when the control panel 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/fire alarm or access control code will not change the state of the AUX relay.

2.6 Auxiliary Power, terminals 8 and 9.

Terminal 9 supplies continuous regulated 12.0 VDC @ up to 500mA to auxiliary devices. Terminal 8 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 the total keypad current from 500mA.
- The voltage will vary from 10.2 to 14.0 VDC under normal operation (AC and battery power).
- This output is protected by a self-resetting circuit breaker.

2.7 Keypad Connection, terminals 10,11,12, and 13.

Terminals 10 (keypad power), 11 (keypad ground), 12 (data out), and 13 (data in) support 4, four-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 12 provides a ground for the green STATUS LED. Terminal 13 provides a ground for the red ARMED LED on the keyswitch plate. The other side of the LEDs must be wired to AUX power.

- **Remember:** Provide a resistor (minimum 1000 ohms) for the LEDs.

The keyswitch contacts are wired into a zone input. The keyswitch LED connections must be removed when a keypad is added to the control panel for programming.

2.8 Telephone, terminals 29, 30, 31, and 32.

The standard telephone cable connections are:

Green = Outside Telco Tip on terminal 30.
Red = Outside Telco Ring on terminal 31.
Brown = House Phone Tip on terminal 29.
Slate (grey) = House Phone Ring on terminal 32.

The telephone line is not supervised by the control panel. The phone line 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.

2.9 Ground Start Pin

If requiring a ground start, an extra 12 VDC, DPDT relay must be used (optional).

- Connect the relay coil (+) to position 9 on the 7090i T-strip.
- Connect the relay coil (-) to the ground start pin (located at the right edge of the 7090i circuit board. Use the bottom pin.).
- Connect both relay contact commons to earth ground.
- Connect the N/O of both relays to position 30 and 31 respectively on the 7090i.
- Connect phone lines as shown in the diagram on page 4.

2.10 Fire Zone, terminals 14, 15, and 16.

Terminal 14 supplies regulated 12.0 VDC AUX power for fire detection devices.

- The voltage will be between 8.5 and 13.5 Volts in normal operation.
- The voltage is interrupted when a Detector Reset or Battery Test command is issued from any keypad.
- Optional automatic fire verification will also interrupt power for detector reset.

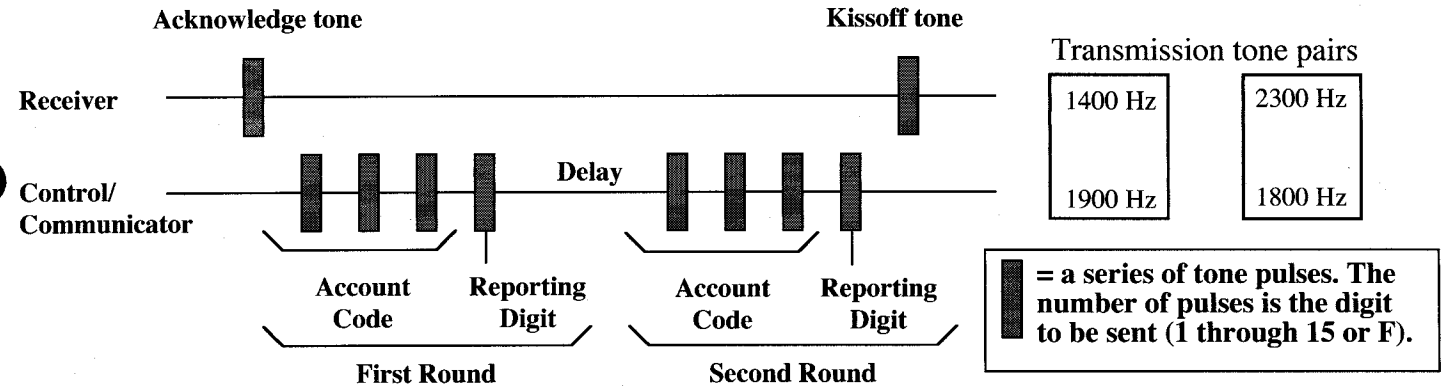
Up to twenty U.L. compatible 2-wire smoke detectors can be wired to the fire zone. Connect the positive terminal of the smoke detector to terminal 14 of the control panel. Do not connect intrusion detectors to this terminal.

Terminal 15 is the 2-wire circuit return.

Wire the (-) of the 2-wire detector to terminal 15. Do not wire 2-wire smoke detectors to a Common Ground terminal on the control panel. The loop is considered normal when the voltage on fire zone (-) is between 0.35 and 1.2 VDC. An alarm results if the voltage is higher than 1.25 VDC.

The control panel is designed to work with 12.0 VDC, 25mA, 2-wire detectors.

Four-wire smoke detectors can be used with the fire zone by wiring the smoke detector's (+) power terminal to terminal 14 on the control panel. The (-) detector power terminal should be wired to terminal 16 on the control panel. The alarm contacts on the smoke detector must be wired in parallel with an end-of-line resistor to terminals 14 and 15 respectively. An end-of-line relay should also be used.



This diagram depicts **3/1 Format** (see section 3.0)

2.11 Programmable Zone Inputs

There are eight 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.
- Each zone requires the supplied 2.2K ohm EOL resistor for supervision.
- Connect an EOL resistor across the terminals of any unused loop, or program the loop for permanent shunt.
- A common ground is shared by two loops.
- A normal (non faulted) loop will measure between 2.0 and 3.0 VDC from the loop input to ground.
- A loop is considered shorted if it measures 1.5 VDC or less.
- A loop is considered open if it measures 3.8 VDC or greater.
- Loop response time may be programmed for 60 or 300 milliseconds (see section PR.1, data digit 4).

3.0 Communications Basics

3.1 3/1 Format

This format is shown in the above diagram.

A three digit account code is sent, followed by a one digit reporting code. Two rounds are sent for the receiver to verify the data.

This format is usually transmitted at 10 or 20 pps (pulses per second).

3.2 3/1 Extended Format

This format works by sending two transmissions, with each transmission consisting of two rounds of data as in the 3/1 format.

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 or 20 pps.

Example: If the account code was 345 and the first and second digits of the reporting code were F and 9, then the first transmission would send two rounds of 345 F. The second transmission would send two rounds of FFF 9.

3.3 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 second round is not needed because the parity digit is used to verify the data.

This format is usually transmitted at 40 pps.

3.4 3/1 Extended Format with Parity

This format works by sending two transmissions, with each transmission consisting of one round of data as in 3/1 format with parity.

In the first transmission, the account code is sent followed by the first digit of the reporting code and a parity digit. 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 and a parity digit.

This format is usually transmitted at 40 pps.

3.5 4/1 Format

This format is the same as 3/1 format except that four digits of account code are sent rather than three in each round.

This format is usually transmitted at 10 or 20 pps.

3.6 4/2 Format (Silent Knight)

This format is the same as 3/1 except four digits of account code and two digits of reporting code are sent in each round.

This format is usually transmitted at 10 or 15 pps.

3.7 BFSK Format

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

3.8 VFSK Format

VFSK sends four digits of account code and two digits of reporting code in reverse order. The transmission consists of two alternating tones. It is repeated six times so the receiver can verify the data.

The VFSK format is for use with Varitech receivers.

3.9 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 will typically take one of three different forms.

- 345 F
  FFF 9
- 345 F9
- 345 TROUBLE ZONE 9

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

4.0 Communicator Programming

4.1 Report Code

The report code is the reporting digit sent after the account code in 3/1, 3/1 Ext., 4/1, BFSK reporting, and prior to the account code in VFSK reporting. It is also the first reporting digit sent after the account code in 4/2 reporting.

If a report of "Zone 0" is to be sent to the receiver, program the report digit with a RESET key followed by 0 (HEX A).

If the report is enabled, never program the report digit with a 0 because it will disable the digit from being sent.

- Programmed in sections PR.5 and PR.6, data digit 1.

4.2 Report Extended

The report extended digit is 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, and the first digit sent in VFSK. It can not be used for alarm reporting in BFSK.

If a report of "Zone 0" is to be sent to the receiver, then program this digit with a RESET key followed by 0 (HEX A). When this digit is programmed with a 0, the report will not be extended (it will only send one report digit in 3/1 and 4/1).

For 4/2 reporting, this digit must be programmed to a non- zero value.

For zone trouble reporting (section PR.5, line 48), if this digit is programmed as a zero, the alarm reporting code for the troubled zone will be sent as the extended reporting code in 3/1 Ext., 4/2, BFSK, and VFSK formats.

- Programmed in section PR.5 and PR.6, data digit 2.

4.3 Restoral Code

The restoral code is the reporting digit sent after the account code in 3/1, 3/1 Ext., 4/1, BFSK restoral reporting, and prior to the account code in VFSK restoral reporting. It is also the first reporting digit sent after the account code in 4/2 restoral reporting.

If a report of "Zone 0" is to be sent to the receiver, program this digit with a RESET key followed by 0 (HEX A). When this digit is programmed with a 0, restoral reporting for this report will be disabled.

- Programmed in section PR.5, data digit 3.

4.4 Restoral Extended

The restoral extended digit is sent in the second round of an extended 3/1 report. It is also the second reporting digit sent after the account code in 4/2 reporting and the first digit sent in VFSK reporting.

If a report of "Zone 0" is to be sent to the receiver, program this digit with a RESET key followed by 0 (HEX A). When this digit 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 (section PR.5, line 48), 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 Ext., 4/2, BFSK, and VFSK formats.

- Programmed in section PR.5, data digit 4.

4.5 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.5, lines 31 through 38.

For 3/1 Ext., BFSK, and VFSK; the alarm report code is sent as the zone number. This insures the central station sees the same zone number in alarm and trouble reports.

- See section PR.17, line 85, digit 3.

4.6 AC Power Fail Report

AC power failure does not initiate an immediate report to the central station. The report will be sent only if the power failure still exists when another report is generated for another reason (e.g. low battery report). This prevents excess calls to the central station that might be caused by a massive power outage over a large area.

- Programmed in section PR.5, line 50.

4.7 System Trouble Report

This report will be sent to the central station when the system has detected an internal fault and is still capable of reporting it.

- Programmed in section PR.5, line 51.

4.8 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.

- Programmed in section PR.5, line 07.

4.9 Duress Report

This report is sent to the central station when a user code, one digit higher in the last digit than a valid user 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, both the duress and the opening reports will be sent when the system is disarmed with a duress code.

A duress report is not delayed by the dialer delay, and it can not be cancelled.

- Programmed in section PR.6, line 52.

4.10 Exception 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 and an alarm has occurred during the 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, not the opening report will be sent the first time the system is disarmed after an alarm.

- Programmed in section PR.6, line 53.

4.11 Opening Report

This report is sent to the central station the first time the system is disarmed after [Command/#]-[1] arming was used to arm the system.

Disarming after any other form of arming will not send an opening report.

- Programmed in section PR.6, line 54.

4.12 Exception Closing Report

This report is sent to the central station **only** when [Command/#]-[1] arming is used to arm the system, and when one or more zones have been bypassed or force 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, 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.6, line 55.

4.13 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.6, line 56.

4.14 Cancelled Alarm Report

A cancelled alarm report will be issued if an alarm is silenced while the alarm sounders are on. Do not program the cancelled alarm report when the exception opening report is programmed.

- Programmed in PR.6, line 57.

4.15 Automatic Test Report

This report is sent to the central station automatically at the interval programmed in section PR.17, line 85, digit 4. It is used as an automatic test of the digital communicator.

- Programmed in section PR.6, line 58.

