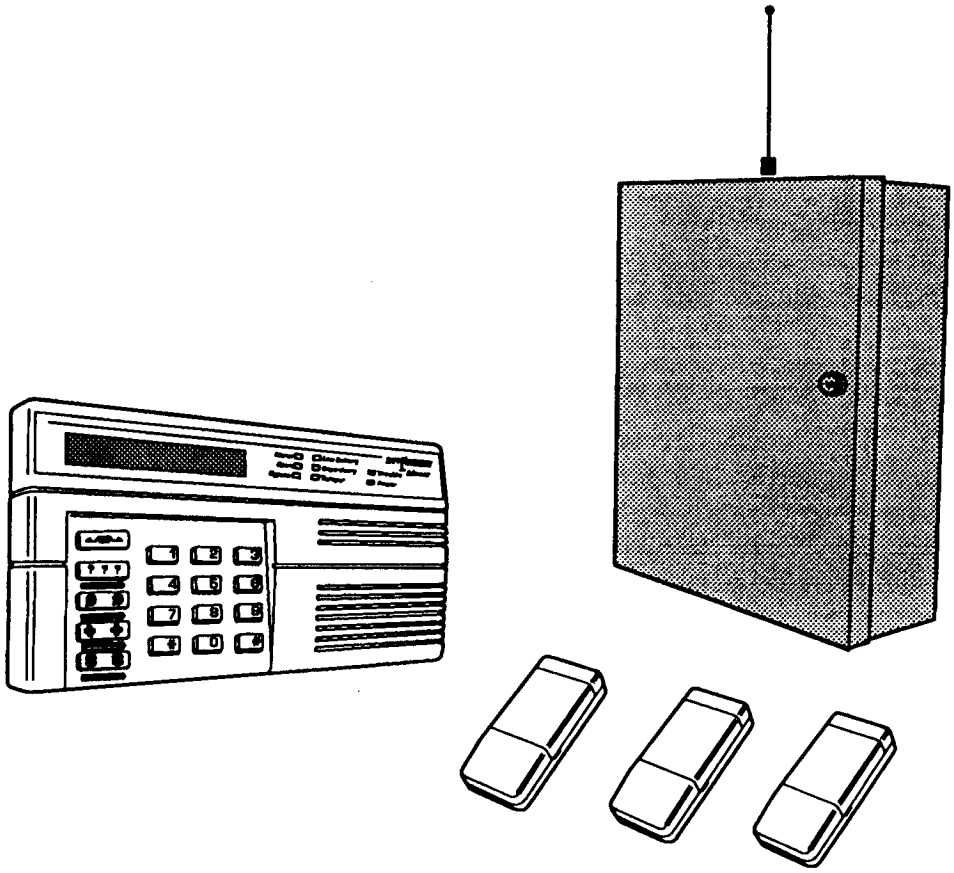
CP-90

Supervised Wireless Security Control/Communicator



Installation and Programming Instructions

Linear
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INTRODUCTION

The CP-90 Supervised Wireless Security Control/Communicator represents a significant advancement in the state-of-the-art in fully supervised wireless security systems. Designed to meet or exceed the requirements of most residential or commercial installations, the control provides 64 separate zones of sensor input, 10 control outputs and a fully programmable digital communicator.

Inside, the CP-90 features Linear's latest narrow-band superhetrodyne radio receiver. The system can receive three radio formats including Linear's existing "S1" supervised wireless, "MegaCode", and the newly designed "SX" RF transmission format. "SX" format incorporates data error detection and correction algorithms as used in todays high speed computer systems. Altogether, the system provides a robust and highly reliable wireless communications link.

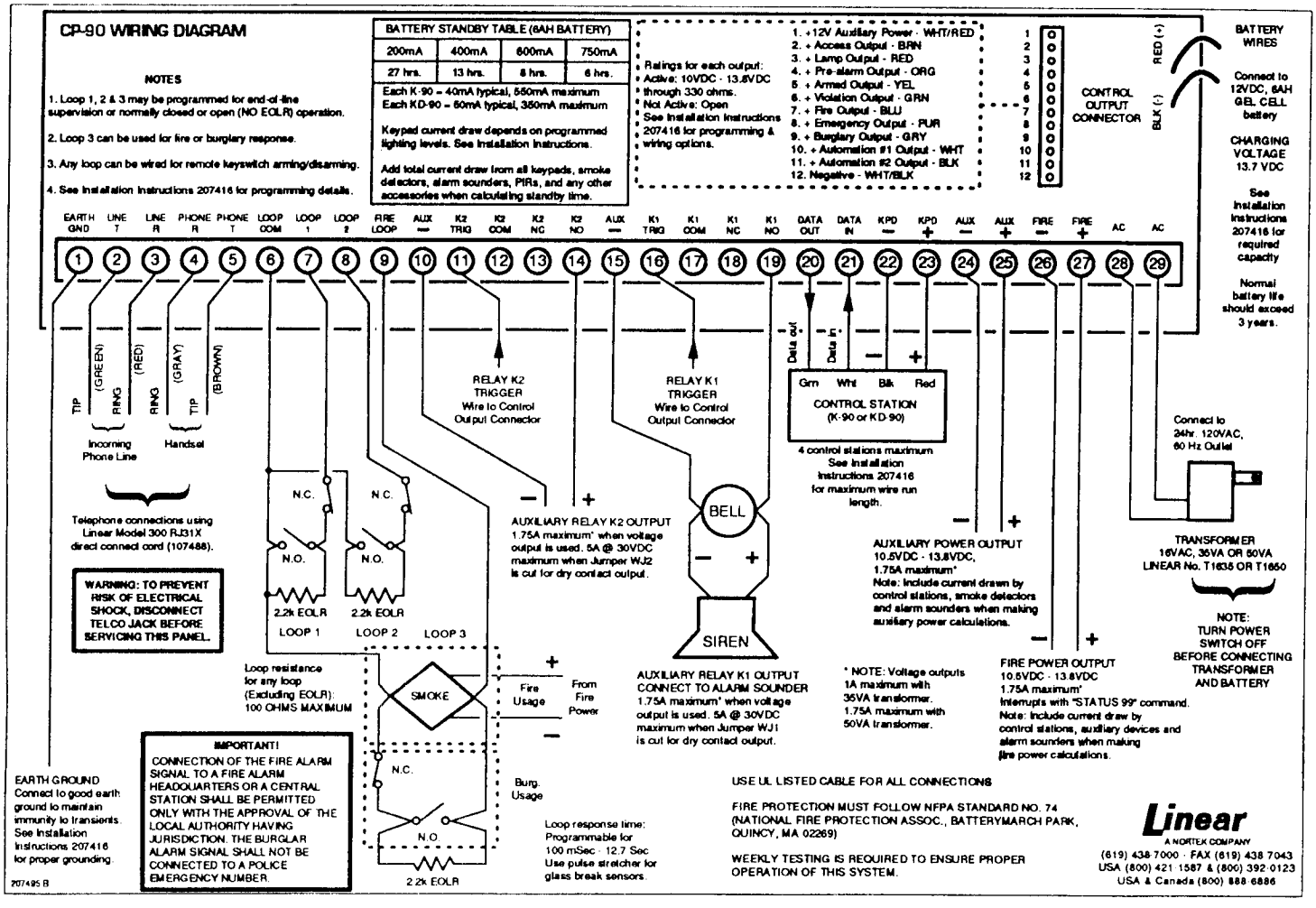

Figure 1. CP-90 Wiring Diagram

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FEATURES & SPECIFICATIONS

CP-90 Control Board:

- ☆ Three (3) two-wire zones each supervised with a 2.2k Ohm end-of-line resistor.
- ☆ Sixty-one (61) fully supervised wireless zones.
- ☆ Three (3) keypad activated emergency zones.
- ☆ Thirty-two (32) Personal Access Codes available.
- ☆ Eighteen (18) programmable sensor zones.
- ☆ Nominal current drain: 100 ma. (main board only).
- ☆ EEPROM - Retains system programming and arm/disarm status during total power failure.
- ☆ Six (6) stage lightning and transient protection with four layer board technology.
- ☆ Two (2) general purpose form "C" (5 amp DC) relays.
- ☆ Ten (10) alarm and control outputs.
- ☆ Low Battery detection and monitoring (11.2 Volts threshold).
- ☆ Supports up to four (4) hardwire Control Stations.
- ☆ Operating temperature range inside the enclosure: 32 to 122 degrees Fahrenheit (0 to +50 degrees Celsius).

Radio:

- ☆ High sensitivity Superhetrodyne receiver: -106dBm nominal sensitivity.
- ☆ Operates at 303.875 mHz.
- ☆ Receives Linear SX, S1 and Megacode format transmitters.
- ☆ "F" connector for antenna connection - 1/4 wave whip antenna supplied.

Power Supply:

- ☆ 1 Amp regulated with supplied transformer - 1.75 Amp with 16.5 VAC 50VA transformer.
- ☆ Less than 200 millivolts AC ripple.
- ☆ Regulated 13.8 Volts DC at rated output current.
- ☆ Reverse polarity protection on battery inputs.
- ☆ Float charging circuit: 13.8 Volts DC.
- ☆ Fused Outputs for:
  Control Station power (3AG-2.0A)
  Auxiliary output (3AG-2.0A)
  Fire power (3AG-2.0A)

Battery (not supplied):

- ☆ Rechargeable 12 volt 6 Amp-hour lead acid. Charging circuit sized for up to two batteries.

Transformer:

- ☆ U.L. Listed Class II plug-in, 16.5 volt AC, 35VA secondary, 120 volt 60 Hz primary. Optional 16.5 volt 50VA transformer for increased output capacity.

Enclosure:

- ☆ Twenty (20) gauge locking metal cabinet with two (2) keys.
- ☆ Dimensions: 13" x 15.25" x 4"
- ☆ Color: light gray.

Digital Communicator:

- ☆ Touch-tone® or Rotary (pulse) dialing. Rotary speed 10pps (60% break, 40% make).
- ☆ FCC Registration number: EF4793-73085-AL-E.
- ☆ Ringer equivalence: 0.6B
- ☆ Reporting formats: 10, 20 and 40 PPS - 3x1, 4x1, 4x2 and 3x1 two line extended. BFSK, SIA and SESCOA Superspeed.
- ☆ Primary, Secondary and Supervisory telephone numbers up to 24 digits.
- ☆ Reports full zone and user ID's with SIA and SESCOA Superspeed - identifies up to 15 zones and users with two-line extended formats.

Control Stations:

KD-90

- ☆ English language keypad with 2 line x 24 character back-lit LCD display.
- ☆ High intensity downlights for nighttime illumination.
- ☆ Four (4) wire plug-in connector hookup.
- ☆ Seventeen (17) button keypad with audible and tactile feedback.
- ☆ Surface mountable. Mounts to any standard single or double gang electrical box.
- ☆ Eight (8) LED's for system supervision status.
- ☆ Built-in 0.5 watt amplifier and speaker for system and alarm annunciation.
- ☆ Nominal current drain: 50 mA standby (LCD backlight off, down lights off, power LED on).
- ☆ Up to 4 per system.
- ☆ Dimensions: 8.25" x 4.5" x 1.5"
- ☆ Color: Light gray.

K-90

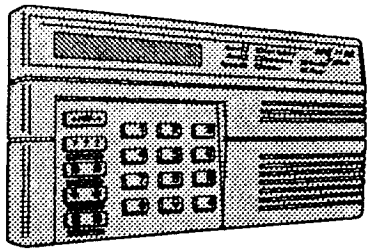
- ☆ Same as KD-90 but has three (3) seven-segment LED readouts for system and status display.
- ☆ Nominal current drain: 40 mA standby (LED's off, downlights off, power LED on).

TK-90

- ☆ Wireless keypad. Same 17 button keypad as other wired keypads.
- ☆ Battery Operated: Four (4) AA size alkaline batteries (supplied).
- ☆ Battery Life: three (3) years with four operations per day.
- ☆ High intensity LED (green) downlights for nighttime use.
- ☆ Same mounting, dimensions, color and style as other keypads.

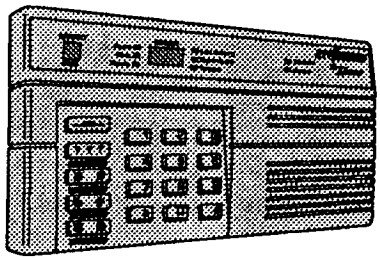
FACTORY SET DEFAULTS	
FEATURE	**DEFAULT**
HARDWIRE LOOP RESPONSE TIME	400 MILLISECONDS
KEYPAD EMERGENCY KEYS	ALL ENABLED
ACTIVE DISPLAY INTENSITY	MEDIUM
ACTIVE DOWNLIGHT INTENSITY	MEDIUM
KEYPAD LIGHTS DURING ENTRY DELAY	ON
KEYPAD LIGHTS DURING EXIT DELAY	ON
DIGITAL COMMUNICATOR	DISABLED
DIALING FORMAT	TONE
DIAL ATTEMPTS BEFORE ROUTING CHANGE	2
DIAL ATTEMPTS BEFORE SLEEP CYCLES	2
NUMBER OF SLEEP CYCLES	2
SLEEP CYCLE TIME	10 MINUTES
ANTI-JAM TIME	40 SECONDS
AUTOMATIC TEST REPORTS	DISABLED
MANUAL TEST REPORTS	DISABLED
PROGRAMMER PAC	98765
ENTRY DELAY TIME #1	30 SECONDS
ENTRY DELAY TIME #2	45 SECONDS
EXIT DELAY TIME	45 SECONDS
BURGLAR ALARM CUTOFF	5 MINUTES
FIRE ALARM CUTOFF	5 MINUTES
POLICE ALARM CUTOFF	5 MINUTES
EMERGENCY ALARM CUTOFF	5 MINUTES
ACCESS OUTPUT ON-TIME	5 SECONDS
AUTOMATION OUTPUT #1 ON-TIME	5 SECONDS
AUTOMATION OUTPUT #2 ON-TIME	5 SECONDS
FIRE OUTPUT	PULSING
BURG OUTPUT	CONSTANT
ENTRY DELAY KEYPAD BEEPS	ON
EXIT DELAY KEYPAD BEEPS	ON
QUICK ARMING	ENABLED
AUTOMATIC RESTORAL	BYPASSES CLEAR ON RESTORAL
AUTO BYPASS ARMING	AUTO BYPASS THEN ARM

Figure 2. Factory Default Value Settings



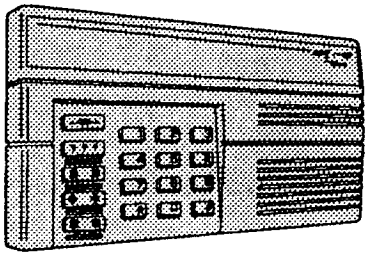
KD-90 ALPHANUMERIC KEYPAD

- ☆ Displays system status and information on two-line English display.
- ☆ Display can be customized by installer for each installation.
- ☆ Shows sensor and system condition on eight LED displays.
- ☆ Sounds system tones, beeps and local alarm sirens.
- ☆ Twelve keys for arming, disarming and changing security levels.
- ☆ STATUS and BYPASS keys for interrogating sensors and special arming.
- ☆ Three 24-hour activation keys for fire, medical, and panic.



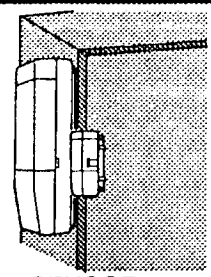
K-90 STANDARD KEYPAD

- ☆ Shows sensor and system condition on eight LED displays.
- ☆ Sounds system tones, beeps and local alarm sirens.
- ☆ Twelve keys for arming, disarming and changing security levels.
- ☆ STATUS and BYPASS keys for interrogating sensors and special arming.
- ☆ Three 24-hour activation keys for fire, medical, and panic.



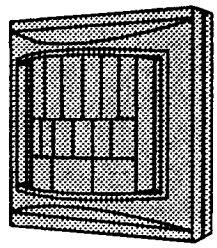
TK-90 WIRELESS KEYPAD

- ☆ Twelve keys for arming, disarming and changing security levels.
- ☆ STATUS and BYPASS keys for sounding system security level and special arming.
- ☆ Three 24-hour activation keys for fire, medical, and panic.
- ☆ Built-in automatic keyboard lighting system.
- ☆ Self-testing; sends its status to the control panel every hour.
- ☆ Internal batteries condition is continuously monitored.
- ☆ Low battery messages sent to the control panel when batteries get low.