4.16 Automatic Test Report Offset

This is the number of hours until the next automatic test report will be sent.

- Programmed in section PR.7, line 69.

4.17 Communicator Test Report

When programmed, a [Command/#]-[8]-[2] entered at the keypad will generate a test report.

The POWER LED on the keypad will flash during the test.

If the report is successful, the POWER LED 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 LED will continue to flash, the keypad beeper will come on steady, and a communication error will be latched into the system trouble display. Pressing [RESET] will quiet the beeper.

- Programmed in section PR.6, line 59.

4.18 Late to Close and Late to Open Reports

Opening and closing windows may be programmed in the 7090TMi control panel only.

Each window is composed of a start time and a length. Refer to this guide's front cover or the 7090TMi Time Managers User's Guide P/N 25746 to set the time parameters.

The start time determines the time of day a window will activate. The length determines how long the window will remain active.

Openings and closings occurring within the appropriate windows are not reported; these are normal occurrences. However, openings and closings occurring outside of these windows will be reported. All openings and closings are stored in the 7090TMi's history buffer, whether they occur within a window or not.

A late to close report will be sent if the control panel is not closed (armed) at the end of the closing window. A late to open report will be sent if the control panel is not open (disarmed) at the end of the opening window. Setting the window length to zero 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.

- Programmed in section PR.6, lines 08 and 09 (7090TMi only).

4.19 Dialer Delay

This is the number of seconds the communicator will wait, after an alarm is detected, before sending an alarm report to the central station. This delay allows a false alarm to be cancelled before it is reported.

Typically used only in residential installations.

- Programmed in section PR.7, line 68.

4.20 Call Waiting

Connecting control panels to phone lines equipped with a call waiting feature is not recommended.

If the control panel must be connected to a line with call waiting, the programmed central station phone number should be preceded by the call waiting disable code and a three second delay. This prevents incoming calls from interrupting a communication.

Example: Call waiting can be disabled in many areas by dialing *70 before the phone number for tone dialing or 1170 for pulse dialing.

- The phone numbers are programmed in section PR.8, lines 71, 72, and 77.

4.21 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 should be used with all but the oldest receivers.

- Programmed in section PR.10, lines 75 and 76, data digit 1.

4.22 Single Report

When selected, only one report will be sent in each phone call to the central station.

This setting should be used only with the oldest receivers which can receive only one report per phone call.

- Programmed in section PR.10, lines 75 and 76, data digit 1.

4.23 Tone Dialing

When programmed for tone dialing, the control panel 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.

If the control panel is programmed to tone dial an asterisk (*), it will be replaced with "1" "1" if the control panel changes to pulse dialing. This allows such features as disabling call waiting to work with pulse dialing.

- Programmed in section PR.10, lines 75 and 76, data digit 1.

4.24 User Code Reporting

The control panel has 15 user codes.

User Codes 1 through 6 may be restricted from sending opening and closing reports by:

- Programming section PR.14, line 81, data digit 4.

User code extended reporting in open, close, and exception close reports may be suppressed by:

- Programming section PR.17, line 85, digit 2.

User code extended reporting in exception open, cancel, and duress reports may be suppressed by:

- Programming section PR.17, line 85, digit 2.

For those receivers that can only receive decimal codes:

- Program section PR.17, line 85, digit 3 to limit extended user code reporting to decimal codes.

When decimal reporting is used, only 10 unique user codes can be reported to the central station.

5.0 Keypad Programming

5.1 Alarm History Display

If a zone alarms during an armed period, its zone LED will flash. When the control panel is disarmed, that zone LED will continue flashing until the control panel is armed again.

If a zone displaying a flashing alarm is faulted during the disarm period, its zone LED will come on steady. When the zone is restored, its LED will return to flashing.

When [Command/#]-[8]-[9] is pressed, the zone status LEDs of zones that alarmed during the last armed period will flash for 10 seconds.

Pressing [Reset/*] while the alarm history is being displayed will clear the alarms from history and will cancel the display (it also clears the zone LED from flashing during disarm).

5.2 Closing Ringback

If the control panel is programmed for "Phone Line (Dial Tone) Test on Arm" a beep will sound when arming the control panel if the dial tone is detected. If the dial tone is not detected, the control panel will still arm, but the beep will not sound. This simulates "closing ringback" without placing a call.

If also programmed for "Bell Test on Arm," the AUX Relay and Alarm output will operate for two seconds at the same time 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.

If programmed for both "Phone Line Test on Arm" and a Closing Report, 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.

- Programmed in section PR.14, line 81, data digit 2.

5.3 Commercial and Residential Modes

The control panel can be programmed for Commercial or Residential modes of operation.

- Programmed in section PR.14, line 81, data digit 1.

In the commercial mode, a User Code or a Programmer Code must be entered before any command is entered (except for emergency alarms). **For example:** to arm the system, enter a user code followed by [Command/#]-[1].

In the residential mode, the user code is used only to disarm the control panel and silence alarms. Therefore, the user code is not entered before commands. **For example:** to arm the system, enter [Command/#]-[1] (do not enter a user code first).

When operating in the Partition Mode, the control panel will always be in the commercial mode.

5.4 Custom Arming

Three custom arming configurations may be programmed, thereby eliminating the need for individual zone bypasses .

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

- Programmed in section PR.3, lines 21 to 23.

Custom Arming is not allowed if the control panel is programmed for partitioning.

5.5 Supplemental Keypad Alarms, the clear protective case covering these keys must be pulled down to reach these keys.

5.5.1 Fire Alarm [A] Key

Pressing the [A] key for two seconds will cause a Fire alarm in all keypad modes except the Programming mode.

Keypad Fire alarms will light the fire LED. They must be reset by [Command/#]-[8]-[0] the same way fire zone alarms are reset (the sounders must be silenced first).

- The Fire Alarm report is enabled in section PR.5, line 30 .
- The Fire alarm key [A] is enabled in section PR.17, line 85, data digit 3.

5.5.2 Supplemental Alarm [B] Key

Pressing the [B] key for two seconds will cause a Supplemental alarm in all keypad modes except the Programming mode.

- The Supplemental Alarm report is enabled in section PR.5, line 46.
- The Supplemental alarm key [B] is enabled in section PR.14, line 81, data digit 4.
- For silent keypad panic, see section PR.14, line 81, data digit 1.

5.5.3 Silent Alarm [C] Key

Pressing the [C] key for two seconds will cause a silent alarm in all keypad modes except the Programming mode.

- The Silent Alarm report and [C] key are enabled by programming section PR.5, line 45.

5.6 Force Arm

If any red zone status LEDs are on steady when an arming command is entered, the control panel may be force armed.

To enable force arming:

- Program section PR.14, line 81, 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 (see section PR.1, data digit 3).

When force arming is allowed and an arming command is entered with any of the red zone status LEDs on steady, the keypad beeper will sound for five seconds. If the [Bypass/9] key is pressed during the five second beep, the control panel will be forced armed; otherwise it will not arm.

If the control panel is programmed to report exception closing, then a trouble report will be issued for each bypassed zone, followed by an exception closing report.

If swinger shunting is off, 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 will restore if they return to normal and are programmed to restore.

5.7 Occupied (interior bypass) Arming

The control panel may be armed by entering [Command/#]-[2]. This bypasses the interior zones and places the control panel in Instant mode so no one may enter.

Arming by [Command/#]-[3] also bypasses the interior zones, but leaves the entry delay enabled so anyone with a valid user code may enter.

- If these arming modes are not desired they may be disabled in section PR.17, line 85,data digit 2.

5.8 Swinger Shunt

Swinger shunt is intended to reduce central station traffic from burglar zone "swingers."

A "swinger" is a zone toggling in and out of an alarm condition while the control panel is armed.

- Swinger shunt is enabled in section PR.14, line 81, data digit 1.

If a zone is programmed for restoral and swinger shunt is on, that zone will restore only twice. On the third and last time this zone reports an alarm, a trouble report is sent in the same phone call indicating the zone is now in "swinger shunt" and will not report again until the control panel is disarmed.

Note For Force Arming

If swinger shunting is off, force armed zones are truly bypassed and will not restore even if they return to normal. If swinger shunt is enabled, the force armed zones will restore if they return to normal and are programmed to restore.

5.9 Trouble Display

Control panel troubles are indicated by a flashing green POWER LED.

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

LED 1 = AC power failure. To arm during an AC power failure, enter the arming sequence, then press [Bypass/9].

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

LED 3 = Communicator failed.

LED 4 = AUX power shorted.

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

5.10 Trouble Reset

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

6.0 Zone Programming

6.1 Day Monitor

If a zone is programmed for Day Monitor, any violation of that zone, while the control panel is disarmed, will cause the keypad beepers to sound continuously.

While the alarm is sounding, that zone's LED will flash indicating the day monitor alarm.

The keypad beepers can be silenced only by entering a valid disarm user code, which will also stop the zone LED from flashing.

No central station report will be made for a day monitor violation. Day monitor alarms are placed in the alarm history display.

- Programmed in section PR.1, data digit 2.

6.2 Entry and Exit Delays

To enable a zone as an entry/exit delay zone:

- Program section PR.1, data digit 2.
- Program the entry delay time in section PR.7, line 66.
- Program the exit delay time in section PR.7, line 65.

These zones may also be programmed for auxiliary entry delay.

- Programmed in section PR.1, data digit 4.
- This zone's entry delay will be programmed in section PR.7, line 64 (the entry delay setting in line 66 will not be used for this zone).

6.3 Invisible Zone

When a zone is programmed to be invisible, there is **no** outward indication of the zone being faulted.

The zone is silent; even the red zone LED on the keypad gives no indication of the zone being faulted. It is intended for use on money clips and other similar applications.

- Programmed in section PR.1, data digit 1.

6.4 Keyswitch Zone

Only one zone may be programmed for keyswitch arming.

- Programmed in section PR.1, data digit 4.

The keyswitch contacts are wired into that zone's input.

Note: When a keyswitch is programmed no keypads may be used in the system. In order to re-enter the programming mode, the program mode contacts on the 7090i circuit board must be shorted together.

The keyswitch must be momentary and must short the zone lines together.

The keyswitch zone is end-of-line supervised. Opening (cutting) the loop results in a trouble while the system is disarmed, and results in an alarm when the system is armed.

Keyswitches can not be used on UL systems.

If section PR.3, line 23 is programmed, the keyswitch will arm bypassing those zones programmed.

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

When keyswitch arming is programmed, terminal 12 will provide a ground for the green STATUS LED and terminal 13 will provide a ground for the red ARMED LED on the keyswitch plate. The other side of the LEDs must be wired to AUX power.

Remember: Provide a resistor for the LEDs (1000 ohms minimum).

The keyswitch LED connections must be removed when a keypad is added to the control panel 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 panel. 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.

6.5 Special Area Protection

Any compliment of zones may be programmed as a special area.

- Programmed in section PR.1, data digit 3.

When one or more zones are programmed as special area zones, only user codes 11 through 15 may disarm the special area.

The control panel must be in the commercial mode for this feature to function. This requires a 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 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 panel using [Command/#]-[1] arming, and all protection including the special area will be armed. The keypad indicator LEDs will follow their normal pattern: red ARMED LED flashing for the exit delay, yellow PARTIAL LED off, and the yellow ALERT LED off.

If a non-special area user (codes 1 through 10) disarms the control panel, the red ARMED LED will go off, the yellow PARTIAL LED will be off, and the zone LEDs will start following the current zone status. The yellow ALERT LED will start flashing to indicate 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, he should enter his user code. This will remove the special area protection and stop the yellow ALERT LED from flashing.