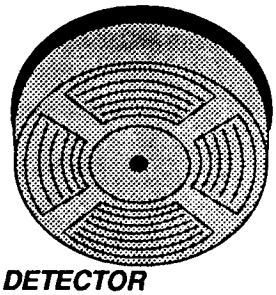
T-90 DOOR/WINDOW SENSOR

- ☆ Stationary sensor with built-in magnetic switch.
- ☆ Monitors opening of door, window, gun cabinet, drawer, garage door, stereo cabinet, etc.
- ☆ May be connected externally to monitor other types of sensors and conditions.
- ☆ Self-testing; sends its status to the control panel every hour.
- ☆ Internal lithium batteries condition are continuously monitored.
- ☆ Low battery messages sent to the control panel when batteries get low (5-8 years normal use).



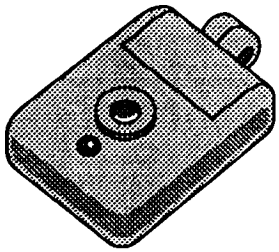
50S40A MOTION DETECTOR

- ☆ Uses passive infrared heat detection to sense intruders.
- ☆ Sends alarm message to control panel when monitored area is entered.
- ☆ Self-testing; sends its status to the control panel every hour.
- ☆ Internal 9-volt alkaline battery condition is continuously monitored.
- ☆ Low battery messages sent to the control panel when battery gets low (12-18 months normal use).



ESL 371 SMOKE DETECTOR

- ☆ High quality smoke detector monitors areas for the presence of smoke.
- ☆ Sends fire alarm message to the control panel when smoke is detected.
- ☆ Self-testing; sends its status to the control panel every hour.
- ☆ Internal 9-volt alkaline battery condition is continuously monitored.
- ☆ Low battery messages cause local beeps and send low battery messages to the control panel when battery gets low (12-18 months).

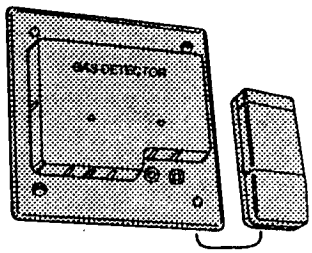


LMT-1 PORTABLE PANIC OR MEDICAL SENSOR

- ☆ Personal protection that can be activated 24-hours-a-day.
- ☆ Can be worn on neck chain, key chain or carried in pocket.

LMT-1 PORTABLE REMOTE CONTROL

- ☆ Arms and disarms the control panel remotely.
- ☆ Convenient way to use the system.
- ☆ Carry one in each vehicle, or on a key chain.



ENVIRONMENTAL SENSOR WITH T-90 TRANSMITTER

- ☆ Stationary sensor for connection to toxic gas detector, freezer thaw sensor, flood alarm, over-temperature detector, etc.
- ☆ Active 24-hours-a-day.
- ☆ Signals special alarm when environmental trouble occurs.
- ☆ Self-testing; sends its status to the control panel every hour.
- ☆ Internal 9-volt battery condition is continuously monitored.
- ☆ Low battery messages sent to the control panel when batteries get low (12-18 months normal use).
- ☆ Sensor not manufactured by Linear.

Unpacking the System

The CP-90 system package includes the following accessories:

Plug-in Transformer. Provides low voltage power to the control panel.

Whip Antenna. Standard local antenna that mounts on the CP-90 cabinet.

Control Output Cable. Used to connect control outputs to the on-board auxiliary relays. Also used to connect to external devices and indicators.

End-of-Line Resistors. Three 2.2K resistors are supplied for supervising each of the hardwired loops.

Mounting Screws & Anchors. Used to mount the CP-90 cabinet to the wall. Plastic screw anchors are provided for mounting on wallboard.

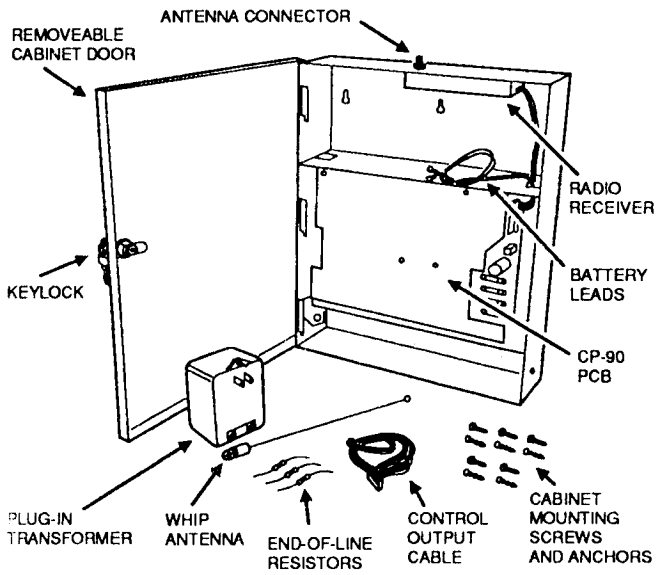


Figure 3. CP-90 System Pack

Planning the Installation

Consider the security needs of the premises to be protected. Through which doors or windows would an intruder most likely attempt to gain entrance? The front and rear doors should be considered, of course, followed by any doors or windows (including basement windows) that are poorly lighted or not visible from the street. If entry is gained through a window, to which areas would an intruder most likely go?

Creating an Installation Floor Plan

Draw a rough floor plan of the premises to be protected by the CP-90. Indicate all the doors and windows that are possible paths of intrusion and would require monitoring by a wireless transmitter or hardwired contact. Indicate locations for telephone, power, sirens, bells, strobes or any other external accessory devices.

☞ *NOTE: Up to 61 transmitters and three hardwired loops can be used with the CP-90 Control Panel.*

Figures 4, 5, 6 & 7 are example floor plans of a typical installations showing areas where protection is required. Also shown are the mounting locations for various accessory devices that can be used with the CP-90 system.

Installation Examples

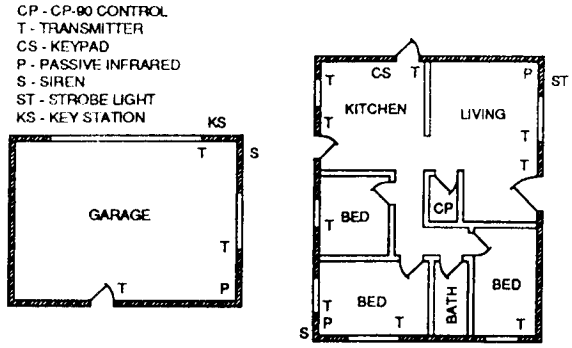


Figure 4. Small Residental Installation

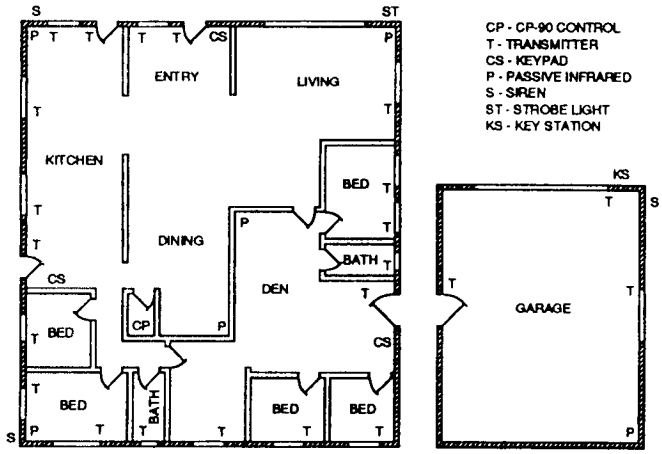


Figure 5. Large Residental Installation

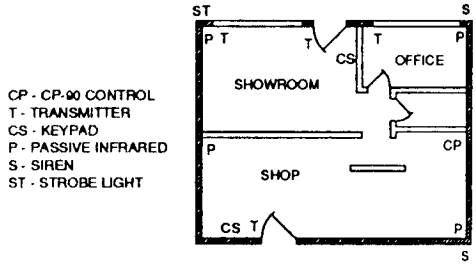


Figure 6. Small Commercial Installation

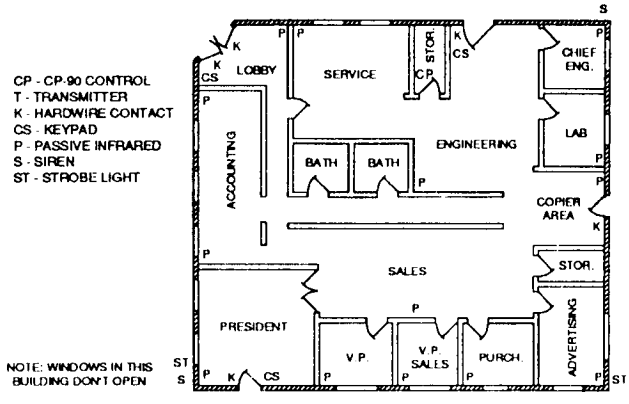


Figure 7. Large Commercial Installation

Wireless Do's and Don'ts

These are some general wireless guidelines that should be considered before beginning the installation. Follow these tips to create the best possible wireless installation.

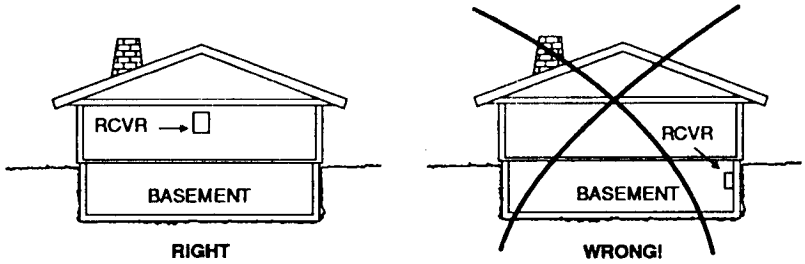
RIGHT

CENTRALLY LOCATE RECEIVER OR ANTENNA

WRONG!

TRANSMITTERS AT THE OTHER END OF HOUSE MIGHT BE TOO FAR AWAY

Figure 8. Receiver/Antenna Location



RIGHT

MOUNT RECEIVER AS HIGH ABOVE EARTH LEVEL AS POSSIBLE

WRONG!

LOCATING A RECEIVER BELOW EARTH LEVEL WILL IMPAIR RANGE

Figure 9. Height of Receiver/Antenna

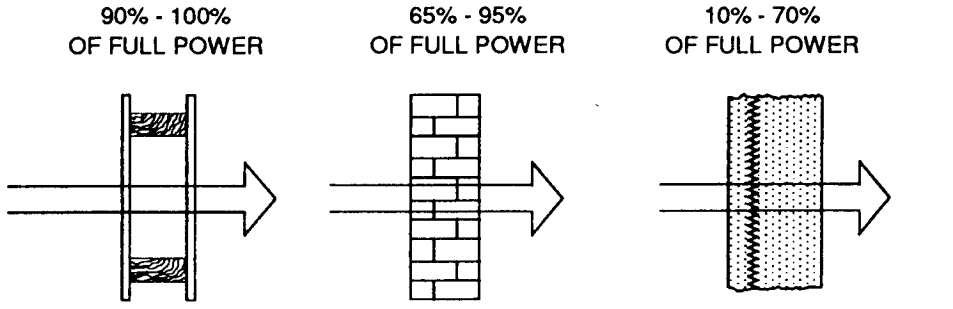


Figure 10. Transmission Through Obsticles

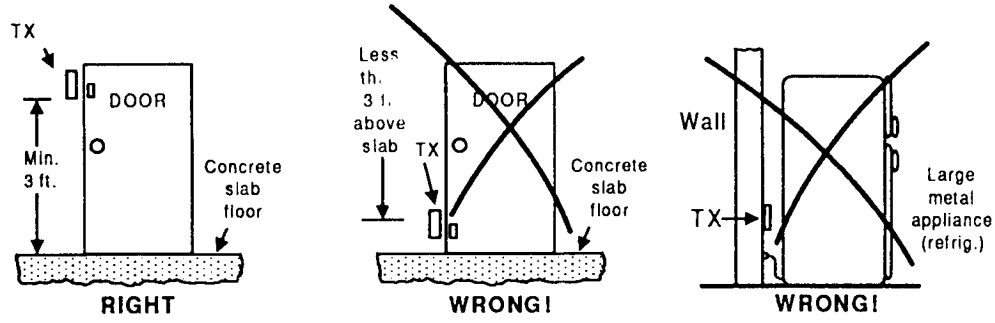


Figure 11. Transmitter Locations

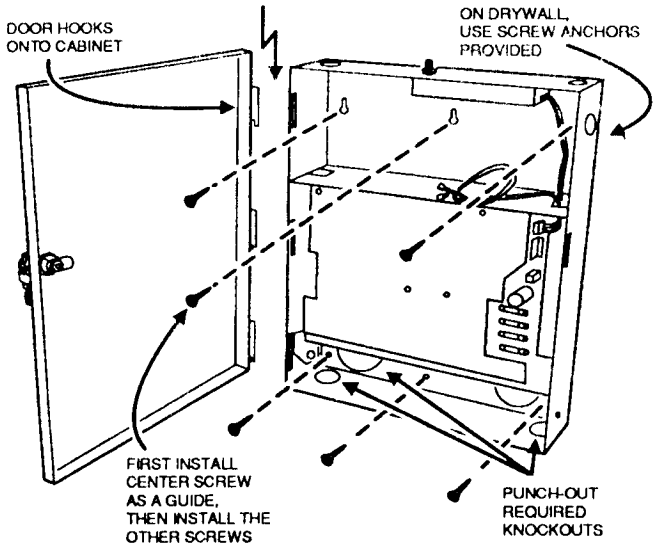


Figure 12. Mounting Cabinet

Mounting The Control

STEP 1 Decide on a good location (near power, telephone, good reception area and good wiring access) to mount the control panel. It should be a secure and dry location. The mounting area must remain between 32 and 122 degrees Fahrenheit year-around.

STEP 2 The cabinet has seven 1-1/8" EMT conduit knockouts on the sides and two 2" EMT conduit knockouts on the rear, and one 5/8" EMT conduit knockout on the bottom. Punch out required mounting knockouts.

STEP 3 The cabinet has six mounting holes. Install one screw first for the top center hole. Hold the cabinet on the screw and mark the locations for the remaining screws. Install all of the supplied screws to firmly attach the cabinet to the wall.

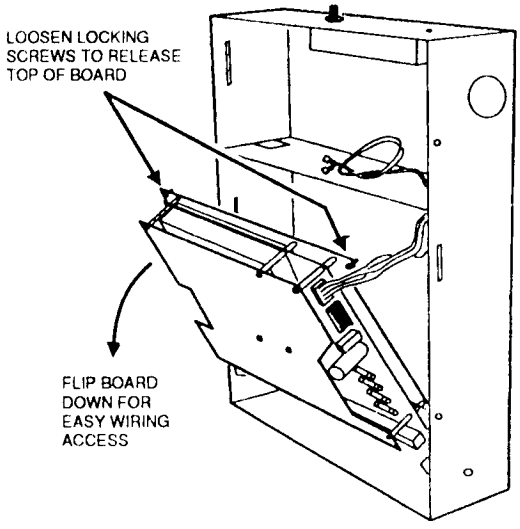


Figure 13. Lowering Board for Wiring Access

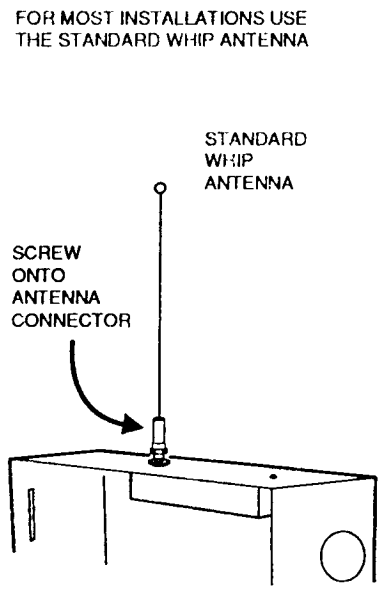


Figure 14. Local Whip Antenna Installation

Antenna Hook-up

In most installations the standard cabinet mounted wire whip antenna is sufficient. Screw the small antenna into the connector on the top of the CP-90 cabinet.

If the CP-90 must be located in an area that has poor radio reception or if it is going to be very far from some of the transmitters, use the EXA-1000 external antenna. Mount the EXA-1000 as high as possible, centrally located amongst the transmitters. Connect the CO-AX lead to the CP-90 connector.

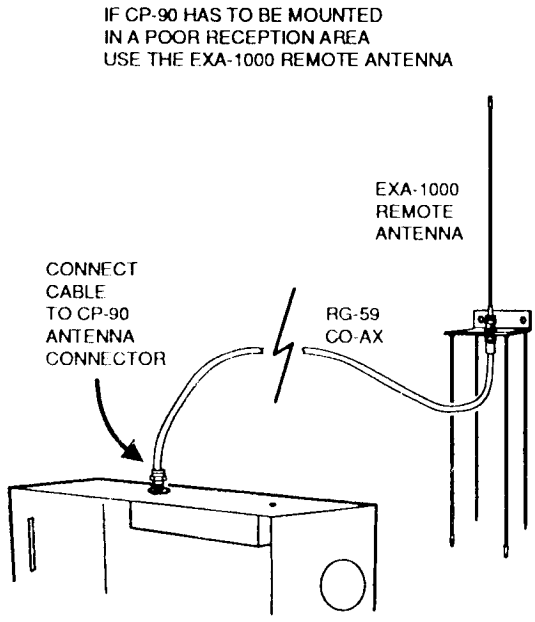


Figure 15. Remote Antenna Installation

Earth Ground

Connection of an earth ground is not absolutely required, but is recommended to provide maximum static and lightning protection.

Use size 14 gauge solid wire or thicker to connect to an 8-foot copper ground rod. Locate the ground rod next to the Power and Telephone company rods and bond the rods together with a new clamp. **Do not disturb the clamps installed by the Power or Telephone Company.**

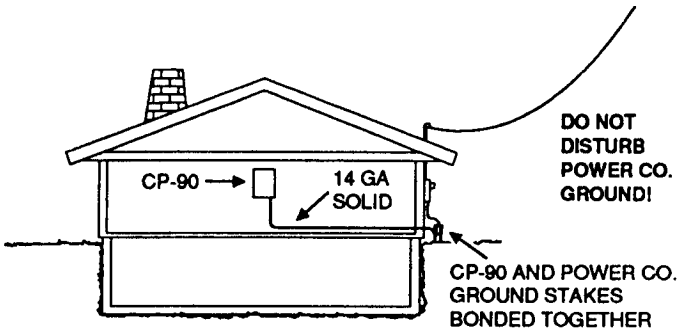


Figure 16. Earth Grounding

Communicator Phone Line

Install a USOC RJ31-X or RJ38-X jack to the telephone system. Attach a Linear Model 300 or equivalent phone line cord to the communicator terminals on the CP-90. Plug the cord into the jack.

Both the incoming telephone lines and outgoing local telephones are connected to the control panel. When the communicator activates, all the telephones will be disconnected to prevent an off-hook telephone in the premises from blocking the communicator call.

☞ *Note: The ring and tip terminals should read 48 volts when the communicator is idle, and 0 volts when the communicator is active.*

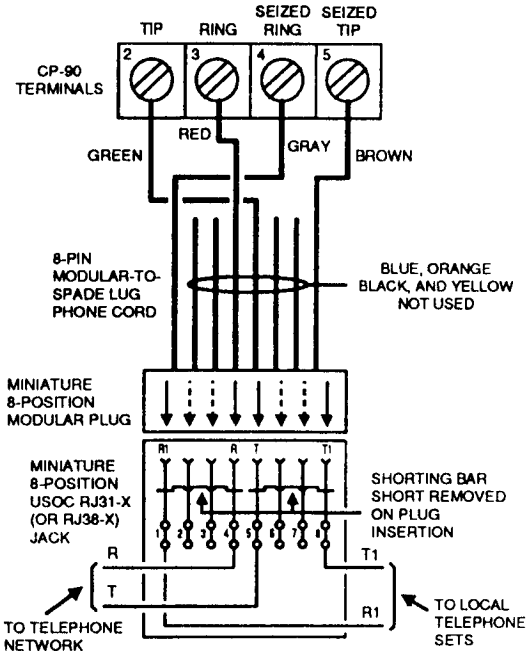


Figure 17. Telephone Connections

Hardwire Loops

The CP-90 supports three hardwired loops. Each loop may be either normally open, normally closed and with or without a 2.2K end-of-line resistor. The three loops share a common return terminal.

End-of-line resistors are recommended to supervise the loops. With the resistor wired in series with the loop at the furthest, most remote end, any opening or shorting of the loop will cause a violation or trouble (programming option).

Fire loops must have the end-of-line resistor installed in the loop after the last fire detection device in order to detect troubles or breaks in the loop.

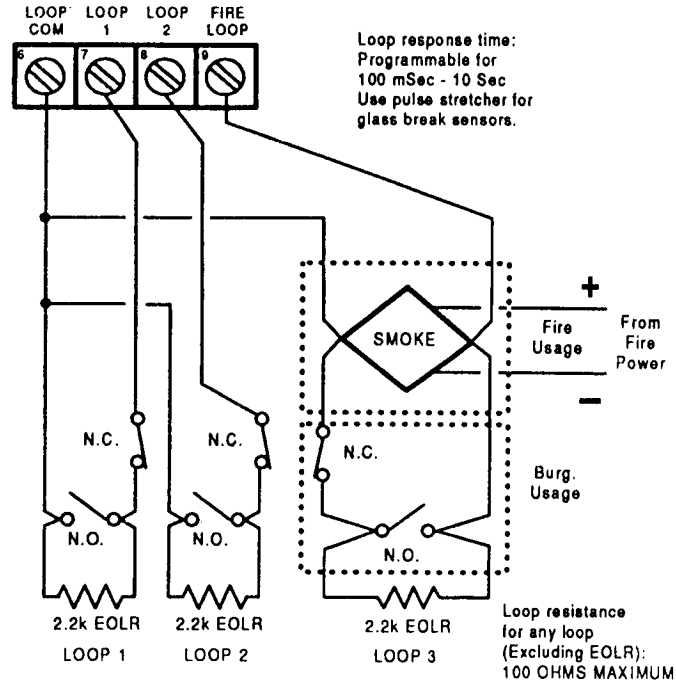


Figure 18. Hardwire Loop Wiring

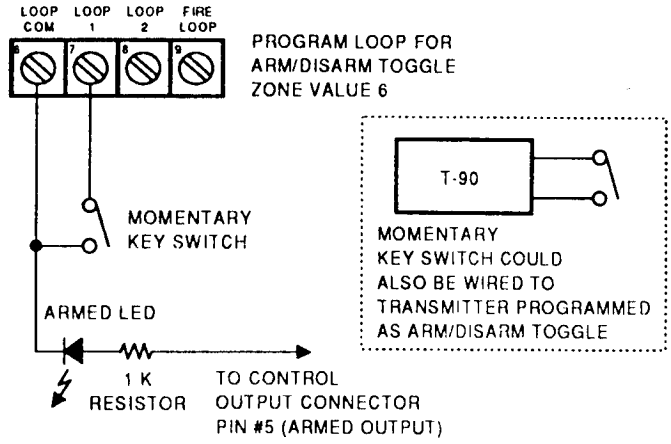


Figure 19. Key Station Wiring Options

Auxiliary Relays

The CP-90 has two 5 Amp auxiliary relays that are activated by applying +12 VDC to their trigger terminals. When triggered, the relays provide +12 VDC out of the normally open contacts. The relay contacts can be changed to isolated dry contact outputs by cutting the wire jumpers WJ1 or WJ2 located on the terminal board.

Connect the relay K1 and K2 TRIG terminals to the control output connector using the control output cable. **Multiple outputs can be wired to the same TRIG terminal.**

Control Output Connector

The control output connector has ten outputs that can be wired to the auxiliary relay TRIG terminals or connected to other devices. Auxiliary power is also available from the control output connector.

The control output cable has the 12-position mating connector and 16" wire leads for electrical connections. See the table to the right for a description of the outputs.

Each output is a solid state output that can provide up to 100 mA of drive current at +12 Volts. These outputs can drive LED's directly (through a current limiting resistor) or trigger other devices and modules.

Each output is over-current protected, but the output voltage will drop if too large a load is placed on the output. **Multiple outputs can be tied together to the same trigger terminal.**

CONTROL OUTPUT CONNECTOR SIGNALS			
PIN #	COLOR	FUNCTION	DESCRIPTION
1	WHT/RED	+12 VDC AUXILIARY POWER	FOR POWERING AUXILIARY ACCESSORIES OUTPUT GOES THROUGH AUX. FUSE 2 AMPS MAXIMUM
2	BRN	ACCESS OUTPUT	POSITIVE OUTPUT WHEN AN ACCESS CODE COMMAND IS ENTERED ON A KEYPAD
3	RED	LAMP OUTPUT	POSITIVE OUTPUT WHEN ENTRY OR EXIT DELAY BEGINS, OR ANY KEY IS PRESSED
4	ORG	PRE-ALARM OUTPUT	POSITIVE OUTPUT WHEN ENTRY DELAY BEEPS ARE SOUNDING
5	YEL	ARMED OUTPUT	POSITIVE OUTPUT WHEN SYSTEM IS ARMED, BLINKING OUTPUT DURING AND AFTER AN ALARM WHILE ARMED
6	GRN	VIOLATION OUTPUT	POSITIVE OUTPUT DURING AND AFTER AN ALARM WHILE ARMED
7	BLU	FIRE OUTPUT	POSITIVE OUTPUT WHEN FIRE ZONE IS IN ALARM (DEFAULT IS PULSING OUTPUT)
8	PUR	EMERGENCY OUTPUT	POSITIVE OUTPUT WHEN EMERGENCY ZONE IS IN ALARM
9	GRY	BURGLARY OUTPUT	POSITIVE OUTPUT WHEN A BURGLARY ZONE IS IN ALARM
10	WHT	AUTOMATION OUTPUT #1	POSITIVE OUTPUT WHEN AUTOMATION #1 ZONE IS TRIGGERED
11	BLK	AUTOMATION OUTPUT #2	POSITIVE OUTPUT WHEN AUTOMATION #2 ZONE IS TRIGGERED
12	WHT/BLK	NEGATIVE	COMMON POWER SUPPLY NEGATIVE

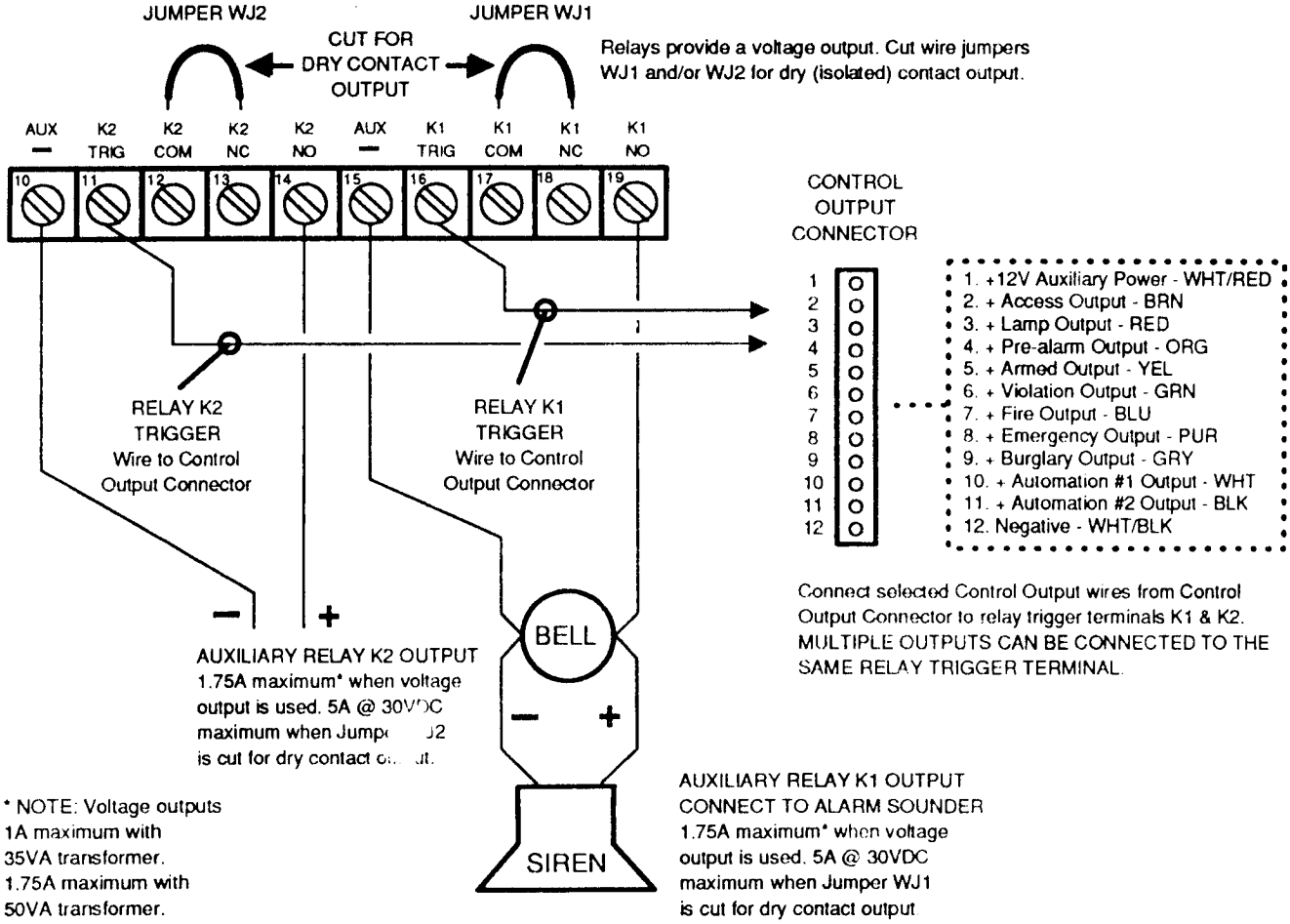
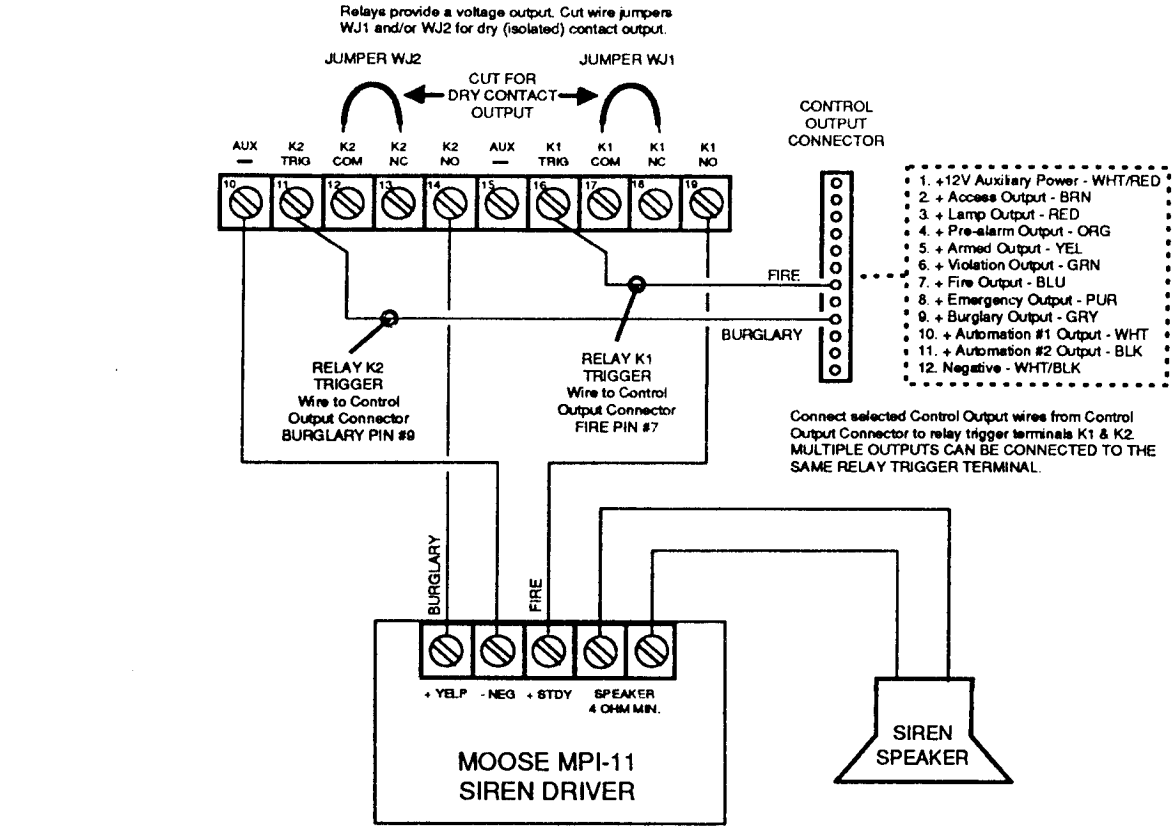