If the special area user desires to re-arm the special area without re-arming the entire control panel, they should use the special arming key [4], [5], or [6] sequence. This will start the yellow ALERT LED flashing and arm the special area protection zones.

The zone alarm response can be programmed as desired. It is often programmed to sound the keypad beepers only when the special area is armed (red ARMED LED off), and the siren when the entire control panel is armed (red ARMED LED on).

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

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

Special Area Protection is not available in Partitioning Mode.

6.6 Trouble (Burglar Zone)

A zone may be programmed to monitor zone loop problems or tamper.

- Programmed in section PR.5, line 48 and in 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 panel 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 panel 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.5 lines 31 through 38). For 3/1 Ext., BFSK, and VFSK; 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.17, line 85, digit 3 to program the extended reporting digit as the zone number rather than the reporting digit for 3/1 Ext., BFSK, and VFSK.

6.7 Zone Restoral

When a zone restores (returns to normal) from alarm or trouble, the zone restoral report will be sent.

The zone restoral may be programmed to occur when the zone restores or when the alarm sounders silence (to reduce reporting traffic).

- Programmed in section PR.17, line 85, data digit 1.

6.8 Zone Verification

Any combination of zones may be programmed to be verified.

- Programmed in section PR.2, line 20.

If programmed for zone verification, the system will be placed in one of the two modes described below:

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

This test will be disabled if the control panel 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 through all of the protection.

Mandatory Walk Test Mode: When the arming sequence is entered, the red zone status LEDs for the zones programmed for mandatory walk test will flash rapidly and the control panel will not arm. All the zones that are flashing must be violated within 10 minutes. As a zone is violated, its zone LED will return to normal operation. After all the programmed zones are violated, the arming sequence must be entered again within 10 minutes. The control panel 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 zone verification mode, but may not force arm. Bypassing zones causes an Exception Close report to be reported.

7.0 Fire Alarm

If a Fire alarm occurs, the FIRE LED on the keypads will flash and the sounder, alarm, and Aux. relay will respond as programmed in PR.13, line 80, data digit 1.

The system sounders can be silenced by entering a valid user code. The FIRE LED will continue to flash. Entering [Command/#]-[8]-[0] will reset the alarm LED on the smoke detector, and cancel the flashing FIRE LED on the keypad. 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 panel must be force armed.

7.1 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, the keypad's FIRE LED will come on steady. The keypad beepers will sound a short beep every five seconds.

The beepers can be silenced by entering a valid user code. The FIRE LED will continue to display. This display can be cancelled only by correcting the cause of the fire trouble, and then entering a valid user code.

8.0 Remote Programming

The control panel is remote programmable.

The remote programmer can be used to change any programming line or monitor the state of all zones, outputs, and troubles. It can also be used to arm or disarm the control panel and bypass zones.

The control panel may be remote programmed by the CP7000 IBM PC software.

8.1 Phone Line Answering

The control panel may be programmed to answer the phone line when it is armed or disarmed. The answer ring count can be set to a different number of rings for armed and disarmed states.

- The number of rings is programmed in section PR.12, line 79, digits 3 and 4.

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

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

8.2 Answering Machine Override

If the control panel is programmed to answer the phone line, then answering machine override is automatically enabled.

If an answering machine answers the phone before the control panel, hang up and call the control panel back. If the control panel detects the phone line ringing within one minute of when the last ringing cycle stopped, it will answer on the first ring and seize the phone line.

- To disable answering machine override in commercial accounts, program section PR.12, line 79, data digits 3 and 4 to answer the phone in 12 rings.

8.3 Arming Status Phone Test

If the number of rings at which the control panel answers is different for arm and disarm states by at least two, then it is possible to call the control panel's phone number and count the rings before it answers to see if the control panel is armed or disarmed.

- The control panel may be programmed to answer the phone in line 79 of section PR.12 (even if remote programming is not used).

8.4 Remote Agency Codes and Passwords

There are 10 HEXadecimal digits for passcodes to gain remote entry to a control panel (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 panel, or the control panel will hang-up immediately without allowing access.

When the control panel is first shipped or the EEPROM is reset to initial conditions, the agency code and remote password are made wildcards. Therefore, the first time a control panel is called from a remote programmer, any agency code and remote password is accepted and access will be granted. The control panel will retain the agency code and remote password it was given on 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.

8.5 Calling The Remote Programmer

The third phone number in the control panel allows it to call the remote programmer.

- see section PR.8, 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 control panel calling in, phone number 1 (section PR.8, line 71) and account number 1 (section PR.9, line 73) must also be programmed.

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

The **Callback** feature increases the security of remote access. Callback has the control panel hang-up on the remote programmer before granting access, then call the remote programmer back on the pre-programmed (third) phone number. This allows only the remote programmer at the central station to be used to program this control 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 control panel.

There are a few disadvantages of callback. First, the control panel can only be programmed from one phone number. This prevents portable remote programmers from being used to assist in closing or after hours support. Another disadvantage is that the operator must not only wait for the initial call to be setup and answered by the control panel, but must also wait the time required for the control panel to hang up and call back.

The callback option can be enabled or disabled on an individual control panel basis.

- Programmed in section PR.12, line 79, digit 2.

Phone number 1 and account number 1 must also be programmed.

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

8.6 Anti-Field Takeover

The control panel can be programmed (remotely) 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 control panel already in place. This data can be changed by the remote programmer only if you know the agency code and remote password.

8.7 Automatic Dialout

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

To support automatic dialout the following must be programmed:

- The third phone number, section PR.8, line 77.
- The automatic history report time, section PR.11, line 78.
- The reporting day of the week, section PR.12, line 79.
- Phone number 1, section PR. 8, line 71.
- Account number 1, section PR.9, line 73.

When the above items are programmed, the 7090TMi will automatically call the remote programmer at the programmed time and day. Should communications fail to be established after 6 attempts, the control panel will wait for one hour and try again, one time per hour, until it is successful.

When this feature is enabled, the control panel will also call out when an AC power failure has caused 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, the control panel will only call out on a low battery report 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 continuously in automatic answer mode waiting for unscheduled calls. Also, if weekly open and close custom reports are to be generated, 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 7090TMi's EEPROM programming when the 7090TMi 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 7090TMi's programming without having to waste an operators time establishing a phone connection and waiting for the download to occur.

9.0 Partitioning in the DS7090i

(Not available in the 7090TMi)

The eight zones of the DS7090i can be split into two partitions. Individual zones may be assigned to one of the two partitions, or may be shared by both partitions. Users can be assigned to one partition or both.

- Partitioning is programmed in section PR.14, line 81, data digit 2.

9.1 Partitioning Mode

Some operations of the DS7090i will work differently when partitioning is selected. These changes are as follows:

9.1.1 Commercial Mode

The control panel will always be in commercial mode when partitioning is selected, regardless of line 81, data digit 1 programming.

9.1.2 Keypad Programming

Keypad programming will not be allowed if either partition is armed.

9.1.3 System Configuration

All system configurations and general control panel programming features are the same for both partitions.

9.1.4 Fire Zone

The fire zone is shared by both partitions. Users having access to either partition may silence and reset the fire zone.

9.1.5 Keyswitch Zones

There are no keyswitch zones allowed when in partitioning mode.

9.1.6 Special Areas

There are no special areas allowed when in partitioning mode.

9.1.7 Custom Arming

Custom Arming is not allowed when in partitioning mode.

9.1.8 Sirens

Entering a user code for one partition will not turn off the sirens if the other partition is armed and there has been an alarm on one of its zones.

9.2 Assigning the Zones

To assign zones to each partition:

- Program PR.4, line 21 for partition 1.
- Program PR.4, line 22 for partition 2.

9.3 Shared Zones

A shared zone is a zone assigned to both partitions. A shared zone is armed only when both partitions are armed. Users for either partition can disarm a shared zone.

9.4 Assigning User Codes

User codes are assigned to partitions using the first digit of their code. Codes that begin with a "1" are for partition 1, and codes that begin with a "2" are for partition 2. Codes that begin with a "0" are for users with access to both partitions.

A master code beginning with a "1" can only program codes for partition 1, and a master code that begins with a "2" can only program codes for partition 2. A master code beginning with a "0" can program codes for both partitions.

9.5 Reports in a Partitioned System

Reports sent for partition 1 only (alarms, restorals, zone troubles) will use account ID 1 (line 73). Reports sent for partition 2 only (alarms, restorals, zone troubles) will use account ID 2 (line 74).

Reports not specific to a partition will use account code 1. These reports include fire alarm, fire trouble, and all other system troubles such as AC failure and battery failure.

Any report can be sent to either phone number or to both phone numbers. The reporting IDs will be used as previously described.

PR.17, line 85, data digit 2 is used to determine the open/closing report format. If line 85, data digit 2 is programmed as 0 through 7, the control panel will only send an opening report when one or both partitions are disarmed after the control panel was completely armed.

The control panel will send only one opening report, and it will use account code one when calling both phone one and two. It will not send an opening report when one partition is disarmed if the other partition is already disarmed. If programmed to send an exception opening report, the control panel will send the report using account code one if either partition has had an alarm.

Also, if line 85, data digit 2 is programmed as 0 through 7, the control panel will only send a closing report when both partitions are armed at the same time, or when one partition is armed while the other partition is already armed. It will send only one closing report and it will use account code one when calling both phone one and two. It will not send a closing report if one partition is armed while the other partition is disarmed. If programmed to send exception closing reports, the control panel will send them using account code one if either partition was force armed or if one partition is armed while an alarm is occurring in the second partition which is already armed.

If line 85, data digit 2 is programmed as 8 through 15, the control panel will be configured to report all partition openings and closings. It will report openings and closings of partition 1 using account code one and openings and closings of partition 2 using account code two.

9.6 Timers in a Partitioned System

All of the delay and time-out programming is global for both partitions. The entry and exit delays are the same length for both partitions, but they do not affect each other. If partition 1 is in exit delay and partition 2 is armed, partition 2 will have a complete exit delay time. The exit delay time for partition 1 will also be complete and will not be extended.

9.7 LEDs in a Partitioned System

When programmed for partitioning, the keypad LEDs on the DS7140 and DS7092 will function as follows:

ARMED LED: OFF - The control panel is completely disarmed.
ON - The control panel is armed in some way and no alarms have occurred.
FLASHING - The control panel is armed and an alarm has occurred, or one or both partitions were just armed and the control panel is in exit delay.

ALERT LED: OFF - Partition 1 is disarmed.
ON - Partition 1 is armed.
FLASHING - Partition 1 is perimeter armed.

PARTIAL LED: OFF - Partition 2 is disarmed.
ON - Partition 2 is armed.
FLASHING - Partition 2 is perimeter armed.

10.0 Control Testing

10.1 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.

The green POWER LED will flash during the battery test. If the green POWER LED continues to flash when the test is complete, the battery may be low. See the trouble Display in the Keypad Programming section.

10.2 System Test

The control board, memory, and AUX and AC power are automatically tested continually. If a problem is found, the green POWER LED will flash. See Trouble Display in the Keypad Programming section.

10.3 Zone Test (also Voltmeter and Phone Line Test)

To test the zones, enter [Command/#]–[8]–[1]. The Zone Test is used to insure detectors connected to a zone will report an alarm to the control panel. While in Zone Test, the yellow PARTIAL and red ARMED LEDs will flash together.

Each time the Zone Test sequence is entered, all the zone LEDs will flash. As each zone is tested, that zone's LED will come on steady. When the zone is restored, its zone LED will go out.

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

Zone Test includes all burglar 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; it will override the Zone Test function.