Figure 20. Auxiliary Relay Connections



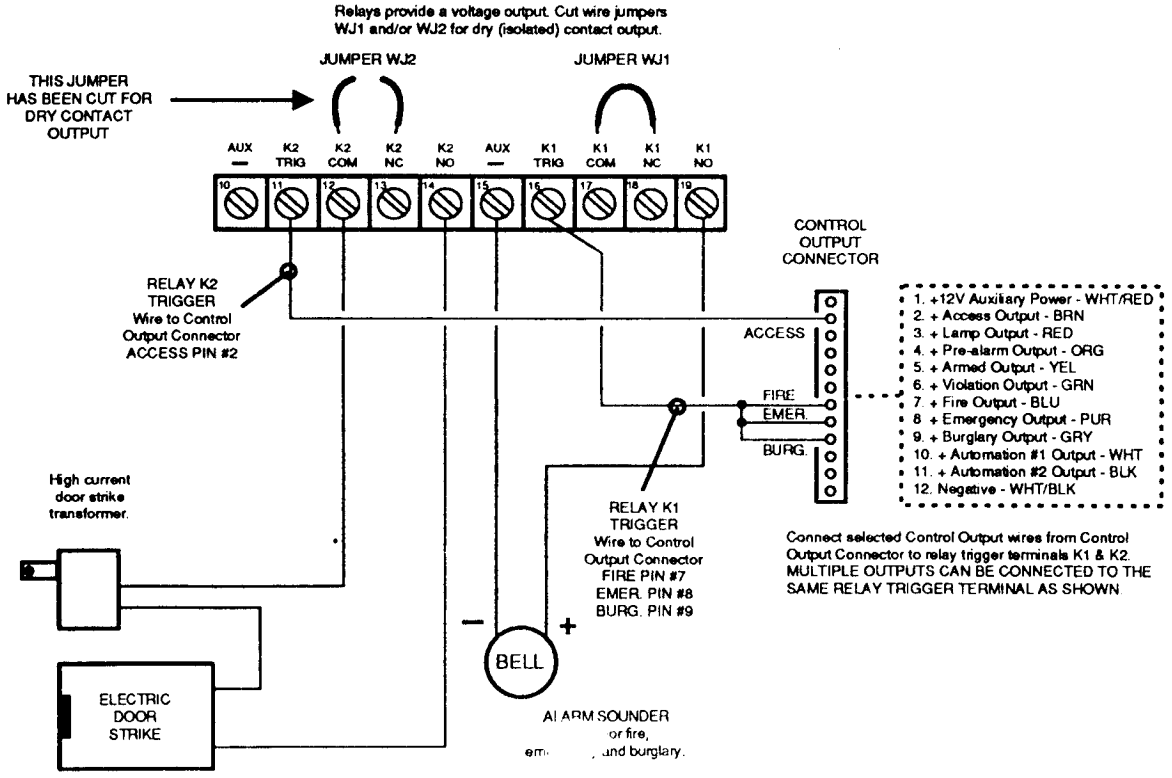


Figure 21. Typical Auxiliary Relay Hook-ups

Control Stations (Keypads)

Up to four keypads can be used with each CP-90 system. Homerunning of the keypad wires is not required. Connect each keypad to the CP-90 with four-conductor 22 gauge wire.

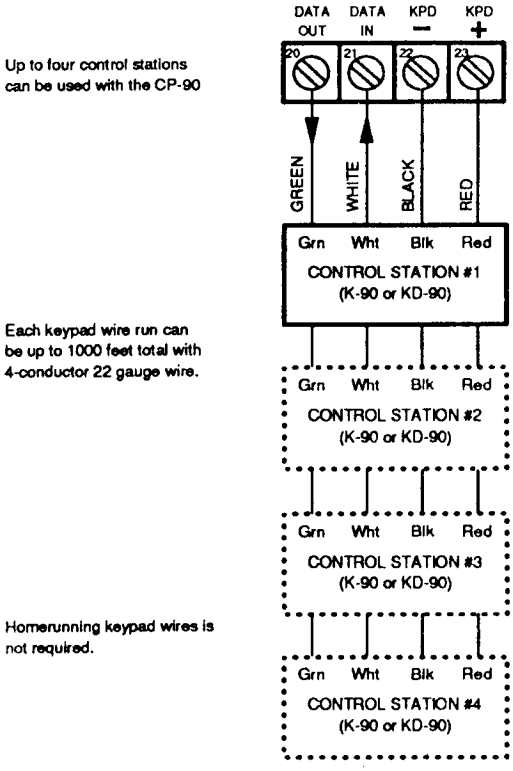


Figure 22. Control Station Wiring

Auxiliary Power Output

Provides regulated 12 VDC for powering motion detectors, audio sound discriminators, siren drivers, etc. The auxiliary fuse protects this output, limiting the maximum current to 2 Amps. Should this fuse ever blow, the TROUBLE light will flash and a "Supervisory Condition 75" will occur. The communicator can also report this condition (programming option).

Fire Power Output

Provides regulated 12 VDC for powering smoke detectors. Latching smoke detectors can be reset by giving the keypad command "Status 99". This interrupts the fire power for three seconds.

The fire power fuse protects this output, limiting the maximum current to 2 Amps. Should this fuse ever blow, the trouble light will flash and a "Supervisory Condition 76" will occur. The communicator can also report this condition (programming option).

AC Transformer

The CP-90 system is powered by a 16 Volt 35 VA minimum, internally fused, UL listed, Class 2 transformer. This transformer is included with the CP-90 system pack.

✶ ***WARNING! Never short the terminals of the transformer together. This will cause the internal fuse to blow. Never replace or substitute with a transformer of lower VA or voltage rating. The transformer must be connected to a 120 VAC 50/60 Hz unswitched (24 hour) power outlet not controlled by a wall switch.***

STEP 1 Be sure that the CP-90 MASTER POWER switch is off (see Figure 24).

STEP 2 Connect the transformer to the AC terminals of the CP-90 using size 18 gauge minimum two-conductor wire. Maximum wire run is 50 feet.

STEP 3 Plug transformer into AC outlet and secure with case screw.

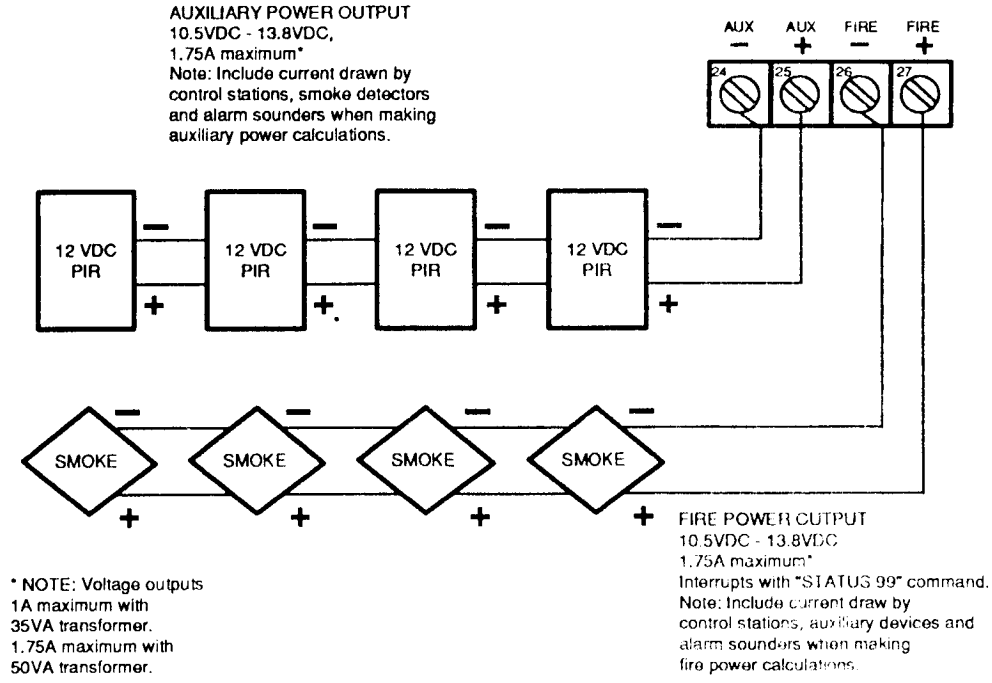


Figure 23. Auxiliary and Fire Power Output Wiring

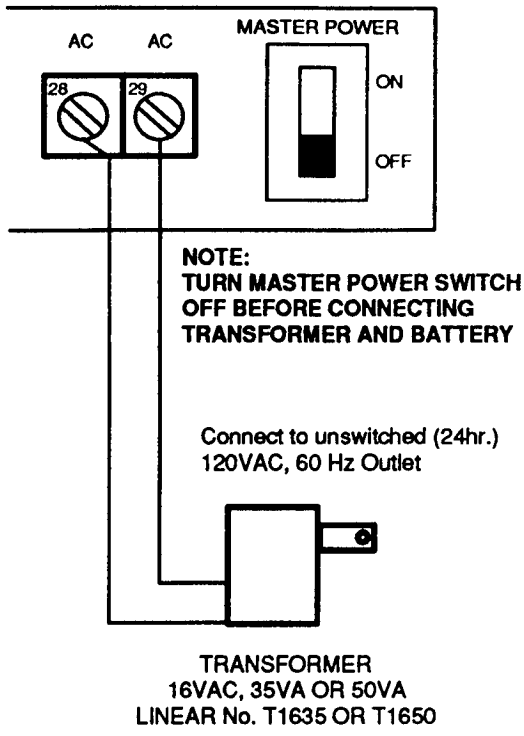


Figure 24. AC Transformer Connection

Backup Battery

The CP-90 is designed to use a 12 Volt 6 Amp/hour sealed lead acid battery. The control panel maintains a float charge on the battery at 13.8 volts. If AC power is removed, the battery will power the CP-90. The length of time the system can be powered off the battery depends on the total current draw of all the accessories plus the panel and keypads. Refer to the Battery Standby Table for approximate times.

✶ ***CAUTION! Do not reverse the battery leads. Red must go to the (+) terminal, and black to the (-) terminal. Reversing the battery leads will blow the 5 Amp battery fuse.***

STEP 1 Connect the battery leads. Red to (+), Black to (-).

STEP 2 Place the battery on the cabinet shelf above the main circuit board (see Figure 25).

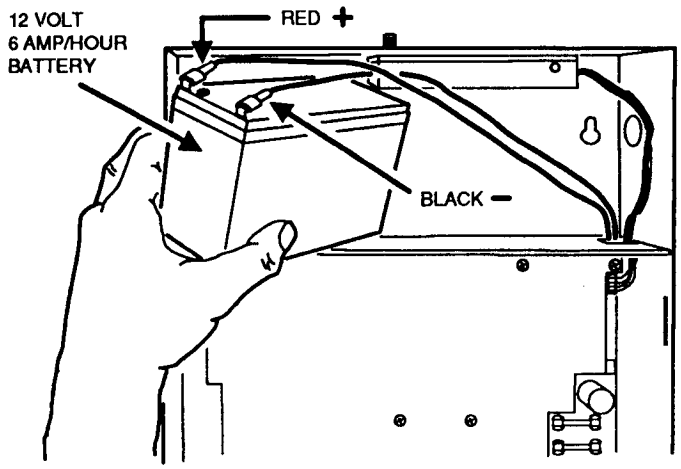


Figure 25. Backup Battery Installation

BATTERY STANDBY TABLE (5AH BATTERY)			
ADD TOTAL CURRENT DRAW FROM ALL ACCESSORIES			
200 mA	400 mA	600 mA	750 mA
27 Hrs.	13 Hrs.	8 Hrs.	6 Hrs.
EACH K-90 = 40 mA TYPICAL, 550 mA MAXIMUM			
EACH KD-90 = 50 mA TYPICAL, 350 mA MAXIMUM			

Automatic Battery Testing

The CP-90 tests the backup battery every 24 hours or when a manual "STATUS 98" command is given. During the test, the system automatically reduces the battery charge current while monitoring the batteries voltage. If the battery tests low, the TROUBLE LED will flash and a "Supervisory Condition 74" will occur. The communicator can also report this condition (programming option).

Audio Output Connector

The three-pin audio output connector provides two types of audio signals from the CP-90. These outputs are low level and can be listened to only when connected to an audio amplifier or Linear's CP-90 Test Box (Model TB-90).

Pin 1 is the audio output from the radio receiver. Incoming transmissions, background noise and interference can be monitored on this pin.

Pin 2 is the annunciator output. Keypad beeps and tones can be monitored on this pin.

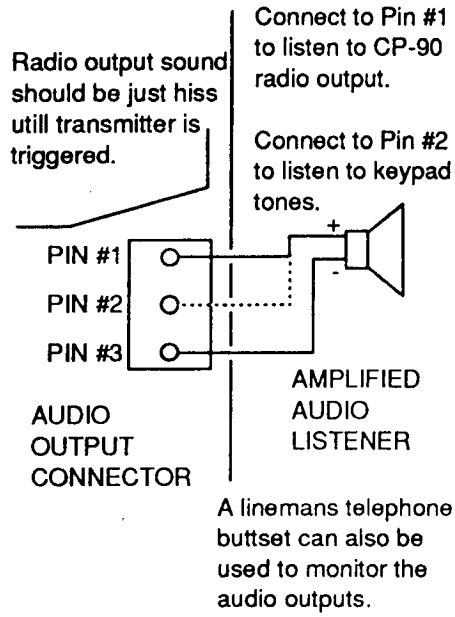


Figure 26. Audio Output Connector Use

2-Way Audio Connector

This connector is for connection to Linear's AUD-1 two-way audio board. The audio board allows audio listen-in and audio talk back from the central station.

First Time Power-up

The system can be powered up two different ways. If the unit is new out-of-the-box just turn the MASTER POWER switch on. The factory loaded defaults are already installed in memory.

If the unit has previously been programmed, and you want to reset the system back to the factory defaults, follow these steps:

STEP 1 Use a small tool to press and hold down the MASTER RESET switch (see Figure 27).

STEP 2 Turn the MASTER POWER switch on while still holding down the MASTER RESET switch. Wait about 10 seconds while still holding down the MASTER RESET switch. The system now has the factory defaults installed.

Internal Diagnostic Checks

The CP-90 performs an automatic internal diagnostic check when the system is first powered up. The system checks itself to be sure everything is in order. If something is wrong, the keypad's TROUBLE LED will flash and supervisory condition will occur. Press the STATUS button for 1-second to display the condition.

Watchdog Monitor

While the system is operating, an internal "watchdog" circuit monitors the system. If for some reason (lightning strike, etc.) the system's memory is upset, the watchdog monitor will reset the system, restoring system integrity. If a watchdog reset occurs, the keypad's TROUBLE light will flash and a "Supervisory Condition 89" will occur. The communicator can also report this condition (programming option). The security level will remain at the previously set level.

Special Trouble Displays

Special situations will cause the TROUBLE light on the keypad(s) to blink. To identify the trouble, press and hold the STATUS key for one second.

View the sensor number on the SENSOR display and watch for the corresponding light indicating the type of trouble.

Other conditions will display a special trouble code to identify the problem.

The special trouble displays are:

SPECIAL TROUBLE DISPLAYS	
CODE #	**DESCRIPTION**
1-64	Sensor Numbers - refer to your sensor location chart
65-72	Control Station Number - refer to your keypad location chart
73	Central Station Communication Failure
74	Panel Low Battery (or no battery)
75	Panel Auxiliary Fuse Blown
76	Panel Fire Circuit Fuse Blown
77	Panel Radio Failure
78	Panel Power Failure
79	Panel Tamper
80	Panel AC Power Failure
81	Panel EEPROM Checksum Failure
89	Panel Firmware Consistency Check

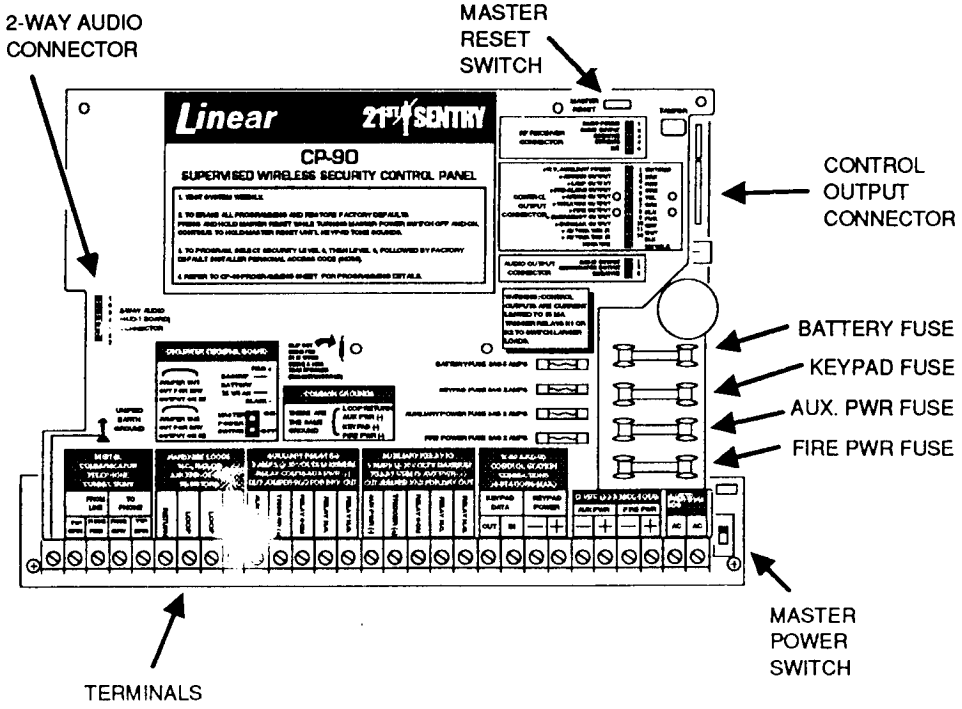


Figure 27. CP-90 Parts Location

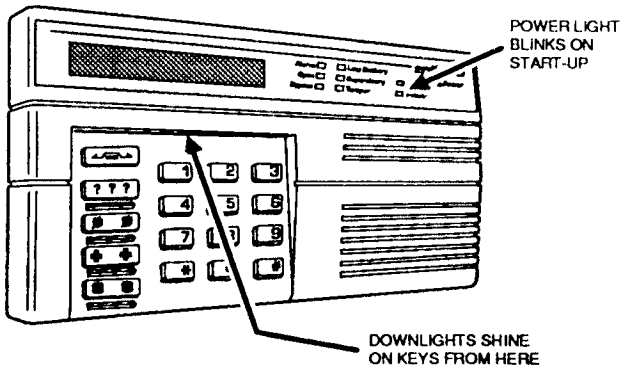


Figure 28. KD-90 Keypad

Power-up Indications

When the CP-90 MASTER POWER switch is turned on, the keypad's POWER LED will blink until the CP-90 initalizes the keypads. This takes about eight seconds.

Keypad Lighting

Each keypad (except the wireless TK-90) has programmable downlights that light up the keys; and programmable display lighting. Each keypad in the system can be programmed for different lighting levels. An active level is set for when the keypad is in use. An inactive level is set for when the keypad is idle.

Keypad Supervision

Every minute each keypad is checked by the CP-90 to be sure that it's still there. If the control finds a keypad missing, a "Supervisory Condition" will occur. Remaining keypads can display the condition and a central station trouble report will be sent (if programmed).

Keypad Lockout Timer

Control station keypads have a five second timer that automatically locks out further keypad entries after an in correct command sequence or access code is entered. The control station will automatically unlock five seconds after the last keystroke. At any time during a keystroke sequence, the keypad and display may be reset, unlocked and cleared by pressing the * key.

☞*NOTE: If the keypad doesn't seem to respond to your commands, press * before entering the command again.*

Programming Level Timer

While programming the CP-90 from a keypad, if no keystrokes are made for four minutes, the system will automatically leave the programming level mode.

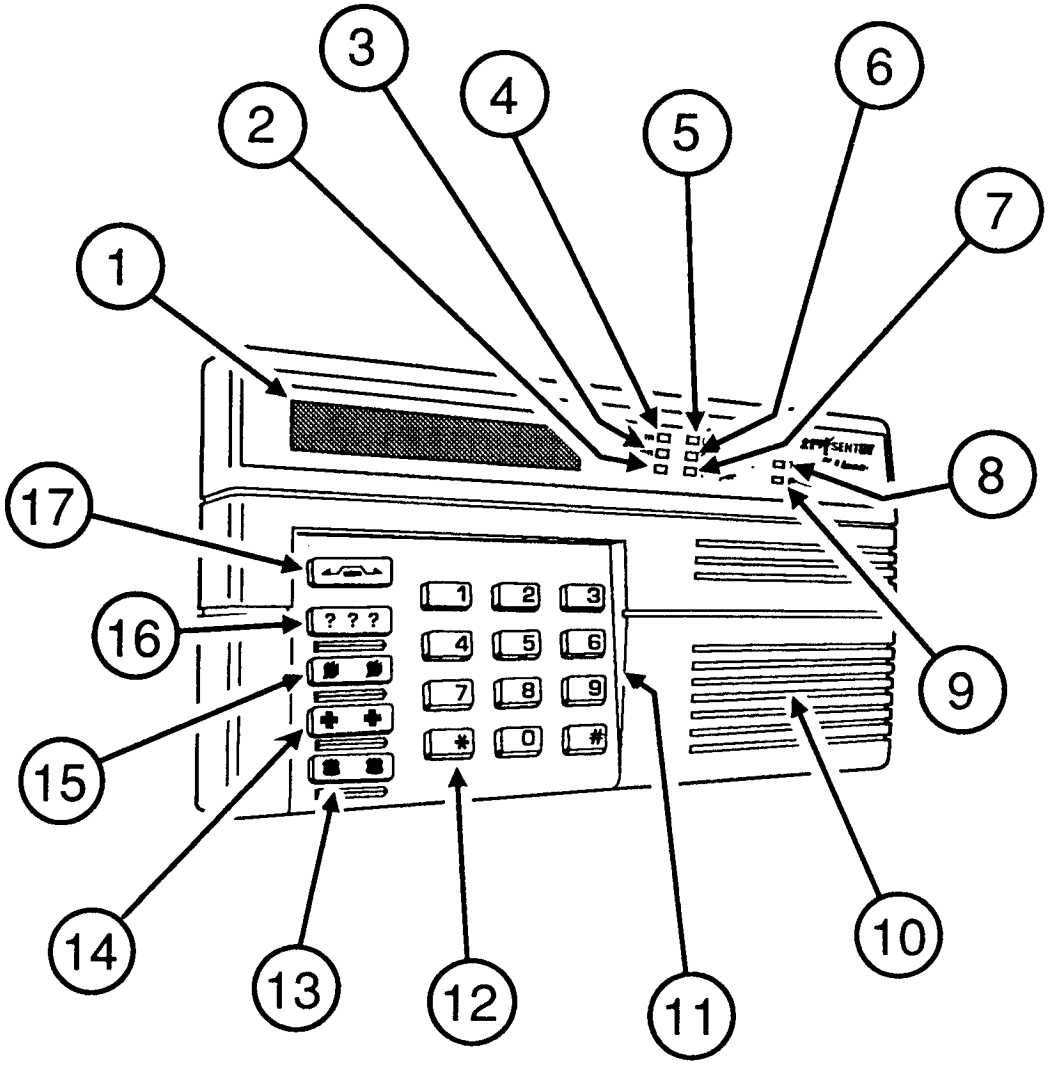


Figure 29. KD-90 Keypad Features

1. *ALPHANUMERIC DISPLAY*
Custom programmed by installer to show sensor number, locations and system status on a two-line English language display.

2. *BYPASS LIGHT*
When checking the status of the system, this light shows that the sensor number displayed is bypassed and cannot cause an alarm.

3. *OPEN LIGHT*
When checking the status of the system, this light goes on to show an open door or window sensor.

4. *ALARM LIGHT*
Blinks when there has been an alarm. Stays blinking until the system is armed again. Press "STATUS 96" to display the alarm(s) in order of occurrence.

5. *LOW BATTERY LIGHT*
When checking the status of the system, this light shows that the sensor number displayed has a low battery and the battery should be replaced.

6. *SUPERVISORY LIGHT*
When checking the status of the system, this light goes on to show that the sensor number displayed has not reported to the control panel in eight hours.

7. *TAMPER LIGHT*
When checking the status of the system, this light shows that the sensor number displayed has been tampered with. Reset by pressing "STATUS 97".

8. *TROUBLE LIGHT*
Blinks when the system senses an abnormal condition. Press and hold the STATUS key for 1 second to display the trouble. Press "STATUS 97" to clear the indication.

9. *POWER LIGHT*
Lights when system is normally powered from AC. Blinks when the system is being powered from its backup battery during an AC power failure or when the battery is low.

10. *KEYPAD SPEAKER*
Sounds the various system tones, beeps and sirens. Volume of each sound can be programmed independently for each keypad to three different levels or disabled.

11. *NUMERIC KEYBOARD*
Used to enter codes to control and interrogate the system.

12. ** KEY*
Resets the keyboard after a wrong key is pressed. Push this key before entering the next keyboard command.

13. *POLICE/HOLD-UP KEY*
Press and hold this key for 3 seconds to trigger police/hold-up alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

14. *EMERGENCY KEY*
Press and hold this key for 3 seconds to trigger personal emergency alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

15. *FIRE KEY*
Press and hold this key for 3 seconds to trigger the fire alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

16. *STATUS KEY*
Press to display and sound the current security level. Press and hold for 1 second to display the current status of each sensor. Press and enter a two-digit sensor number to display the current status of that sensor.

17. *BYPASS KEY*
After arming the system, press and hold for 1 second to bypass sensors that are open. Press and enter a two-digit sensor number to bypass a specific sensor.

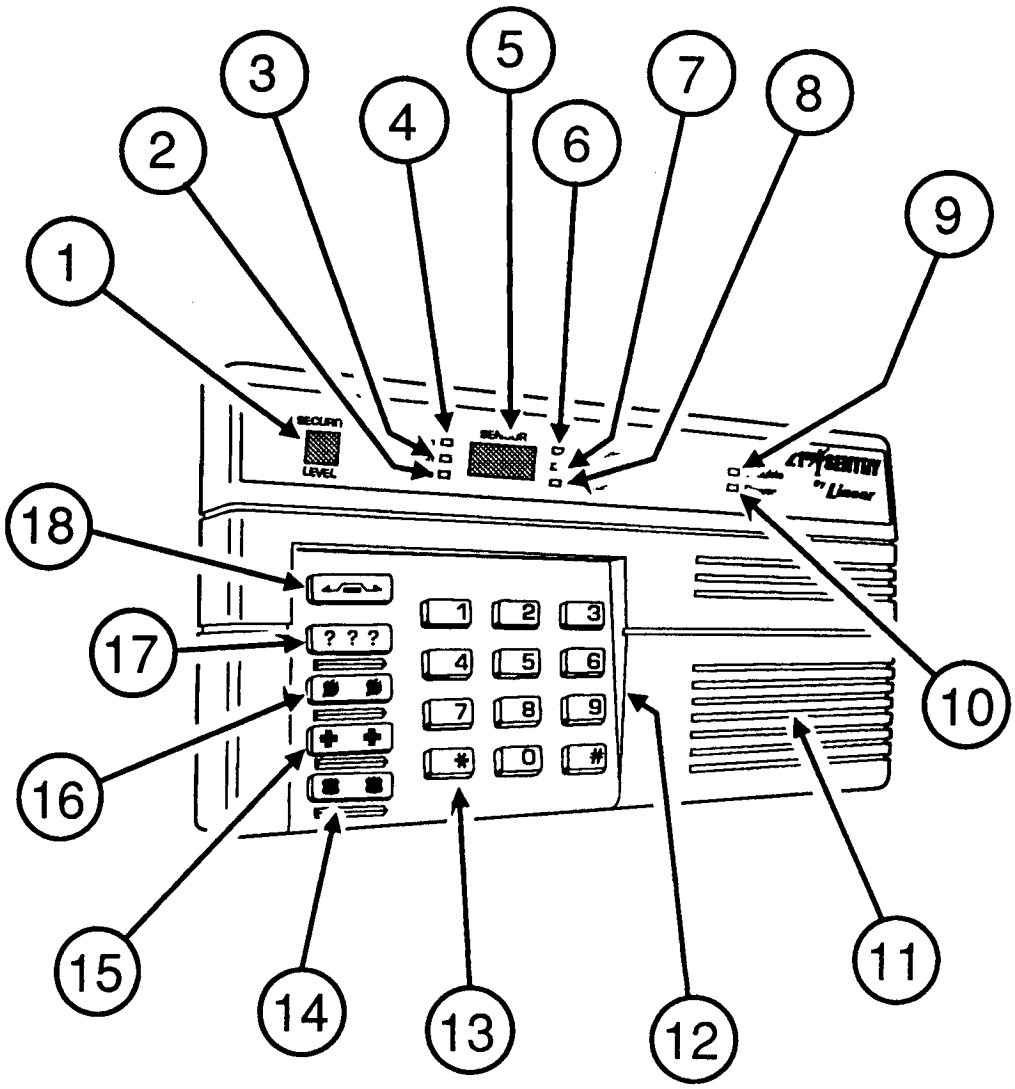


Figure 30. K-90 Keypad Features

1. SECURITY LEVEL DISPLAY
Shows the current security level of the system (0 thru 8).

2. BYPASS LIGHT
When checking the status of the system, this light shows that the sensor number displayed is bypassed and cannot cause an alarm.

3. OPEN LIGHT
When checking the status of the system, this light goes on to show an open sensor.

4. ALARM LIGHT
Blinks when there has been an alarm. Stays blinking until the system is armed again. Press "STATUS 96" to display the alarm(s) in order of occurrence.

5. SENSOR DISPLAY
Shows sensor numbers during bypassing, status and alarm memory displays.

6. LOW BATTERY LIGHT
When checking the status of the system, this light shows that the sensor number displayed has a low battery and the battery should be replaced.

7. SUPERVISORY LIGHT
When checking the status of the system, this light goes on to show that the sensor number displayed has not reported to the control panel in eight hours.

8. TAMPER LIGHT
When checking the status of the system, this light shows that the sensor number displayed has been tampered with. Reset by pressing "STATUS 97".

9. TROUBLE LIGHT
Blinks when the system senses an abnormal condition. Press and hold the STATUS key for 1 second to display the trouble. Press "STATUS 97" to clear the indication.

10. POWER LIGHT
Lights when system is normally powered from AC. Blinks when the system is being powered from its backup battery during an AC power failure or when the battery is low.

11. KEYPAD SPEAKER
Sounds the various system tones, beeps and sirens. Volume of each sound can be programmed independently for each keypad to three different levels or disabled.

12. NUMERIC KEYBOARD
Used to enter codes to run and interrogate the system.

*13. * KEY*
Resets the keyboard after a wrong key is pressed. Push this key before entering the next keyboard command.

14. POLICE/HOLD-UP KEY
Press and hold this key for 3 seconds to trigger police/hold-up alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

15. EMERGENCY KEY
Press and hold this key for 3 seconds to trigger personal emergency alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

16. FIRE KEY
Press and hold this key for 3 seconds to trigger the fire alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

17. STATUS KEY
Press to display and sound the current security level. Press and hold for 1 second to display the current status of each sensor. Press and enter a two-digit sensor number to display the current status of that sensor.

18. BYPASS KEY
After arming the system, press and hold for 1 second to bypass sensors that are open. Press and enter a two-digit sensor number to bypass a specific sensor.