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

1 = Zone 1	LED 1 = 0 to 1 volt (Zone shorted)
2 = Zone 2	LED 2 = 1 to 2 volts
3 = Zone 3	LED 3 = 2 to 3 volts (Zone supervised)
4 = Zone 4	LED 4 = 3 to 4 volts
5 = Zone 5	LED 5 = 4 to 5 volts (Zone open)
6 = Zone 6	
7 = Zone 7	
8 = Zone 8	

Pressing the 9 key will test the Fire Zone. If LED 1 lights, the voltage is too low (trouble). LED 2 or 3 indicates a properly supervised Fire zone (preferably LED 2. LED 3 indicates the voltage is near alarm level.) An alarm is indicated by LED 4 or 5.

	LED 1 = 9 to 10 volts
A = AUX power	LED 2 = 10 to 11 volts
B = Battery	LED 3 = 11 to 12 volts (Battery Low)
	LED 4 = 12 to 13 volts (Battery OK)
	LED 5 = 13 to 14 volts (AUX power OK)

Pressing the C key will cause the control panel to seize the **phone line** and test for dialtone. The 5 LED will come on until a dialtone is detected, then all the zone LEDs will come on. If a dialtone is not detected, all the zone LEDs will not come on.

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

11.0 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. If not installed and used in accordance with the instructions, it 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:

- Re-orient 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 the receiver.
- Consult the dealer or an experienced radio/TV technician for help.

12.0 Canadian Dept. 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 Classe B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

13.0 FCC Phone Connection Notice

This control complies with Part 68 of the FCC rules.

On the inside of the enclosure a label 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 you may connect to your telephone line and still have all 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 you may connect to your line, you should 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 the equipment is not malfunctioning. The repairs to this equipment must be made by the manufacturer, 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.

The DS7090i is protected by the following patents:

5, 057, 816, and

5, 057, 817

14.0 Smoke Detector Placement

Proper location of detection devices is a critical factor 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 in "dead air" spaces, or close to ventilating or air-conditioning outlets because smoke may be circulated away from the detector. Locations near return air inlets should be favored.
- Avoid areas subject to normal smoke concentrations such as kitchens, garages, or near fire places.
- Do not install smoke detectors where normal area temperatures are above 100 degrees F. (38 degrees C.) or below 32 degrees F. (0 degrees C.). Areas of high humidity and dust concentrations should also be avoided.
- The edge of ceiling mounted detectors should be no closer than 4 inches (10 cm) from any wall.
- Place 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.

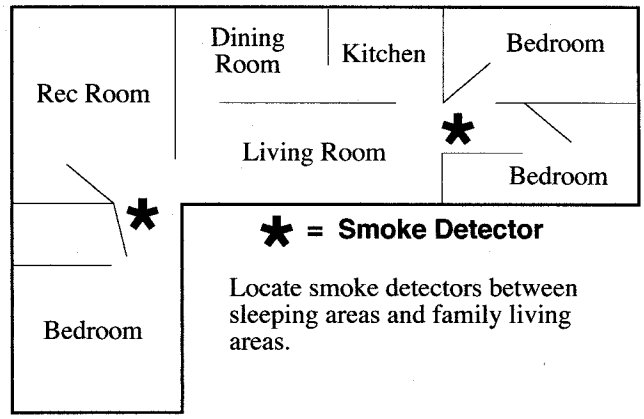
2-1.1.1 Smoke detectors shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms and on each additional story of the family living unit including basements and excluding crawl spaces and unfinished attics.*

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.

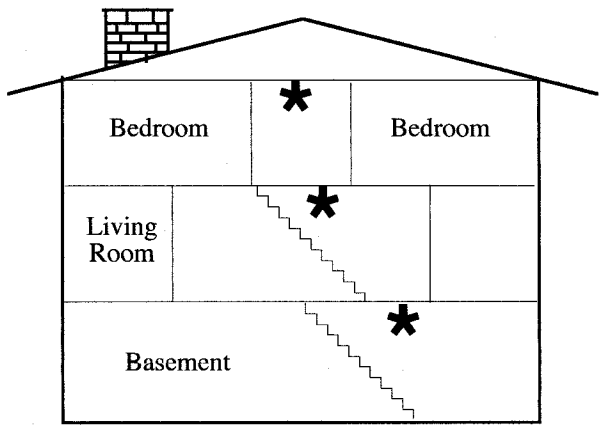
Exception: Where there is an intervening door between one level and the adjacent lower level, a smoke detector shall be installed on the lower level.

* 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.

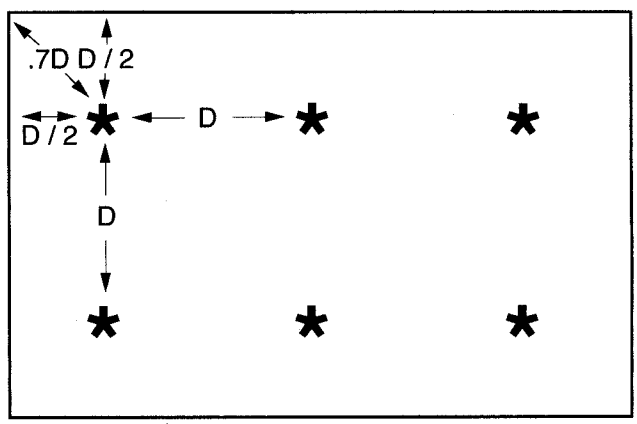
End of excerpt from NFPA Standard 74.



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.

15.0 Programming Mode

GENERAL INTRODUCTION
(For a more detailed description see 15.1 through 15.6)

Activating the Programming Mode
To enter the Programming Mode enter the programmer code (followed by [Command/#] - [Program/0]) at any keypad. Also, shorting the Programming Mode Entry contactor (located on the control panel circuit board) for two seconds will activate the Programming Mode. The contactor allows direct entry into the Programming Mode in case the keypad is not responding.

The Programming Mode may be activated at keypads only when the control panel is disarmed. However, the Programming Mode Entry contactor allows the Programming Mode to be activated if the control panel is armed or disarmed.

If the control panel is on-line with the remote programmer, it will not allow the programming mode to be entered.

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

While in the Programming Mode, the control panel will remain in an inactive state (complete disarm) and will process no alarms, not even fire alarms. When the Programming Mode is exited, the control panel will return to the normal disarm state regardless if the Programming Mode was activated while the control panel was armed or disarmed.

Successful Entry into the Programming Mode
When the Programming Mode is activated, a long beep will sound and the keypad LEDs will alternately flash. This beep and flashing LEDs indicate the control panel is in the Programming Mode.

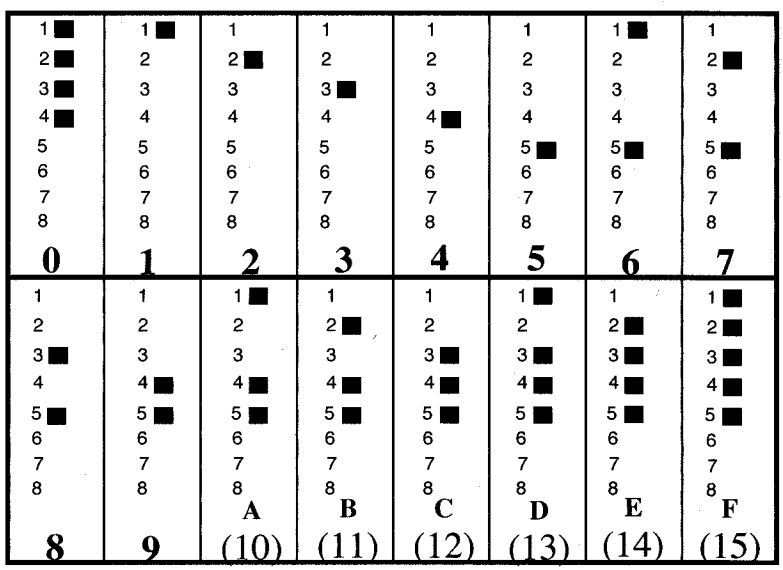
At this time a function, zone, etc., may be programmed by entering a 2-digit Line Number followed by the exact number of data entries, then terminated by [Command/#].

Successful Sequence Entry
If the sequence entry is accepted by the control panel, a long beep will sound and the program data will be recorded in memory. If an error is made (e.g. 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 LEDs will alternately flash. This beep and flashing LEDs indicate the control panel is ready to accept another entry.

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

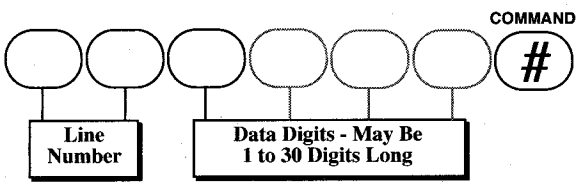
Cancelling the Programming Mode
To cancel the Programming Mode, press the [Reset/*] key for three seconds, then release. The three beep error tone will sound when the key is first pressed, followed by a long acceptance beep when the key is released. When the Programming Mode is successfully cancelled, the keypad LEDs will return to normal operation and the control panel will return to the disarm state. If ALPHA data has been changed at an ALPHA keypad, the Program Mode will not cancel until the ALPHA transfer has been completed.



Shown above are the representations for all sixteen values that will be displayed in the keypad LEDs (7092) to program and read back data in the control panel.

NOTE: The numeric value can be determined by adding the lit LED numbers together.

Basic Format for Programming Entries



All programming entries follow the same basic format. Think of the entry sequence as three blocks of information: Line number, data values, and sequence terminator.

Line Number: This will always be the first two digits of the sequence. These two digits tell the control panel which data items to program.

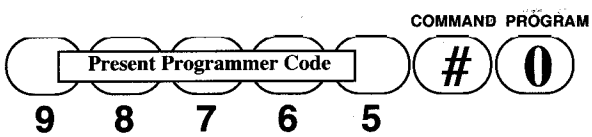
Data Values: These are the next set of numbers to be programmed. Depending on the line number, the data entries may be from 1 to 30 digits.

Sequence Terminator: The [Command/#] key is the sequence terminator. It tells the control panel that input has ended and to execute the change, if valid.

15.1 Key Switch System Programming

The keyswitch LED connections must be removed when a keypad is added to the control for programming.

15.2 Activate the Programming Mode

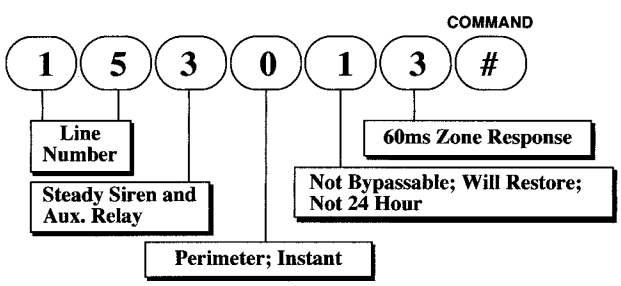


To activate the Programming Mode, either short the Programming Mode Entry contactor for two seconds, or enter the present programmer code at a keypad followed by [Command/#]–[Program/0].

For example, the above graphic uses the 5-digit factory pre-set programmer code 9 8 7 6 5. The entry sequence (at a keypad) is then [9]–[8]–[7]–[6]–[5] – [Command/#] – Program/0]. Remember, the control panel must be disarmed when activating the Programming Mode from a keypad.