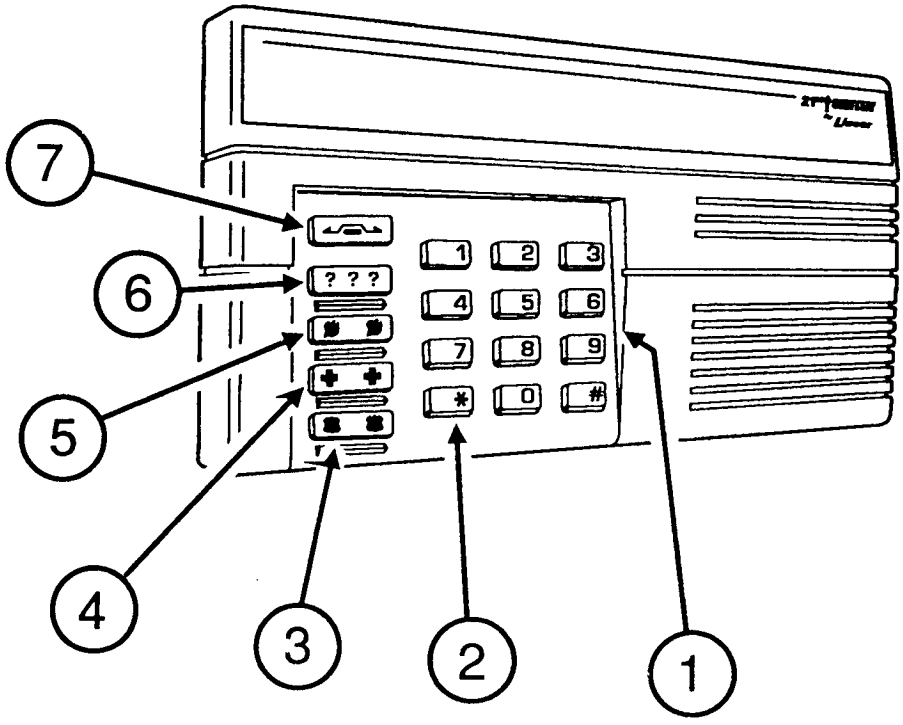


Figure 31. TK-90 Wireless Keypad Features

1. NUMERIC KEYBOARD
Used to enter codes to run and interrogate the system.

*2. * KEY*
Resets the keyboard after a wrong key is pressed. Push this key before entering the next keyboard command.

3. POLICE/HOLD-UP KEY
Press and hold this key for 3 seconds to trigger police/hold-up alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

4. EMERGENCY KEY
Press and hold this key for 3 seconds to trigger personal emergency alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

5. FIRE KEY
Press and hold this key for 3 seconds to trigger the fire alarm. **This key is always active and may be triggered at any time. Use only in case of emergency!**

6. STATUS KEY
Press to display and sound the current security level. Press and hold for 1 second to display the current status of each sensor. Press and enter a two-digit sensor number to display the current status of that sensor.

7. BYPASS KEY
After arming the system, press and hold for 1 second to bypass sensors that are open. Press and enter a two-digit sensor number to bypass a specific sensor.

System Zones

Each sensor installed in the system is programmed to a specific "sensor number" and "sensor zone".

The *sensor number* (01-64) identifies the specific sensor when displayed on the keypad(s) and to the central monitoring station (if system is monitored). This allows pin-point information about any sensor in the system.

The *sensor zone* determines how and when the Control Panel responds to signals from the sensor. Some sensors are armed all the time, others are armed only in certain security levels. The sensor's programmed zone determines this.

The sensor zones are:

EXTERIOR
For perimeter doors and windows.

INTERIOR
For motion detectors, mat switches, interior doors and other sensors that detect human presence inside the building.

RESTRICTED INTERIOR
For special interior areas that are not normally occupied during nighttime. Sensors used in this zone would be located in an attic, basement, inside a detached garage or other similar areas.

FIRE
Continuously armed 24-hour zone for smoke detectors, heat sensors, pull stations, etc. Can also be triggered directly from keypad.

EMERGENCY
Continuously armed 24-hour zone for medical or other types of emergencies. Can also be triggered directly from keypad.

POLICE/HOLD-UP
Continuously armed 24-hour zone for panic, police, or hold-up. Can also be triggered directly from keypad.

ARM/DISARM TOGGLE
Sensors programmed to this zone can arm and disarm the system. Automatic bypassing occurs if other sensors are open. Hardwire loops can be programmed to this zone for keyswitch use.

DELAYED REMOTE EMERGENCY
Continuously armed 24-hour zone for medical or other types of emergencies. Portable sensor must be activated for 3 seconds to trigger emergency alarm. ST-1 transmitters cannot be used for this zone because they only transmit for 1 second. Use an LMT-1.

DELAYED REMOTE POLICE/HOLD-UP
Continuously armed 24-hour zone for panic, police, or hold-up. Portable sensor must be activated for 3 seconds to trigger panic alarm. ST-1 transmitters cannot be used for this zone because they only transmit for 1 second. Use an LMT-1.

CUARD ZONE
For protecting areas or objects that are not normally entered or moved when the burglary portion of the system is disarmed. Used for gun cabinets, artworks, museum pieces, liquor cabinets, etc. Local alarm will sound when armed, causes central station reports in Level 4 only.

ENVIRONMENTAL TYPE A
Continuously armed 24-hour zone for environmental sensors (flood, freeze, etc.). Causes local annunciation, alarm and central station reports.

ENVIRONMENTAL TYPE B
Continuously armed 24-hour zone for environmental sensors (flood, freeze, etc.). Causes local annunciation and alarm but no central station reports.

ENVIRONMENTAL TYPE C
Continuously armed 24-hour zone for environmental sensors (flood, freeze, etc.). Causes local annunciation only.

CHIME ONLY ZONE
This zone causes a local chime when triggered. Can be used for wireless doorbell, mailbox mail detector, etc. Active 24-hours in Security Levels 1, 2 and 3.

AUTOMATION #1
Sensors programmed for this zone cause the automation output #1 to activate on the control output connector. Output may be timed or toggle on/off (programming option).

AUTOMATION #2
Sensors programmed for this zone cause the automation output #2 to activate on the control output connector. Output may be timed or toggle on/off (programming option).

ACCESS ONLY
Sensors programmed for this zone cause the access output to activate on the control output connector. Output may be timed or toggle on/off (programming option).

TX TYPE TRANSMITTER BUTTON DISABLE ZONE
This is a special zone used to disable desired buttons on TX type portable transmitters. Since all buttons on TX portable transmitters are entered at once when programming, this special zone disables unneeded transmitter buttons.

Security Levels

The CP-90 System provides seven different levels of arming for security, two levels for system testing and one level for programming. Each security level arms a specific group of sensor zones. The security levels are named after their most common use. When entering each security level, the keypad will sound a level change gong then count a number of beeps to match the selected level. The security levels are:

LEVEL 0 DISARM/CANCEL
(Sounds level change gong only)

- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Disarms system (cancels any alarm in progress).

LEVEL 1 GUARD
(Sounds level change gong & 1 beep)

- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 2 CHIME
(Sounds level change gong & 2 beeps)

- ✓ A two-tone "chime" will sound whenever windows or an exterior door is opened.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 3 HOME
(Sounds level change gong & 3 beeps)

- ✓ All exterior doors and windows are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 4 AWAY
(Sounds level change gong & 4 beeps)

- ✓ All sensors (interior and exterior) are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm and central station reports.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 5 NIGHT
(Sounds level change gong & 5 beeps)

- ✓ All exterior doors and windows are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Restricted interior sensors are armed (garage, downstairs interiors, other areas not normally entered at night).
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 6 NIGHT SECURE
(Sounds level change gong & 6 beeps)

- ✓ All exterior doors and windows are armed as instant.
- ✓ Sensors programmed as "delayed" activate as "instant" and will **not** allow exit and entry of premises without sounding an alarm.
- ✓ Restricted interior sensors are armed (garage, downstairs interiors, other areas not normally entered at night).
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

Special Test Levels

LEVEL 7 PHONE TEST
(Sounds level change gong & 7 beeps)

- ✓ Level 7 sends a telephone "test" message to the central monitoring station (if system is monitored).
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 8 SENSOR TEST
(Sounds level change gong & 8 beeps)

- ✓ Used to test each of the system's sensors.
- ✓ Activating sensor causes keypad beep.
- ✓ Display shows sensors that need to be tested.
- ✓ Pressing the STATUS button displays last sensor activated.

LEVEL 9 PROGRAMMING MODE (FOR INSTALLER ONLY)
(Sounds level change gong & 9 beeps)

- ✓ Used to program the system from a keypad.
- ✓ Allows reviewing and changing of the program functions, selectors, and values.
- ✓ Press and hold the " ★ " key for 5 seconds to exit program mode.
- ✓ Mode exits automatically after 4 minutes of inactivity.

Audible Signals and Sirens

Audible signals are used to sound system status, alert the user of an emergency and frighten away an intruder. The sounds come from the speakers in the hardwire keypads. The different sounds are:

Emergency Fire Alarm
Loud, rapid two-tone siren.

Emergency Intrusion Alarm
Loud intermittent siren.

Personal Emergency Sounder
A two-tone high/low chime sound.

Police/Panic Emergency Alarm
Loud high/low siren sound.

Environmental Alarm Sounder
A short, single-tone beep repeated at 1 minute intervals.

Accept Tones
A three-tone sound which indicates that the system has accepted a command.

Rejection Tones
Low volume, short two-tone sound which sometimes occurs when a keypad command is entered. It indicates that the command was not directly accepted. Normally this occurs when trying to arm the system with an open sensor. The sensor(s) must be closed or bypassed, then the system will arm.

Level Change Gong
A single gong tone sound that occurs after switching security levels.

Level Count Beeps
Short, low volume single-tone beeps that come after a level change gong or when the STATUS key is pressed. Count the number of beeps to determine the current security level.

Chime Tones
Low volume two-tone chime which indicates a door or window sensor has been opened when the system is armed in Level 2. Also used as sounder for the Chime Only Zone.

Sensor Test Beep
Loud single-beep heard when testing the sensors in Level 8 (Sensor Test Mode).

Status Key Commands

The STATUS key has four functions:

- ✓ If the STATUS key is pressed on a wireless keypad (keypad with no display), the current security level count beeps will sound from the hardwired keypads.
- ✓ If the STATUS key is pressed on a wired keypad (keypad with display), the current security level count beeps will sound and the display will show "— —". A sensor number or special keypad command (see below) can be entered. Entering a sensor number displays the current state of that sensor.
- ✓ If the STATUS key is pressed and held for about 1 second, the display will cycle to show the status of all of the sensors. If all sensors are closed and no trouble conditions exist, the display will show ". ." or "SYSTEM READY" on the KD-90.
- ✓ If the STATUS key is pressed during the status display cycle, the display will freeze on the sensor displayed. Press STATUS again to restart the display cycling.
- ✓ The display will return to normal after 45 seconds of keypad inactivity.

Special Keypad Commands

Four special keypad commands are used for resetting functions and performing system tests. **The system must be in Level 0 or 1 to use these commands.** The special keypad commands are:

- ✓ Press STATUS then "96"
  Displays alarm memory in order of occurrence.
- ✓ Press STATUS then "97"
  Clears all trouble displays from keypad.
- ✓ Press STATUS then "98"
  Starts a manual system backup battery test.
- ✓ Press STATUS then "99"
  Resets latching wired smoke detectors.

Security Levels

The CP-90 System provides seven different levels of arming for security, two levels for system testing and one level for programming. Each security level arms a specific group of sensor zones. The security levels are named after their most common use. When entering each security level, the keypad will sound a level change gong then count a number of beeps to match the selected level. The security levels are:

LEVEL 0 DISARM/CANCEL
(Sounds level change gong only)

- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Disarms system (cancels any alarm in progress).

LEVEL 1 GUARD
(Sounds level change gong & 1 beep)

- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 2 CHIME
(Sounds level change gong & 2 beeps)

- ✓ A two-tone "chime" will sound whenever windows or an exterior door is opened.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 3 HOME
(Sounds level change gong & 3 beeps)

- ✓ All exterior doors and windows are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.
- ✓ Chime Only Zone is active.

LEVEL 4 AWAY
(Sounds level change gong & 4 beeps)

- ✓ All sensors (interior and exterior) are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm and central station reports.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 5 NIGHT
(Sounds level change gong & 5 beeps)

- ✓ All exterior doors and windows are armed.
- ✓ Sensors programmed as "delayed" will allow timed exit and entry of premises without sounding an alarm.
- ✓ Restricted interior sensors are armed (garage, downstairs interiors, other areas not normally entered at night).
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 6 NIGHT SECURE
(Sounds level change gong & 6 beeps)

- ✓ All exterior doors and windows are armed as instant.
- ✓ Sensors programmed as "delayed" activate as "instant" and will **not** allow exit and entry of premises without sounding an alarm.
- ✓ Restricted interior sensors are armed (garage, downstairs interiors, other areas not normally entered at night).
- ✓ Sensors programmed to Guard Zone are armed (gun cabinet, safe, etc.) and will cause a local alarm only.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

Special Test Levels

LEVEL 7 PHONE TEST
(Sounds level change gong & 7 beeps)

- ✓ Level 7 sends a telephone "test" message to the central monitoring station (if system is monitored).
- ✓ All intrusion detection is off.
- ✓ All 24-hour sensors (fire, panic and environmental) are armed.

LEVEL 8 SENSOR TEST
(Sounds level change gong & 8 beeps)

- ✓ Used to test each of the system's sensors.
- ✓ Activating sensor causes keypad beep.
- ✓ Display shows sensors that need to be tested.
- ✓ Pressing the STATUS button displays last sensor activated.

LEVEL 9 PROGRAMMING MODE (FOR INSTALLER ONLY)
(Sounds level change gong & 9 beeps)

- ✓ Used to program the system from a keypad.
- ✓ Allows reviewing and changing of the program functions, selectors, and values.
- ✓ Press and hold the " ✱ " key for 5 seconds to exit program mode.
- ✓ Mode exits automatically after 4 minutes of inactivity.

Audible Signals and Sirens

Audible signals are used to sound system status, alert the user of an emergency and frighten away an intruder. The sounds come from the speakers in the hardwire keypads. The different sounds are:

Emergency Fire Alarm
Loud, rapid two-tone siren.

Emergency Intrusion Alarm
Loud intermittent siren.

Personal Emergency Sounder
A two-tone high/low chime sound.

Police/Panic Emergency Alarm
Loud high/low siren sound.

Environmental Alarm Sounder
A short, single-tone beep repeated at 1 minute intervals.

Accept Tones
A three-tone sound which indicates that the system has accepted a command.

Rejection Tones
Low volume, short two-tone sound which sometimes occurs when a keypad command is entered. It indicates that the command was not directly accepted. Normally this occurs when trying to arm the system with an open sensor. The sensor(s) must be closed or bypassed, then the system will arm.

Level Change Gong
A single gong tone sound that occurs after switching security levels.

Level Count Beeps
Short, low volume single-tone beeps that come after a level change gong or when the STATUS key is pressed. Count the number of beeps to determine the current security level.

Chime Tones
Low volume two-tone chime which indicates a door or window sensor has been opened when the system is armed in Level 2. Also used as sounder for the Chime Only Zone.

Sensor Test Beep
Loud single-beep heard when testing the sensors in Level 8 (Sensor Test Mode).

Status Key Commands

The STATUS key has four functions:

- ✓ If the STATUS key is pressed on a wireless keypad (keypad with no display), the current security level count beeps will sound from the hardwired keypads.
- ✓ If the STATUS key is pressed on a wired keypad (keypad with display), the current security level count beeps will sound and the display will show "— —". A sensor number or special keypad command (see below) can be entered. Entering a sensor number displays the current state of that sensor.
- ✓ If the STATUS key is pressed and held for about 1 second, the display will cycle to show the status of all of the sensors. If all sensors are closed and no trouble conditions exist, the display will show ". ." or "SYSTEM READY" on the KD-90.
- ✓ If the STATUS key is pressed during the status display cycle, the display will freeze on the sensor displayed. Press STATUS again to restart the display cycling.
- ✓ The display will return to normal after 45 seconds of keypad inactivity.

Special Keypad Commands

Four special keypad commands are used for resetting functions and performing system tests. **The system must be in Level 0 or 1 to use these commands.** The special keypad commands are:

- ✓ Press STATUS then "96"
  Displays alarm memory in order of occurrence.
- ✓ Press STATUS then "97"
  Clears all trouble displays from keypad.
- ✓ Press STATUS then "98"
  Starts a manual system backup battery test.
- ✓ Press STATUS then "99"
  Resets latching wired smoke detectors.

Program Functions, Selectors & Values

Each programming step for the CP-90 has a *Function Number*. Each Function may have multiple entries, the different entries for the function number are addressed by the *Selector Number*. Finally, there is a *Value* that can be programmed into the location addressed by the Function and Selector Numbers. The *Range* is the allowed entries that can be programmed into that particular Value field.

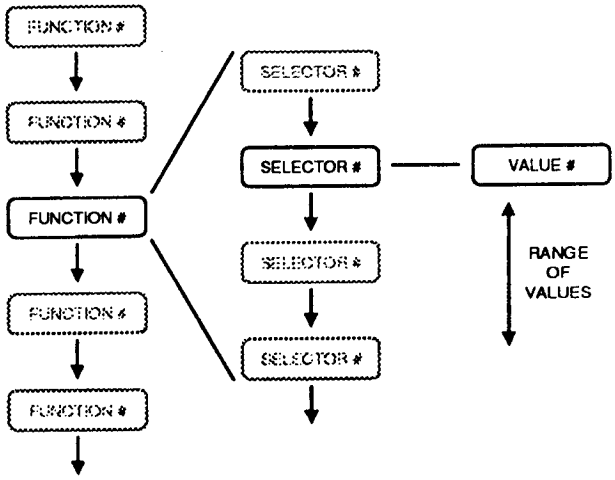


Figure 32. Function, Selector & Value Overview

Entering Program Level

Security Level 9 is for CP-90 programming. To enter Level 9 follow these steps:

STEP 1 Turn MASTER POWER switch on.