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

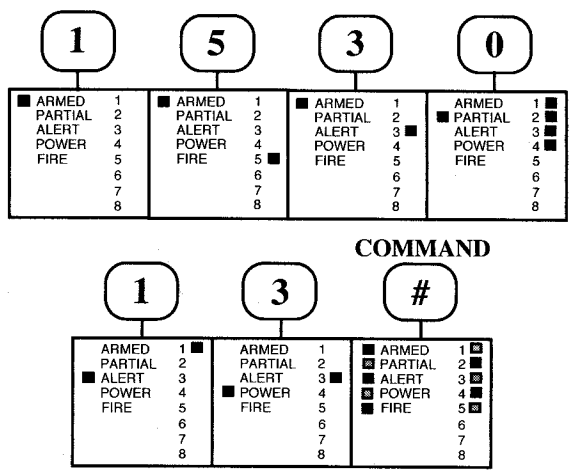
15.3 Programming Zone 5 (example)



The previous graphic shows how to program zone 5 to perform within the following parameters:

- 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 60 milliseconds.

The example below shows in detail the proper entry sequence for achieving the zone response we are looking for to program zone 5.



The first key pressed (1) represents the first digit of the 2-digit line number. This first digit will appear in the left column of keypad LEDs.

The second digit (5) will appear in the right column of keypad LEDs. It represents the second digit of the 2-digit line number.

The third digit entered (3) is the first of the data values. When entered, the line number will be replaced in the left column of LEDs by the Armed LED, which is the count of data entries (data digit number). The representation for the number 3, appearing in the right column of LEDs, is the value of the key just pressed (the new **data digit** value to be programmed).

When the next key is pressed (0), the left column of LEDs advances to the Partial LED to indicate the second data digit has been entered. The right column of LEDs displays the value of the key just entered (a zero which will be stored in **data digit** two).

A (1) and (3) are entered as **data digits** three and four.

The [Command/#] key is pressed to end the input sequence. At this time, a long beep should sound verifying that the control panel has accepted the input sequence; the keypad LEDs will alternately flash to indicate the control panel is ready for the next programming input sequence. If a three beep tone is heard, the programming changes were not accepted.

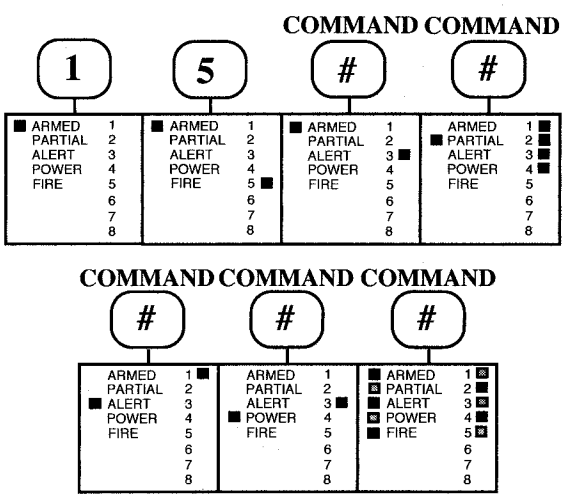
15.4 Program Data Read Back

Programmed data information can be read back for verification any time while in the Programming Mode.

With the keypad in the alternately flashing LED display mode, enter only the 2-digit Line Number for the data you wish to read back. As the line number is entered, the first digit of the line number will be displayed in the left column of LEDs and the second digit of the line number will be displayed in the right column.

Rather than enter data at this point, press the [Command/#] key. The first time the [Command/#] key is pressed, the left column of LEDs will display the representation of 1, the current data digit count. The value stored in the control panel in data digit 1 will be displayed in the right column of LEDs. Repeated pressing of the [Command/#] key will display each data value stored in program memory.

When the [Command/#] key is pressed and there are no more data values to be displayed at this line number, the three beep error tone will be heard and the display will return to the alternately flashing LED pattern.



The previous example shows in detail the read-back verification for the prior example of zone 5.

Enter 1 as the first digit of the line number.

Enter 5 as the second digit of the line number.

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

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

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

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

Pressing the [Command/#] one more time returns the display to the alternately flashing LED display. This indicates the control panel is ready for another input sequence.

NOTE: After the line number has been entered and [Command/#] pressed, entering any other key but the [Command/#] key will cause the three beep error tone and the keypad LEDs will return to the alternately flashing LED display. The program data being displayed will not change, and the control panel is ready for the next input.

15.5 Factory Default Programming

To reset the EEPROM memory to factory defaults, enter [8]-[3]-[9]-[Command]. The keypad beeper will turn on steady. Short the PROGRAM contacts on the lower right of the control panel; 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).

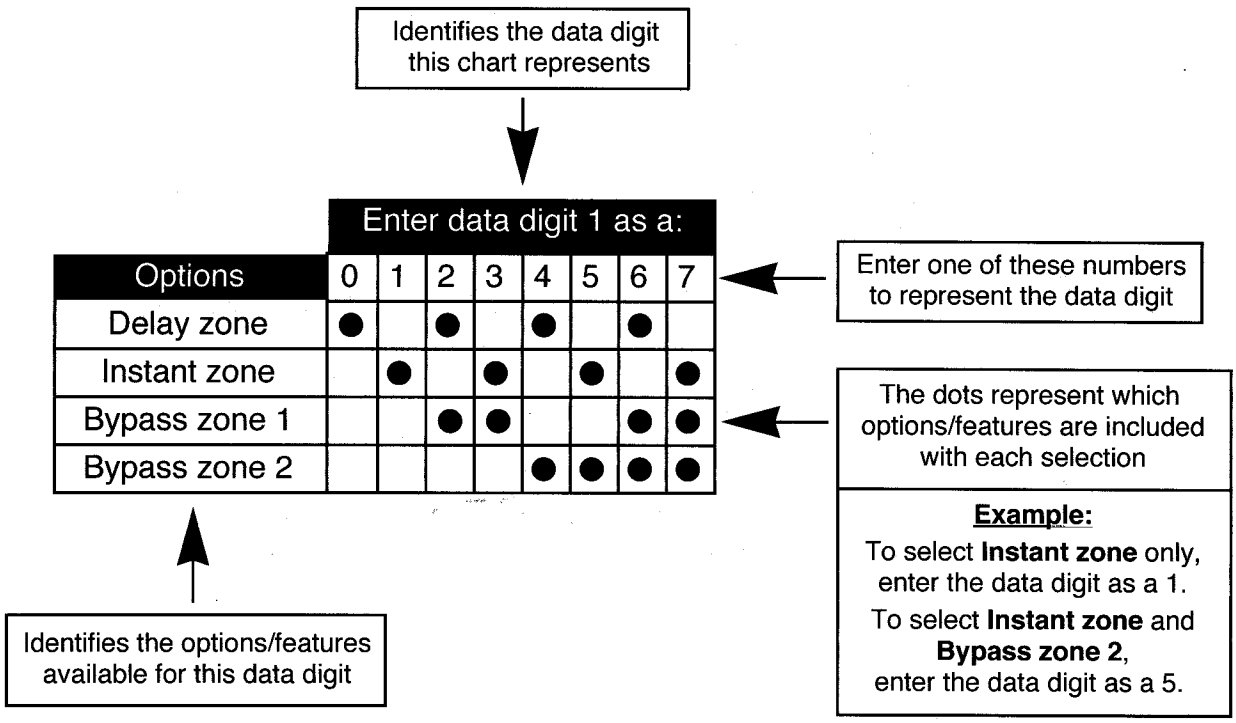
15.6 Cancel the Programming Mode

To cancel the Programming Mode, press the [Reset/*] key for three (3) seconds; a three beep tone will sound. Wait for the three beep tone to stop then release the [Reset/*] key. A long beep will sound after the key is released. This signals cancellation of the Program Mode; the control will return to the disarm state.

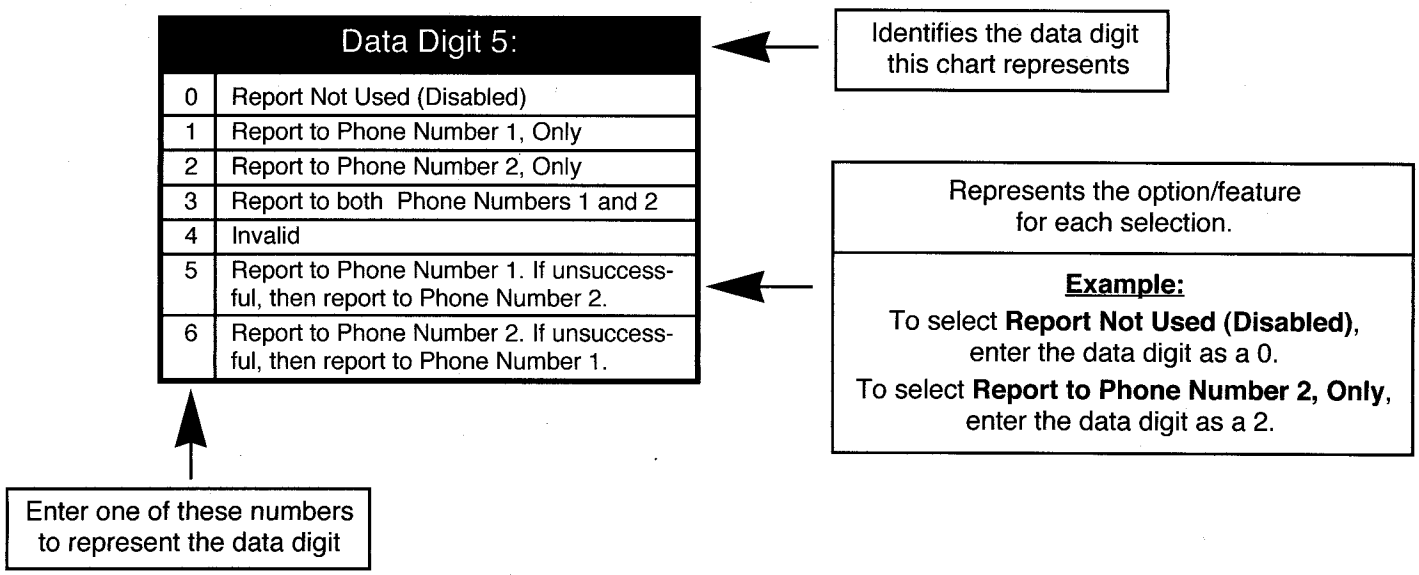
16.0 Programming Reference Guide

The Programming Reference Guide makes use of two types of charts.
Each is described below.

If the chart looks like this:
A combination of features is available to be programmed for that particular data digit.



If the chart looks like this:
Only a single feature is available to be programmed for that particular data digit.



16.1 PR.1 Zone Programming

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 1300 Interior)
16 = Zone 6 (default 1100 Interior)
17 = Zone 7 (default 1100 Interior)
18 = Zone 8 (default 1100 Interior)

	Enter data digit 3 as a:									
Options	0	1	2	3	4	5	6	7	8	9
Bypassable	●		●		●		●			
Will restore	●	●			●	●			●	
24 hour					●	●	●	●	●	
Bypassable only by user codes 1 & 2									●	
Special area zone										●

Special Area Zone is not available in Partition Mode

	Enter data digit 1 as a:								
Options	0	1	2	3	4	5	6	7	8
Steady alarm		●		●					
Pulsed alarm						●		●	
Steady Aux. relay			●	●					
Pulsed Aux. relay							●	●	
Steady sounder		●		●					
Pulsed sounder						●	●	●	
Silent	●								●
Invisible, no display									●
Steady alarm armed, Pulsed sounder disarmed					●				

	Enter data digit 4 as a:									
Options	0	1	2	3	4	5	6	7	8	9
300 msec zone response	●		●		●		●			
60 msec zone response		●		●		●		●		
Trouble					●	●	●	●		
Aux Entry delay			●	●			●	●		
Arm/Disarm keyswitch input									●	
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 in partition mode or on UL installations.

	Enter data digit 2 as a:									
Options	0	1	2	3	4	5	6	7	8	9
Perimeter Instant zone	●				●					
Interior Instant zone		●				●				
Entry / Exit delay zone			●				●			
Interior Exit/Entry delay follower zone				●				●		
Entry/Exit delay zone on open circuit, Perimeter Instant on circuit short									●	
Int. Delay follower zone on open circuit, Instant on circuit short										●
Day monitor					●	●	●	●		

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.

16.2 PR.2 Zone Verification Programming (DEFAULT = 000, zone verification disabled.)

	Enter data digit 1 as a:							
Options	0	1	2	3	4	5	6	7
Background test	●		●		●		●	
Mandatory walk test		●		●		●		●
Verify zone1			●	●			●	●
Verify zone 2					●	●	●	●

	Enter data digit 2 as a:							
Options	0	1	2	3	4	5	6	7
Verify zone 3		●		●		●		●
Verify zone 4			●	●			●	●
Verify zone 5					●	●	●	●

	Enter data digit 3 as a:							
Options	0	1	2	3	4	5	6	7
Verify zone 6		●		●		●		●
Verify zone 7			●	●			●	●
Verify zone 8					●	●	●	●

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 LEDs (for 10 seconds), and a three beep error tone will be heard when an arming command is entered. The control panel may not be armed until the User causes a violation in each of the previously unviolated zones.

This test will be disabled if the control panel 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 through all the protection before re-arming.

When in Partition Mode, only the zones in the partition being armed need to be verified.

MANDATORY WALK TEST:

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

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

16.3 PR.3 Custom Arming Programming (DEFAULT = 000, custom arming disabled. Not allowed in partition mode.)

Line Number:
21 = Number 4 Key
22 = Number 5 Key
23 = Number 6 Key

Options	Enter data digit 2 as a: 0	1	2	3	4	5	6	7
Bypass zone 3		●		●		●		●
Bypass zone 4			●	●			●	●
Bypass zone 5					●	●	●	●

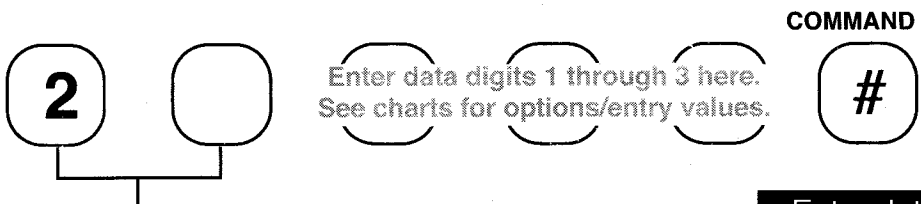
Options	Enter data digit 1 as a: 0	1	2	3	4	5	6	7
Delay zone	●		●		●		●	
Instant zone		●		●		●		●
Bypass zone 1			●	●			●	●
Bypass zone 2					●	●	●	●

Options	Enter data digit 3 as a: 0	1	2	3	4	5	6	7
Bypass zone 6		●		●		●		●
Bypass zone 7			●	●			●	●
Bypass zone 8					●	●	●	●

NOTE:

Custom arming is not to be used on UL systems.
If any Custom Arming key is programmed 000, that key is disabled and does nothing except issue the 3 beep error tone.

16.4 PR.4 Zone Allocation Programming (DEFAULT = 000. Only allowed in partitioning mode.)



Line Number:
21 = Partition 1
22 = Partition 2

Options	Enter data digit 2 as a: 0	1	2	3	4	5	6	7
Zone 3		●		●		●		●
Zone 4			●	●			●	●
Zone 5					●	●	●	●

Options	Enter data digit 1 as a: 0	1	2	3
Zone 1		●		●
Zone 2			●	●

Options	Enter data digit 3 as a: 0	1	2	3	4	5	6	7
Zone 6		●		●		●		●
Zone 7			●	●			●	●
Zone 8					●	●	●	●

16.5 PR.5 Report Programming (with Restoral)

Line Number:

30	Fire Alarm (default 00000)
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)
36	Zone 6 Alarm (default 60E61)
37	Zone 7 Alarm (default 70E71)
38	Zone 8 Alarm (default 80E81)
45	Keypad 'C' Key Silent Alarm (default 00000, report disabled)
46	Keypad 'B' Key Supplemental 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 1:

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

Data Digit 2:

For 3/1 extended, 4/2, VFSK and BFSK, enter the extended code. To disable this digit, enter zero. For BFSK format, 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.

Data Digit 3:

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

Data Digit 4:

For 3/1 extended, 4/2, VFSK and BFSK enter the extended code. To disable this digit, enter zero. For BFSK format, 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 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.

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, pressing 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 pressing 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.

16.6 PR.6 Report Programming (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 (7090TMi only)
09	Late to Close (7090TMi only)

Data Digit 1:

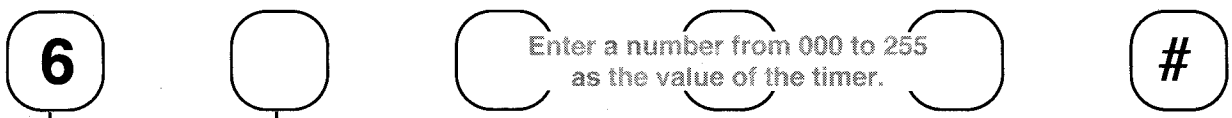
Enter the code to be sent for this report. To send a report of zero enter [Reset/*] 0.

Data Digit 2:

For 3/1 extended, 4/2,VFSK and BFSK enter the extended code. To disable this digit, enter zero. For a BFSK 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 user code reporting in reports 52 through 57 and to limit user code numbers to decimal values.

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.

16.7 PR.7 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 = 000 seconds.
61	**Bell Cutoff for Intrusion Zones** Program Data Digits for 0 to 255 minutes. 0 minutes = No Cutoff. Default = 004 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 = 004 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 = 004 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 = 060 seconds. U.L. allows 60 seconds maximum.
66	**Entry Delay** Timer. Program Data Digits for 0 to 255 seconds. Default = 045 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 = 000 seconds.
68	**Dialer delay**. Program Data Digits for 0 to 255 seconds. 0 seconds = No Delay. Default =000 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.

16.8 PR.8 Phone Number Programming (DEFAULT = all phone numbers disabled)

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

Data Digits:

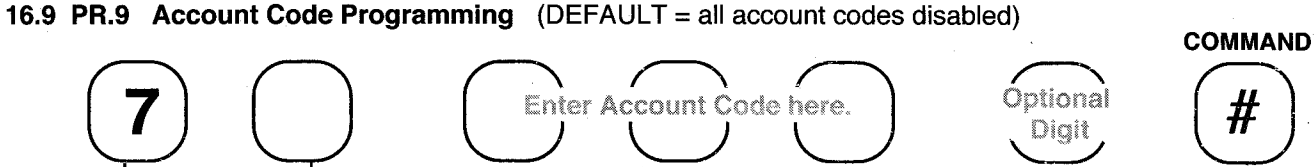
These are the digits of the phone number exactly as they would be dialed. Thirty digits are allowed in phone number 1 and 2. Only 16 digits are allowed in phone number 3, remote programming. The characters may include the tone dial characters * and #. The program also supports a three second delay, and "wait for dial tone".

During the data input sequence, pressing 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 pressing 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 7090i waits seven seconds and dials without listening for dialtone. Programming the first character of the phone number as "E" will cause the 7090i 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.

16.9 PR.9 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:

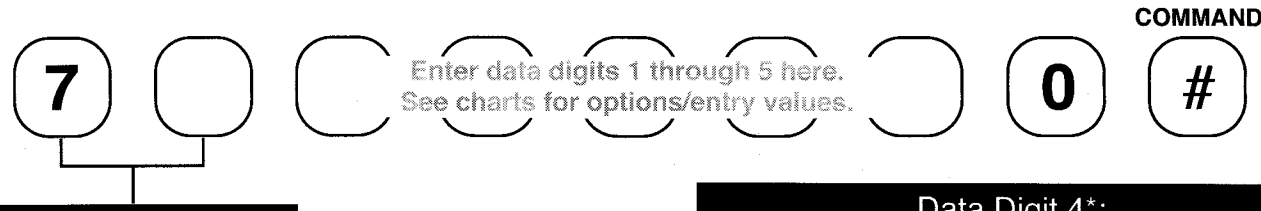
Account codes may be 3 or 4 digits long, and consist of the numerical digits 0 through 9, and the hexadecimal (hex) characters **B** through **F**. A four digit account code must be entered for 4/1, 4/2, and VFSK formats.

During the data input sequence, pressing 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 pressing 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.

16.10 PR.10 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

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 account code)
6	Invalid
7	4/2 (must program a 4 digit account code)
8	BFSK (must program a 3 digit account code)
9*	VFSK Digit 5 must be 2 or 3; (must program 4 digit account code)

* If data digit 4 is a 9, then data digit 5 has the values contained in the parentheses ( ).

Data Digit 5:	
0	1900 Hz Data; 1400 Hz Acknowledge at 10 pps. **or** (Radio only)
1	1800 Hz Data; 2300 Hz Acknowledge at 10 pps. **or** (Radio only)
2	1900 Hz Data; 1400 Hz Acknowledge at 20 pps. **or** (Digital only, 1400Hz Aknlg.)
3	1800 Hz Data; 2300 Hz Acknowledge at 20 pps. **or** (Digital only, 2800Hz Aknlg.)
4	1900 Hz Data; 1400 Hz Acknowledge at 40 pps. **or** (Digital & Radio, 1400Hz Aknlg.)
5	1800 Hz Data; 2300 Hz Acknowledge at 40 pps. **or** (Digital & Radio, 2800Hz Aknlg.)

Quick set-up values		
Dialing ->	**Tone**	**Pulse**
BFSK (2300Hz) =	010810	110810
3/1 10pps (2300Hz) =	010110	110110
3/1 20pps (2300Hz) =	010130	110130
EXTENDED:		
3/1 10pps (2300Hz) =	010210	110210
3/1 20pps (2300Hz) =	010230	110230
EXTENDED with PARITY:		
3/1 40pps (2300Hz) =	010450	110450
4/2 10pps (2300Hz) =	010710	110710
4/2 20pps (2300Hz) =	010730	110730

Quick set-up values		
Dialing ->	**Tone**	**Pulse**
3/1 10pps (1400Hz) =	010100	110100
3/1 20pps (1400Hz) =	010120	110120
EXTENDED:		
3/1 10pps (1400Hz) =	010200	110200
3/1 20pps (1400Hz) =	010220	110220
4/2 10pps (1400Hz) =	010700	110700
4/2 20pps (1400Hz) =	010720	110720

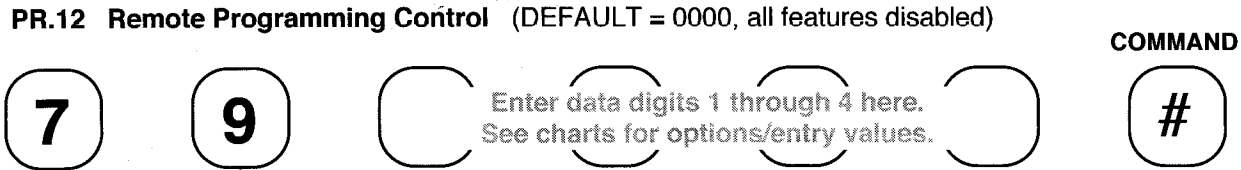
16.11 PR.11 Automatic History Report Time (7090TMi only)

Program Address:
78 = Address for History reporting time.