STEP 2 Be sure system is in Level 0 (Level 9 can only be reached from Level 0). If system is not in Level 0 press ★098765 to switch to Level 0.

STEP 3 Enter ★998765 to switch to Level 9.

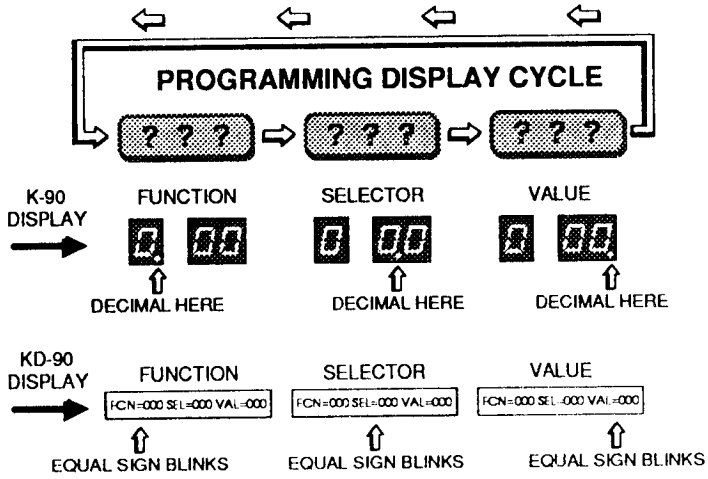


Figure 33. Programming Cycle

Control Station Keys During Programming

When the system is in Level 9 the keypad keys perform different functions than normal.

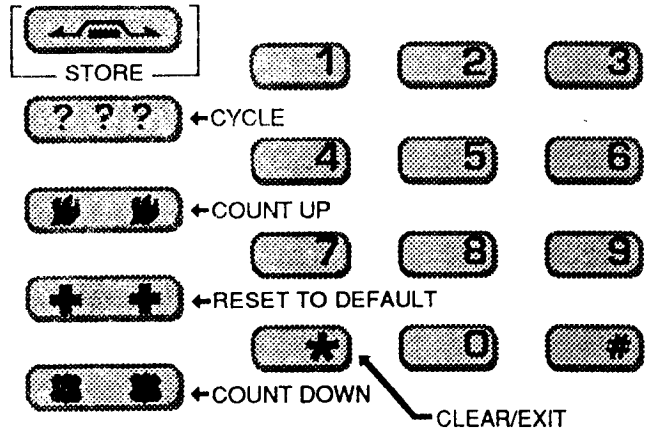


Figure 34. Control Station Keys During Programming

BYPASS = STORE

Pressing the BYPASS key stores the displayed value into memory.

STATUS = CYCLE

Pressing the STATUS key cycles the display through the Function, Selector and Value fields.

FIRE = COUNT UP

Each time the FIRE key is pressed the displayed number (Function, Selector or Value) counts up by one.

MEDICAL = RESET TO DEFAULT

Pressing the MEDICAL key resets the displayed Value to the default number (factory value).

POLICE = COUNT DOWN

Each time the POLICE key is pressed the displayed number (Function, Selector or Value) counts down by one.

★ = CLEAR/EXIT

Pressing ★ during programming clears the display and sends you back to Function 000, Selector 000. Use this key if the wrong key is pressed or if you're lost.

Holding the ★ key down for about 4 seconds causes the system to leave programming Level 9 and go back to Security Level 0.

Programming Level Timer

While programming the CP-90 from a keypad, if no keystrokes are made for four minutes, the system will automatically leave the programming Level 9 and return to Level 0.

Changing Function and Selector Numbers

When programming Level 9 is entered, Function 000, Selector 000 is displayed. To cycle through the Function, Selector and Value fields, press the STATUS key to see each field.

With a K-90 keypad, the decimal point on the three displays indicates Function, Selector and Value (see Figure 35).

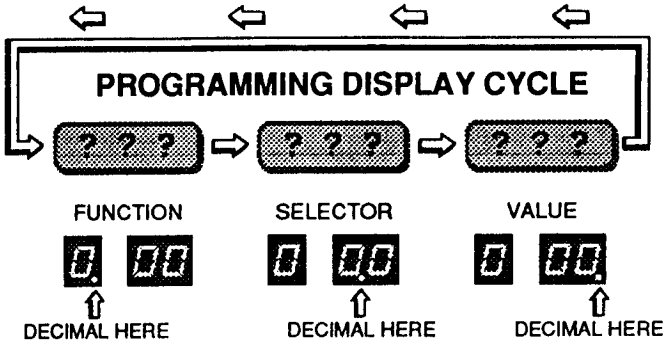


Figure 35. K-90 Display During Programming

With a KD-90 keypad, the equal sign for the Function, Selector, or Value will flash when each field is selected (see Figure 36).

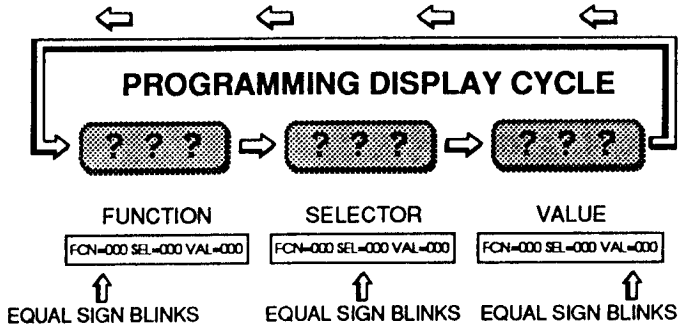


Figure 36. KD-90 Display During Programming

Changing Function Values

When the value field is displayed or selected, the programmed value can be changed to any number *within the range for that selector.* Use the CP-90 Programming Worksheet (P/N 207774) to decide which selector values need to be changed. The new value will be displayed as it is entered on the keypad. The new value is not stored into the CP-90's memory until the BYPASS (STORE) key is pressed. If the new value is within the valid range, the keypad will sound the accept tones. If the new value is out of range the keypad will sound the rejection tones.

Exiting Programming Level

Hold the * key down for about 4 seconds to exit the program mode. This causes the system to leave programming Level 9 and go back to Security Level 0.

The system will automatically exit Level 9 and return to Level 0 after 4 minutes of keypad inactivity.

Restoring Factory Defaults

The factory loaded defaults for each selector value can be restored two ways.

To erase all programming and restore the defaults for everything:

STEP 1 Turn the MASTER POWER switch off.

STEP 2 Use a small tool to press and hold down the MASTER RESET switch (see Figure 37).

STEP 3 Turn the MASTER POWER switch on while still holding down the MASTER RESET switch. Wait about 10 seconds while still holding down the MASTER RESET switch. The system now has the factory defaults installed.

During programming in Level 9, pressing the MEDICAL key resets the displayed value to the default number (factory value). This only affects the Selector value displayed.

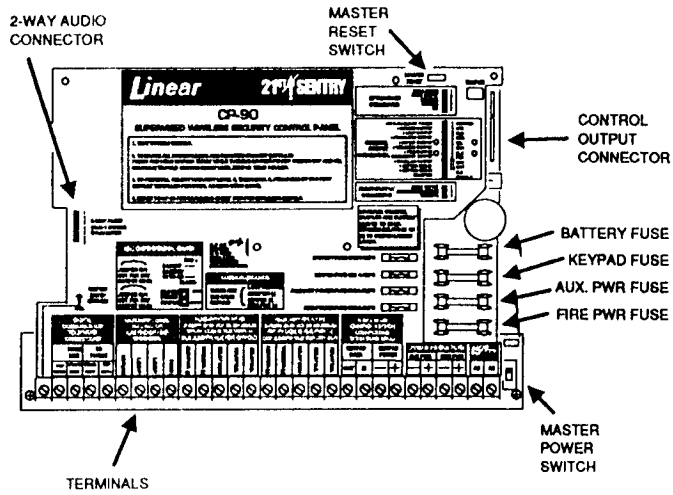


Figure 37. Master Reset Switch Location

About Sensor Numbers

The CP-90 system groups sensor numbers according to their type. The sensor number groups are:

1-3 Hardwire Loops 1, 2 & 3

4-64 Wireless Sensors (61 maximum)

65-72 Control Stations (Keypads)

About Control Station Numbers

Control station (keypad) sensor numbers are always between 65 and 72. Wireless TK-90 keypads are programmed in as an RF device and get a sensor number 4-64. The CP-90 knows when a wireless TK-90 is installed so it also gives the TK-90 a keypad sensor number from 65 to 72. **Wireless TK-90 sensors will have an RF sensor number as well as a keypad sensor number.**

Some of the sensors (transmitters) that are used with the CP-90 system must be set up to customize their installation. The are three radio formats that this system accepts. Each format's transmitters are set up in a different way.

☞ *NOTE: For complete details on installation and setup for each sensor type refer to the Installation Instructions provided with the sensor.*

Megacode Format

The LMT-1 portable transmitter is pre-coded at the factory. There is no coding switch to set. The transmitter can be programmed into the CP-90 memory without any additional setup. This transmitter can be programmed into the CP-90 in the manual or autoinstall mode.

SX Format

The T-90 door/window transmitter and the TK-90 wireless keypads are pre-coded at the factory. There is no coding switch to set, although the T-90 does have an option switch. The transmitters can be programmed into the CP-90 memory without any additional setup. These transmitters can be programmed into the CP-90 in manual or autoinstall mode.

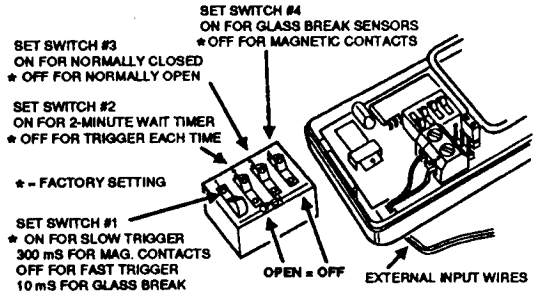


Figure 38. T-90 Option Switches

S1 Format

Linear's S1 format transmitters (ST, ST-1, 50S40A, ESL-371, ST-23A) contain two eight-position switches. These switches are labeled CHANNEL and SYSTEM. The ST also contains a four-position option switch. These transmitters can be programmed into the CP-90 in manual or autoinstall mode.

☞ *IMPORTANT NOTE: The CP-90 system does not require a specific "channel" or "system" code like Linear's previous supervised systems.* ***You can set the CHANNEL and SYSTEM switches in the S1 format transmitters to any code you like, as long as each transmitter used in the system is set to a different code.***

Consider the two eight-position switches as one big sixteen-position switch, allowing you set set a unique code from over 16,000 possible combinations for each transmitter.

☞ *NOTE: Setting the switches to all ON, all OFF, or alternating ON/OFF is not recommended because it is too often duplicated.*

Motion Detector Programming

When the CP-90 is in the autoinstall mode, each time a transmitter sends an alarm signal the CP-90 installs it as a new sensor. Because PIR motion detectors trigger each time motion is detected, the CP-90 could install more than once for a single sensor. Therefore, use the manual install function (explained in the next section) when installing PIR motion detectors).

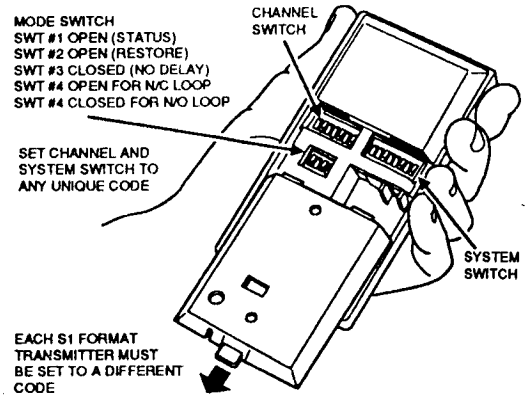


Figure 39. ST Transmitter Coding Switches

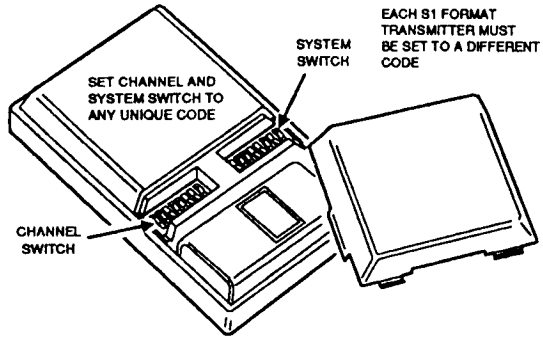


Figure 40. ST-1 Transmitter Coding Switches

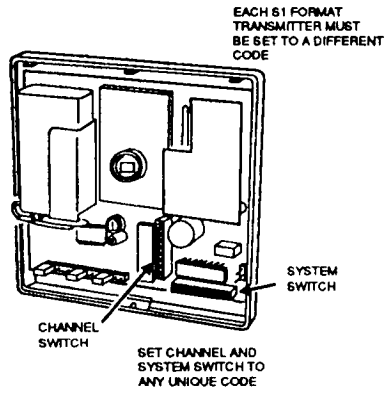


Figure 41. 50S40A Transmitter Coding Switches

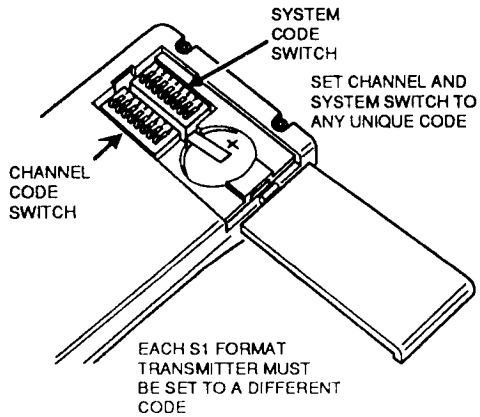


Figure 42. ST-23 Transmitter Coding Switches

In the following descriptions the function, selector and value fields are shown as 000.000.000. If the description has no value field (000.000) then no value need be entered. If the field can accept various values (a range of values) then the range is shown. Pressing CLEAR at any time during any program step terminates that step and sets the function, selector and value fields to 0.

This section gives detailed descriptions of each CP-90 programming function. **Follow along using the CP-90 Programming Key sheet (P/N 207418). Installers familiar with this system should be able to program the system just using the CP-90 Programming Key sheet along with the CP-90 Programming Worksheet (P/N 207744).** Linear has provided all of the details for each of the functions here for advanced users and reference.

Sensor Installation

Use the following functions to install sensors including hardwire loops. Make sure that the communicator reporting formats (see function 050.002 and 050.003) are programmed to the desired values prior to installing sensors, so that the default reporting codes can be set correctly when zone assignments are made. In the Autoinstall sensor mode, it is possible to learn the same sensor multiple times, with different sensor numbers. To avoid this, make sure that each sensor is tripped (or test button pressed) only once. Use the manual install function (002.000) for PIR motion detectors. Wireless keypads are assigned two numbers, a sensor number (1-64) and an accessory number (65-72). After the keypad is learned, it always displays its accessory number - not its sensor number.

000.000 Display Installed Sensors

The displayed value field is the number of sensors installed (including hardwire loops). Pressing STORE starts the display scrolling through each installed sensor number. Pressing STORE stops the display and returns the display to the value field.

001.000 Autoinstall RF Sensors

Use this function to automatically install RF sensors and RF control stations at the next available sensor number. Prior to using this function make sure that function 050.002 and 050.003 have been set to the correct reporting formats. Before pressing STORE, the displayed value field is the number of sensors currently installed. After pressing STORE, the display will show 000 until a sensor transmission is received. After the sensor transmission is received, the display will show the sensor number sequentially assigned by the CP-90 to that sensor. The display will continue to show the last sensor number learned. Each time a sensor transmission is received the accept tones will sound to signal the installer that a transmitter was entered. **The CP-90 will learn the same transmitter more than once if multiple transmissions are received.** Supervisory and tamper transmissions are not learned, only test or violation (open) signals trigger the learning activity. Pressing STORE terminates the auto-install and displays the value field again (total number of sensors installed).