Data Digits 1 through 4:
Enter four digits for the automatic history reporting time in 24 hour format. Example: 0000 = Unprogrammed (Default) 0001 = 12:01 AM 0010 = 12:10 AM 1159 = 11:59 AM 1200 = 12 Noon 1201 = 12:01 PM 1210 = 12:10 PM 2359 = 11:59 PM

The control panel 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 panel 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 and when low battery is detected during an AC power failure.

16.12 PR.12 Remote Programming Control (DEFAULT = 0000, all features disabled)



Program Address:
79 = Address for remote programming control

Data Digit 1: (7090TMi only)	
0	Auto dialout reporting disabled, default, use this setting on the 7090i
1	Report Monday
2	Report Tuesday
3	Report Wednesday
4	Report Thursday
5	Report Friday
6	Report Saturday
7	Report Sunday
8	Report every day

NOTE: The phone number in line 77 and the time in line 78 must be programmed for Automatic Dialout to work on the 7090TMi

Data Digit 2:	
0	No Callback, pulse dialout.
1	Hangup and callback to remote programmer on phone number 3, pulse dialout.
2	No Callback, tone dialout.
3	Callback, tone dialout.

Data Digit 3:	
0	Don't answer phone when armed
1	Armed answer phone on ring 1
2	Armed answer phone on ring 2
3	Armed answer phone on ring 3
4	Armed answer phone on ring 4
5	Armed answer phone on ring 6
6	Armed answer phone on ring 8
7	Armed answer phone on ring 10
8	Armed answer phone on ring 12, also disable answering machine override.
9	Armed answer phone on ring 14

Data Digit 4:	
0	Don't answer phone when disarmed
1	Disarmed answer phone on ring 1
2	Disarmed answer phone on ring 2
3	Disarmed answer phone on ring 3
4	Disarmed answer phone on ring 4
5	Disarmed answer phone on ring 6
6	Disarmed answer phone on ring 8
7	Disarmed answer phone on ring 10
8	Disarmed answer phone on ring 12; disable answering machine override.
9	Disarmed answer phone on ring 14

16.13 PR.13 Fire Zone Programming (DEFAULT = 51, Pulsed Alarm and sounder with verification)

Options	Enter data digit 1 as a: 0	1	2	3	4	5	6	7
Steady Alarm		●		●				
Pulsed Alarm						●		●
Steady Aux. Relay			●	●				
Pulsed Aux. Relay							●	●
Steady sounder		●		●				
Pulsed sounder						●	●	●
Invalid	●				●			

Options	Enter data digit 2 as a: 0	1	2	3	9
Immediate	●				
Auto verification		●	●	●	
Trouble, if no alarm after verification			●		
Non-latching				●	
Permanently shunted					●

Data digits 4 through 8 are invalid.
Program as a 3 when using Keyswitch arming.
A normally closed switch must be connected in series with smoke power in order to reset the smoke detectors.

16.14 PR.14 General Control Programming (DEFAULT = 4030, residential mode, keypad emergency disabled, force arm 3 zones, no tests on arming and swinger shunt enabled.)

Options	Enter data digit 1 as a: 0	1	2	3	4	5	6	7
Residential	●		●		●		●	
Commercial		●		●		●		●
Loud Keypad Emergency	●	●			●	●		
Silent Keypad Emergency			●	●			●	●
Swinger Shunt					●	●	●	●

UL Installations may only be programmed 1 or 3.

Options	Enter data digit 2 as a: 0	1	2	3	4	5	6	7
Test phone line on arming		●		●		●		●
Test bell on arming			●	●			●	●
Two partition mode					●	●	●	●

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

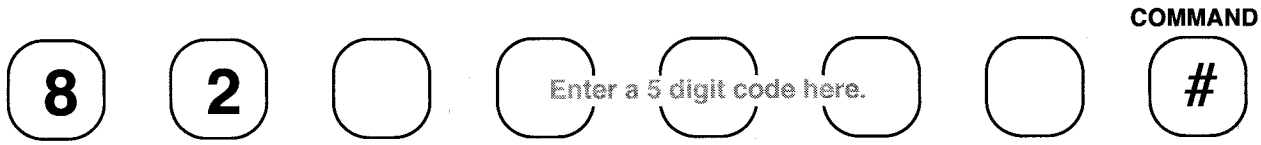
Data Digit 3:

Enter a digit from 1 through 8 as the **Number of Zones Allowed to Force Arm.** If 0 (zero) is entered, the control panel will not Force Arm.
UL installations must be programmed 0.

Options	Enter data digit 4 as a: 0	1	2	3	4	5	6	7
Activate the B Emergency Key					●	●	●	●
Send open and close, all users	●				●			
Do not send open and close for users 1 - 2.		●				●		
Do not send open and close for users 1 - 4.			●				●	
Do not send open and close for users 1 - 6.				●				●

If the B Emergency Key is activated, data digit 1 determines whether it is silent or loud.

16.15 PR.15 Programmer Code Programming (DEFAULT = programmer code 98765)



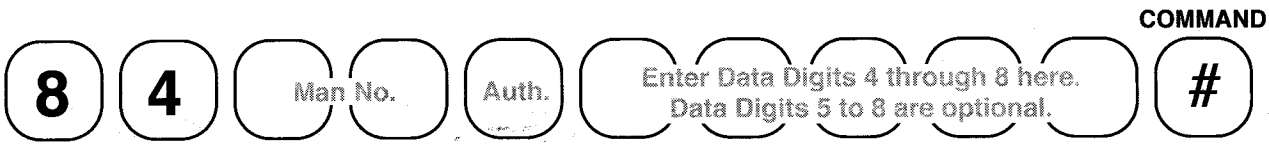
The **Programmer code** is used to enter the panel programming mode. It must be a 3 digit code that does not duplicate any user code in the commercial mode of operation.

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 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 Code.
Note: 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.

16.16 PR.16 User Code Programming/Clearing (DEFAULT = user code 1 is 1234; other user codes, 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 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 pressing the [Command/#] key at this point, the User Code defined in Data Digits 1 & 2 (Man number) will be deleted.

Data Digits 4 through 8:

Enter a User Code of at least one, or up to five digits. Each code must be different from any other assigned code, including the Programmer Code.

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

When in partition mode, data digit 4 must be programmed as a 0, 1, or 2. This will determine which partition this User Code is accepted in. The remaining digits make up the rest of the user code.

When in partition mode, enter data digit 4 as a:

0	User Code controls partitions 1 and 2
1	User Code controls partition 1
2	User Code controls partition 2

NOTICE:

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

16.17 PR.17 System Configuration (DEFAULT = 0000, 60Hz, zone restores when the sounders silence, enable all user code reporting, test report each day, "A" key disabled).

Options	Enter data digit 1 as a: 0	1	2	3	4	5	6	7
60 Hz AC	●		●		●		●	
50 Hz AC		●		●		●		●
Restore zone when sounders silence.	●	●			●	●		
Restore zone when zone restores.			●	●			●	●
Normal alarm and access control Aux. relay operation.	●	●	●	●				
Operate the Aux. relay when armed. Release when disarmed.					●	●	●	●

Options	Enter data digit 2 as a: 0	1	2	3	4	5	6	7	8	9	*0	*1	*2	*3	*4	*5
Send user code with closing, opening, and exception closing report	●		●		●		●		●		●		●		●	
Send user code with exception open and cancel report	●	●			●	●			●	●			●	●		
Allow COMMAND 2 and 3 arming	●	●	●	●					●	●	●	●				
Reports opens and closes for system	●	●	●	●	●	●	●	●								
Report opens and closes by partition									●	●	●	●	●	●	●	●

Options	Enter data digit 3 as a: 0	1	2	3	4	5	6	7
Hex user code sent	●	●			●	●		
Decimal user code sent			●	●			●	●
Keypad A initiates a Fire Alarm		●		●		●		●
Send alarm report digit as trouble extended digit for 3/1 extended, VFSK, and BFSK reporting (normal setting).	●	●	●	●				
Send alarm report extended digit as trouble extended digit for 3/1 extended, VFSK, and BFSK reporting.					●	●	●	●

Options		Enter data digit 4 as a: 0	1	2	3	4	5	6	7	8	9
Test Report	Daily	●	●								
	Every 2 days			●							
	Every 3 days				●						
	Every 4 days					●					
	Every 5 days						●				
	Every 6 days							●			
	Every 7 days								●		
	Every 28 days									●	
	Every hour										●

For UL commercial, program 0.

Example Program	Section PR.5	4/2 Format: Example 1
FIRE ZONE	30 A 2 7 2 5 #	Report zone 02 alarm and restoral on zone 72
ZONE 1	31 1 1 3 1 5 #	Report zone 11 alarm and restoral on zone 31
ZONE 2	32 1 2 3 2 5 #	Report zone 12 alarm and restoral on zone 32
ZONE 3	33 1 3 3 3 5 #	Report zone 13 alarm and restoral on zone 33
ZONE 4	34 1 4 3 4 5 #	Report zone 14 alarm and restoral on zone 34
ZONE 5	35 1 5 3 5 5 #	Report zone 15 alarm and restoral on zone 35
ZONE 6	36 1 6 3 6 5 #	Report zone 16 alarm and restoral on zone 36
ZONE 7	37 1 7 3 7 5 #	Report zone 17 alarm and restoral on zone 37
ZONE 8	38 1 8 3 8 5 #	Report zone 18 alarm and restoral on zone 38
SILENT ALARM	45 A 4 0 0 5 #	Report the keypad 'C' key as zone 04.
EMERGENCY ALARM	46 A 3 0 0 5 #	Report the keypad 'B' key as zone 03.
FIRE TROUBLE	47 6 2 7 2 5 #	Report fire trouble as zone 62, restore as 72.
ZONE TROUBLE	48 8 0 3 0 5 #	Automatically report zone number on trouble.
LOW BATTERY	49 6 9 7 9 5 #	Report trouble 69 and restoral on 79.
AC POWER FAILURE	50 6 A 7 A 5 #	Report trouble 60 and restoral on 70.
SYSTEM TROUBLE	51 6 6 7 6 5 #	Report trouble 66 and restoral on 76.
REPROGRAM REPORT	07 7 1 6 1 5 #	Report reprogram 71 and trouble on 61.
	Section PR.6	
DURESS ALARM	52 A 9 5 #	Report zone 09 alarm.
EXCEPTION OPENING	53 9 0 5 #	Report as open report (9x)
OPENING	54 9 0 5 #	Report as open report (9x)
EXCEPTION CLOSING	55 5 0 5 #	Report as close report (5x).
CLOSING	56 5 0 5 #	Report as close report (5x).
CANCELLED ALARM	57 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	58 7 5 5 #	Report as restoral 75.
COMMUNICATE TEST	59 7 5 5 #	Report as restoral 75.
FAILURE TO OPEN	08 6 7 5 #	Report as trouble to open report 67.
FAILURE TO CLOSE	09 6 8 5 #	Report as trouble to close report 68.
COMMUNICATOR FORMAT 1 - (Section PR.10)		75 0 1 0 7 0 0 # 4/2 reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.10)		76 0 1 0 7 0 0 # 4/2 reporting 10 attempts.

Example Program	Section PR.5	4/2 Format: Example 2 (from Silent Knight SK9000 Format 0)
FIRE ZONE	30 1 8 2 8 5 #	Report "Alarm 18" and "Restore 28"
ZONE 1	31 A 1 7 1 5 #	Report "Alarm 01" and "Restore 01"
ZONE 2	32 A 2 7 2 5 #	Report "Alarm 02" and "Restore 02"
ZONE 3	33 A 3 7 3 5 #	Report "Alarm 03" and "Restore 03"
ZONE 4	34 A 4 7 4 5 #	Report "Alarm 04" and "Restore 04"
ZONE 5	35 A 5 7 5 5 #	Report "Alarm 05" and "Restore 05"
ZONE 6	36 A 6 7 6 5 #	Report "Alarm 06" and "Restore 06"
ZONE 7	37 A 7 7 7 5 #	Report "Alarm 07" and "Restore 07"
ZONE 8	38 A 8 7 8 5 #	Report "Alarm 08" and "Restore 08"
SILENT ALARM	45 A 9 0 0 5 #	Report the keypad 'C' key as "Hold Up Alarm".
EMERGENCY ALARM	46 A A 0 0 5 #	Report the keypad 'B' key as "Panic Alarm".
FIRE TROUBLE	47 6 6 7 6 5 #	Report fire trouble as "Trouble 06", restore as "Restore 06".
ZONE TROUBLE	48 6 0 7 0 5 #	Automatically report "Trouble" followed by zone number.
LOW BATTERY	49 6 9 7 9 5 #	Report "Low Battery" and "Battery Restore".
AC POWER FAILURE	50 6 A 7 A 5 #	Report "AC Trouble" and "AC Restore".
SYSTEM TROUBLE	51 3 9 0 0 5 #	Report "Data Loss".
REPROGRAM REPORT	07 0 0 0 0 0 #	Disable reprogram report.
	Section PR.6	
DURESS ALARM	52 1 5 5 #	Report "Alarm 15".
EXCEPTION OPENING	53 3 8 5 #	Report as "Cancel".
OPENING	54 9 0 5 #	Report as "Open ID" followed by user ID number.
EXCEPTION CLOSING	55 4 0 5 #	Report as "Close ID" followed by user ID number.
CLOSING	56 4 0 5 #	Report as "Close ID" followed by user ID number.
CANCELLED ALARM	57 0 0 0 #	Disable cancel report (see exception opening)
AUTOMATIC TEST	58 3 A 5 #	Report as "Test".
COMMUNICATE TEST	59 3 A 5 #	Report as "Test".
FAILURE TO OPEN	08 0 0 0 #	Disable failure to open report.
FAILURE TO CLOSE	09 0 0 0 #	Disable failure to close report
COMMUNICATOR FORMAT 1 - (Section PR.10)		75 0 1 0 7 0 0 # 4/2 reporting 10 attempts.
COMMUNICATOR FORMAT 2 - (Section PR.10)		76 0 1 0 7 0 0 # 4/2 reporting 10 attempts.

Example Program	Section PR.5	BFSK Format, 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.
ZONE 6	3 6 6 0 E 6 5 #	Report zone 6 alarm and restoral on zone 6.
ZONE 7	3 7 7 0 E 7 5 #	Report zone 7 alarm and restoral on zone 7.
ZONE 8	3 8 8 0 E 8 5 #	Report zone 8 alarm and restoral on zone 8.
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.

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

Example Program	Section PR.5	BFSK Format, with fire
FIRE ZONE	3 0 1 0 E 1 5 #	Report zone 1 alarm and restoral on zone 1.
ZONE 1	3 1 0 0 0 0 0 #	Disable zone 1 (avoid conflict with fire zone).
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.
ZONE 6	3 6 6 0 E 6 5 #	Report zone 6 alarm and restoral on zone 6.
ZONE 7	3 7 7 0 E 7 5 #	Report zone 7 alarm and restoral on zone 7.
ZONE 8	3 8 8 0 E 8 5 #	Report zone 8 alarm and restoral on zone 8.
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.

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

18.0 In Guide for U.L. Certificated Installations

The 7090i is U.L. Listed for Grade A Household Fire Alarm, Household Burglary Alarm, Local Burglary Alarm Grade A, Police Station Connection grade A, and Central Station Burglary Alarm grades AA, A, B, and C. The 7090i 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 7090i 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.
- The local sounding device (if used) must be mounted where it can be heard from the arming location.
- 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.
- When using multiple partitions, the control must be mounted within a protected zone that is armed 24 hours.
- The U.L. Listed compatible digital alarm communicator receivers (if used) are the Radionics Models 6000 and 6500, ITI CS-4000, Ademco 685, FBI 220, and the Silent Knight Model 9000.
- For U.L. Certificated installations, the control panel may not protect more than one premise.

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 7090i

When used in U.L. certificated installations, the 7090i 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 7090i 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 7090i 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. Grade A Household Burglary Alarm using Digital Alarm Communicator Transmitter with local bell
The 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

B. Report Programming:
- Burglar Zone Reports (Program Addresses 31-38) 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.

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 7090i 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, Ademco 685, FBI 220, 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 7090i

When used in U.L. certificated installations, the 7090i 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 7090i 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 7090i 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. Grade A Household Burglary Alarm using Digital Alarm Communicator Transmitter with local bell
The 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

B. Report Programming:
- Burglar Zone Reports (Program Addresses 31-38) 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 7090i 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 11-18, Data Digit 1, enter 2, or 3).

3. Local Burglary Alarm

The 7090i 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 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
- Burglar Zone Reports (Program Addresses 31-38) 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 7090i 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 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-38) 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 7090i must be installed in accordance with the U.L. 681, 1610, and 1635 standards for all grades of service.

AA. Grade AA Installations using the Applied Sprectrum PAL200 and the Digital Alarm Communicator Transmitter

Required Accessories: The DS7090i must be mounted in the AE7100 attack resistant enclosure (order DS7090CC) with a cover actuated tamper switch installed. The required communication equipment is the Applied Sprectrum PAL200. The Applied Sprectrum PAL200 must be installed in the same room as the DS7090 and the wiring from the Applied Sprectrum PAL200 to the DS7090i must be in conduit. The Applied Sprectrum PAL200 inputs should be connected to the alarm outputs (the active alarm sounder output may be used).

1. Zone Programming:
   - Data Digit 3 of Program Addresses 11-18 and 24-29 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming (the following reports are to be programmed to phone number one, enter last data digit as 1):
   - Burglar Zone Reports (Program Addresses 31-44) are not required since the alarms are transmitted over the PAL200.
   - 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.

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; 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).

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

Required Accessories: The 7090i 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 7090i, 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 11-18 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 31-38) 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 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-38) 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 7090i 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 11-18 must be programmed for "Will Restore" (enter 0, 1, 4, 5, 8, or 9).

2. Report Programming:
   - Burglar Zone Reports (Program Addresses 31-38) 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).

7090i Program Worksheet (panel copy)

Zone Programming, section PR.1 — Reporting Code, section PR.5

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)
ZONE 6 _____	1 6 |__|__|__|__| #	(1100, Interior)	3 6 |__|__|__|__|__| #	(60E61)
ZONE 7 _____	1 7 |__|__|__|__| #	(1100, Interior)	3 7 |__|__|__|__|__| #	(70E71)
ZONE 8 _____	1 8 |__|__|__|__| #	(1100, Interior)	3 8 |__|__|__|__|__| #	(80E81)
FIRE ZONE (Sect. PR.13)	8 0 |__|__| #	(51, Verification)	3 0 |__|__|__|__|__| #	(00000)

ZONE VERIFICATION (Section PR.2)	2 0 |__|__| __| #	(000,disabled)
SPECIAL ARMING KEY 4 (Section PR.3) or ZONE ALLOCATION Programming (Section PR.4)	2 1 |__|__|__| #	(000,disabled)
SPECIAL ARMING KEY 5 (Section PR.3) or ZONE ALLOCATION Programming (Section PR.4)	2 2 |__|__|__| #	(000,disabled)
SPECIAL ARMING KEY 6 (Section PR.3)	2 3 |__|__|__| #	(000,disabled)

Report Programming — section PR.5 — section PR.6

	(defaults = 00000, disabled)		(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 (7090TMi)	0 8 |__|__|__| #
		LATE TO CLOSE (7090TMi)	0 9 |__|__|__| #

Timers, section PR.7

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.14)	8 1 |__|__|__|__| #	(4030)
PROGRAMMER CODE - (Section PR.15)	8 2 |__|__|__|__|__| #	(98765)
SYSTEM CONFIGURATION - (Section PR.17)	8 5 |__|__|__|__| #	(0000)

PHONE NUMBER 1 - (Section PR.8)	7 1 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 1 - (Section PR.9)	7 3 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 1 - (Section PR.10)	7 5 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 2 - (Section PR.8)	7 2 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 2 - (Section PR.9)	7 4 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 2 - (Section PR.10)	7 6 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 3 - (Section PR.8)	7 7 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
AUTO HISTORY DUMP TIME (Section PR.11)	7 8 |__|__|__|__| #	(0000) 7090TM only
REMOTE PROGRAM CONTROL (Section PR.12)	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 User 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 _____

Zone # 6 _____

Zone # 7 _____

Zone # 8 _____

Fire Zone _____

7090i Program Worksheet (record copy)

	Zone Programming, section PR.1		Reporting Code, section PR.5	
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)
ZONE 6 _____	1 6 |__|__|__|__| #	(1100, Interior)	3 6 |__|__|__|__|__| #	(60E61)
ZONE 7 _____	1 7 |__|__|__|__| #	(1100, Interior)	3 7 |__|__|__|__|__| #	(70E71)
ZONE 8 _____	1 8 |__|__|__|__| #	(1100, Interior)	3 8 |__|__|__|__|__| #	(80E81)
FIRE ZONE (Sect. PR.13)	8 0 |__|__| #	(51, Verification)	3 0 |__|__|__|__|__| #	(00000)

ZONE VERIFICATION (Section PR.2)	2 0 |__|__|__| #	(000,disabled)
SPECIAL ARMING KEY 4 (Section PR.3) or ZONE ALLOCATION Programming (Section PR.4)	2 1 |__|__|__| #	(000,disabled)
SPECIAL ARMING KEY 5 (Section PR.3) or ZONE ALLOCATION Programming (Section PR.4)	2 2 |__|__|__| #	(000,disabled)
SPECIAL ARMING KEY 6 (Section PR.3)	2 3 |__|__|__| #	(000,disabled)

Report Programming — section PR.5 — section PR.6

	(defaults = 00000, disabled)		(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 (7090TMi)	0 8 |__|__|__| #
		LATE TO CLOSE (7090TMi)	0 9 |__|__|__| #

Timers, section PR.7

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.14)	8 1 |__|__|__|__|__| #	(4030)
PROGRAMMER CODE - (Section PR.15)	8 2 |__|__|__|__|__|__| #	(98765)
SYSTEM CONFIGURATION - (Section PR.17)	8 5 |__|__|__|__| #	(0000)

PHONE NUMBER 1 - (Section PR.8)	7 1 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 1 - (Section PR.9)	7 3 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 1 - (Section PR.10)	7 5 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 2 - (Section PR.8)	7 2 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
ACCOUNT CODE 2 - (Section PR.9)	7 4 |__|__|__|__| #	(0000)
COMMUNICATOR FORMAT 2 - (Section PR.10)	7 6 |__|__|__|__|__|__| #	(000000)
PHONE NUMBER 3 - (Section PR.8)	7 7 |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| #	
AUTO HISTORY DUMP TIME (Section PR.11)	7 8 |__|__|__|__| #	(0000) 7090TM only
REMOTE PROGRAM CONTROL (Section PR.12)	7 9 |__|__|__|__| #	(0000)

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