002.000 Manually Install RF Sensor
[selector range 4-64]

Use this function to install an RF sensor or RF control station at a particular sensor number (4-64). Enter the sensor number you want into the selector field and press CYCLE - if that number is free (no sensor already installed there) then the display will advance to the value field and display the number of installed sensors. Pressing STORE will place the CP-90 into sensor learn mode waiting for the next sensor transmission. After a sensor is learned the accept tones will sound and the display will show the sensor number. Pressing STORE during learn mode (before a transmission is received) or after a sensor is learned returns the display to the function field. If, during selector field entry, a selected sensor number is already assigned the rejection tones will sound and the display *will not* advance to the value field. Supervisory and tamper transmissions are not learned, only test or violation (open) signals can be learned.

003.000 Manually Remove RF Sensor
[selector range 4-64]

Use this function to remove an RF sensor from the system. Enter the desired sensor (4-64) into the selector field and press CYCLE, the display will show the total number of sensors installed. To remove the sensor press STORE. If a sensor was installed at that number then the accept tones will sound and the display will return to the function field (003). If the selected sensor does not exist (or it its a wireless keypad) then the rejection tones will sound and the display remains on the value field. **Use the accessory delete function (023.000) to delete wireless keypads using the accessory number.**

☞ *NOTE: For each of the following functions, unless otherwise stated, pressing the STORE key causes the new value to be stored into the CP-90's memory and the display will return to the function field. If the command is accepted, the accept tones will sound.*

004.000.000 Sensor Zone Type
[selector range 1-64] [value range 0-16, default = 0]

Use this function to assign a zone type to a hardwired loop or RF sensor. The selector field specifies which sensor or loop to use (1-64) and the value field specifies the zone type. 18 different zone types provided; a detailed description of each zone type can be found in the System Zones section of this manual. The selector value numbers are shown in the Zone Table on the next page. If the specified sensor does not exist or the zone value is out of range, the rejection tones will sound and the display remains on the selected field.

005.000.000 Sensor Entrance Delay
[selector range 1-64] [value range 0-2, default = 0]

Use this function to make a sensor instant or delayed or make an interior sensor a follower (handover sensor). For exterior sensors, a value of 0 makes the sensor instant, a value of 1 gives the sensor an entrance delay time specified by programming function 120.001, and a value of 2 gives the sensor an entrance delay time specified by programming function 120.002.

For interior sensors, a value of 0 makes the sensor instant (alarms during entry and exit delays), a value of 1 causes the sensor to be delayed (follower/handover) during exit delays and entry delays. Otherwise the sensor is instant.

SENSOR INSTALLATION TABLE					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
0	0	TOTAL #		DISPLAY INSTALLED SENSOR	PRESS STATUS TWICE FOR TOTAL # OF SENSORS, THEN PRESS STORE. DISPLAY WILL SHOW ALL INSTALLED SENSOR #'S
1	0			AUTOINSTALL RF SENSORS	PRESS STORE, TEST SENSOR TO INSTALL, ASSIGNS DEFAULTS TO SENSOR AND REPORT CODES
2	4-64			MANUALLY INSTALL RF SENSOR	SET SELECTOR TO SENSOR #, TEST SENSOR TO INSTALL, ASSIGNS DEFAULT TO SENSOR AND REPORT CODES
3	4-64			MANUALLY REMOVE RF SENSOR	SET SELECTOR TO SENSOR #, PRESS STORE TO DELETE SENSOR
4	1-64	0-16	0	SENSOR ZONE	USE ZONE TABLE TO CHOOSE ZONE TYPE #0-16, PRESS STORE TO ENTER
5	1-64	0-2	0	SENSOR ENTRANCE DELAY	0 = INSTANT 1 = DELAY ONE (SEE FUNCTION 120-1) 2 = DELAY TWO (SEE FUNCTION 120-2)
6	4-64	0-1	0	SENSOR TYPE	0 = NORMAL OPEN/CLOSE SENSOR 1 = PIR OR NON-RESTORING SENSOR
7	4-64	0-1	0	SENSOR SUPERVISION	0 = SUPERVISED 1 = UNSUPERVISED
8	1-64	0-1	0	SENSOR LOCAL ALARM	0 = AUDIBLE 1 = SILENT
9	1-64	0-1	0	SENSOR BYPASSING	0 = CAN BE BYPASSED 1 = CANNOT BE BYPASSED
10	1-64	0-2	0	SENSOR AUDIO REPORTING	0 = NO SENSOR AUDIO 1 = LISTEN IN 2 = TWO-WAY AUDIO
11	0			HARDWIRE LOOP AUTO SETUP	PRESS STORE WHEN "00" IS DISPLAYED TO INSTALL ALL HARDWIRE LOOPS
12	1-3	1-100	4	HARDWIRE LOOP RESPONSE TIME	VALUE TIMES 100ms = LOOP RESPONSE TIME; SELECTOR 1-3 = LOOP 1-3
13	1-3	0-1	0	HARDWIRE LOOP SUPERVISION	0 = EOL RESISTOR SUPERVISED (2.2K) 1 = NO EOL RESISTOR
14	1-3	0-3	0	HARDWIRE LOOP TROUBLE TYPE	0 = NO TROUBLE 1 = TROUBLE ON OPEN 2 = TROUBLE ON SHORT 3 = TROUBLE ON OPEN OR SHORT
15	1-3	0-1	0	HARDWIRE LOOP DISABLE	0 = LOOP DISABLED 1 = LOOP ENABLED
16	1-64	0-255		KD-90 LCD CAPTIONS	ENTER SENSOR NAMES TO BE DISPLAYED ON KD-90 LCD KEYPAD
17	3-17	TOTAL # OF TX TYPE REMOTES		ZONE SELECT FOR TX-91, TX-92 & TX-94 REMOTE TRANSMITTERS	SET ZONE TYPE IN SELECTOR FIELD, PRESS DESIRED REMOTE BUTTON; REMOTE MUST HAVE BEEN ENTERED IN FUNCTIONS 001 OR 002

SENSOR ZONE TABLE		
VALUE	ZONE TYPE	DESCRIPTION
0	EXTERIOR	ARMED IN LEVELS 3, 4, 5 & 6 - CHIMES IN LEVEL 2
1	RESTRICTED INTERIOR	ARMED IN LEVELS 4, 5 & 6
2	INTERIOR	ARMED IN LEVEL 4 ONLY
3	FIRE	CONTINUOUSLY ARMED (24-HOUR FIRE ZONE)
4	EMERGENCY	CONTINUOUSLY ARMED (24-HOUR EMERGENCY ZONE)
5	POLICE/HOLD-UP	CONTINUOUSLY ARMED (24-HOUR POLICE/HOLDUP ZONE)
6	ARM/DISARM TOGGLE	SENSOR IS A PUSHBUTTON THAT ALTERNATELY ARMS TO LEVEL 4 AND LEVEL 1 (AUTOMATIC FORCED BYPASSING GOING TO LEVEL 4)
7	REMOTE PANIC/EMERGENCY	HOLDING FOR 3-SECONDS TRIGGERS 24-HOUR EMERGENCY ZONE
8	REMOTE PANIC/POLICE	HOLDING FOR 3-SECONDS TRIGGERS 24-HOUR POLICE ZONE
9	GUARD ZONE	ARMED IN LEVELS 1, 3, 4, 5 & 6 - REPORTS AS BURG IN LEVEL 4
10	ENVIRONMENTAL TYPE A	CONTINUOUSLY ARMED 24-HOUR ENVIRONMENTAL ZONE TRIGGERS ANNUNCIATE, VIOLATION & REPORTS
11	ENVIRONMENTAL TYPE B	CONTINUOUSLY ARMED 24-HOUR ENVIRONMENTAL ZONE TRIGGERS ANNUNCIATE, VIOLATION, NO REPORTS
12	ENVIRONMENTAL TYPE C	CONTINUOUSLY ARMED 24-HOUR ENVIRONMENTAL ZONE TRIGGERS ANNUNCIATE ONLY, NO VIOLATION, NO REPORTS
13	CHIME ONLY	ACTIVE IN LEVELS 1, 2 & 3 TRIGGERS CHIME ONLY, NO VIOLATION, NO REPORTS
14	AUTOMATION #1	TRIGGERS AUTOMATION #1 OUTPUT ON CONTROL OUTPUT
15	AUTOMATION #2	TRIGGERS AUTOMATION #2 OUTPUT ON CONTROL OUTPUT
16	ACCESS ONLY	TRIGGERS ACCESS OUTPUT ON CONTROL OUTPUT
17	TX REMOTE BUTTON DISABLE	"DEAD" ZONE TO DISABLE DESIRED BUTTONS ON TX-92 & TX-94 REMOTE TRANSMITTERS

Figure 43. Sensor Installation & Zone Tables

006.000.000 **RF Sensor Type**
[selector range 4-64] **[value range 0-1, default = 0]**
Use this function to make the selected sensor a non-restoring type such as a PIR, panic button or glass break detector. A value of 0 specifies a restoring sensor such as a door or window. A value of 1 specifies a non-restoring sensor.

007.000.000 **RF Sensor Supervision**
[selector range 4-64] **[value range 0-1, default = 0]**
Use this function to enable or disable sensor supervision. A value of 0 is for supervised; 1 for unsupervised. Sensors should be supervised unless they can be taken out of range of the receiver.

008.000.000 **Sensor Local Alarm**
[selector range 1-64] **[value range 0-1, default = 0]**
Use this function to make the selected sensor report audible or silent alarms. 0 sets the sensor for audible alarms and 1 sets the sensor for silent alarms.

009.000.000 **Sensor Bypassing**
[selector range 1-64] **[value range 0-1, default = 0]**
Use this function to allow a sensor to be bypassed or not. A value of 0 allows the selected sensor to be bypassed while a value of 1 disables bypassing.

010.000.000 **Sensor Audio Report**
[selector range 1-64] **[value range 0-2, default = 0]**
Use this function to allow a sensor to trigger central station audio reporting. If the optional two-way audio feature is installed, and an alarm is caused by one of these sensors, on completion of the central station report, the system will enter an audio mode as specified by this value. A value of 0 selects no audio response, a value of 1 selects listen in audio only and a value of 2 selects two-way audio.

011.000 **Hardwire Loop Auto Setup**
Use this function to install any connected hardwire loops into the CP-90 memory. **First, be sure all of the hardwire loops are wired correctly and their doors/windows are closed (contacts in restored state).** Press CYCLE *twice* to select the value field, then press STORE to install the loops. The accept tones will sound when the loops are entered into memory.

012.000.000 **Hardwire Loop Response Time**
[selector range 1-3] **[value range 1-100, default = 4]**
Sets the delay time before the loop will cause a violation. Default setting of 4 gives each loop 400 mS delay. Value selected times 100 mS equals the loop delay. Shortest delay is 100 ms. Longest delay is 10 seconds. This delay is for loop stability with different types of sensors and is *not* to be used for an entry delay. Selector 1-3 = loops 1-3.

013.000.000 **Hardwire Loop Supervision**
[selector range 1-3] **[value range 0-1, default = 0]**
Allows programming of non-supervised hardwire loops (loops without end-of-line (EOL) resistor termination). Value of 0 for loops with a 2.2K EOL resistor. Value of 1 for non-EOL loops. Selector 1-3 = loops 1-3.

014.000.000 **Hardwire Loop Trouble Type**
[selector range 1-3] **[value range 0-3, default = 0]**
For selecting the loop condition that will cause a supervisory trouble report. A value of 0 for no trouble reporting; 1 for trouble when the loop is open (N/O loop with EOL resistor); 2 for trouble when loop is shorted (N/C loop with EOL resistor); 3 for trouble when loop is opened or shorted (trouble only loop with EOL resistor). Selector 1-3 = loops 1-3.

015.000.000 **Hardwire Loop Disable**
[selector range 1-3] **[value range 0-1, default = 0]**
All three hardwire loops are enabled when Function 11 is used. Any un-used loops that weren't connected when Function 11 was used would be recognized as normally open loops. These un-used loops can be disabled so that they won't show up when testing sensors in Level 8. Enter a value of 1 for any un-used hardwire loops (selector 1-3 = loops 1-3).

016.000.000 **KD-90 LCD Keypad Captions**
[selector range 1-64] **[value range 0-255]**
Refer to the table on the next page to select words that describe each sensors location or function (selector 1-64 = sensors 1-64). Enter the word number as the value in each selector for each sensor. **More than one value can be entered for each sensor for multiple word entries.** As each value is entered, the word with a blank space after it will appear on the bottom line of the KD-90 display. **Use the # key to backspace the display cursor.** Enter 255 as a value to erase the entire display line.

017.000 **TX Type Transmitter Zone Select**
[selector range 3-17]
Sets the zones that each button on a TX-91, TX-92 or TX-94 portable transmitter will trigger. Set the zone type in the Selector field and press the desired transmitter button. The accept tones will sound when the button is recognized. **The TX transmitter must have already been entered with Function 1 or Function 2 before this step will work.** Select Zone 17 for buttons that aren't going to be used. This will disable their sensor reporting.

KD-90 LCD KEYPAD ENGLISH CAPTION VALUES							
VALUE	DISPLAYED WORD (CAPTION)	VALUE	DISPLAYED WORD (CAPTION)	VALUE	DISPLAYED WORD (CAPTION)	VALUE	DISPLAYED WORD (CAPTION)
0	0	64	#	128	Garage	192	Pump
1	1	65	&	129	Gas	193	Quarters
2	2	66	'	130	Gate	194	Ramp
3	3	67	(	131	Glass	195	Rear
4	4	68	)	132	Guest	196	Receiving
5	5	69	*	133	Gun	197	Recreation
6	6	70	+	134	Hallway	198	Relay
7	7	71	,	135	Heat	199	Remote
8	8	72	-	136	Hobby	200	Restroom
9	9	73	.	137	Hold	201	RF
10	ONE BLANK SPACE	74	/	138	Hold-up	202	Right
11	a	75	=	139	House	203	Roof
12	b	76	Access	140	Ice	204	Room
13	c	77	Alarm	141	Infrared	205	Safe
14	d	78	Area	142	Inside	206	Screen
15	e	79	Arm	143	Interior	207	Second
16	f	80	Attic	144	Intrusion	208	Security
17	g	81	Audio	145	Janitor	209	Sensor
18	h	82	Auxiliary	146	Key	210	Shipping
19	i	83	Back	147	Keypad	211	Shock
20	j	84	Basement	148	Keyswitch	212	Shop
21	k	85	Bathroom	149	Kitchen	213	Shutter
22	l	86	Beam	150	Laundry	214	Side
23	m	87	Bedroom	151	Left	215	Silent
24	n	88	Breakfast	152	Level	216	Silver
25	o	89	Button	153	Library	217	Skylight
26	p	90	Cabinet	154	Lift	218	Sliding
27	q	91	Carport	155	Light	219	Smoke
28	r	92	Ceiling	156	Liquor	220	South
29	s	93	Chime	157	Living	221	Spa
30	t	94	Closet	158	Loading	222	Sprinkler
31	u	95	Computer	159	Lobby	223	Stairs
32	v	96	Control	160	Locker	224	Station
33	w	97	Den	161	Loft	225	Steam
34	x	98	Detector	162	Lower	226	Stereo
35	y	99	Dining	163	Main	227	Stock
36	z	100	Dock	164	Maintenance	228	Storage
37	A	101	Door	165	Master	229	Study
38	B	102	Downstairs	166	Mat	230	Sump
39	C	103	Drawer	167	Medical	231	System
40	D	104	Dressing	168	Microware	232	Tamper
41	E	105	Driveway	169	Middle	233	Temperature
42	F	106	East	170	Monitor	234	Third
43	G	107	Electric	171	Motion	235	Tool
44	H	108	Elevator	172	Mud	236	Transmitter
45	I	109	Emergency	173	North	237	Trap
46	J	110	Employee	174	Nursery	238	Ultrasonic
47	K	111	Entrance	175	Office	239	Upper
48	L	112	Exercise	176	On/Off	240	Upstairs
49	M	113	Exit	177	Outside	241	Utility
50	N	114	Exterior	178	Overhead	242	Valve
51	O	115	Factory	179	Panic	243	Vault
52	P	116	Family	180	Parking	244	Vibration
53	Q	117	Fire	181	Passive	245	Video
54	R	118	First	182	Patio	246	Violation
55	S	119	Floor	183	Perimeter	247	Wall
56	T	120	Flow	184	Photo	248	Warehouse
57	U	121	Fluid	185	PIR	249	Water
58	V	122	Foil	186	Play	250	West
59	W	123	Foyer	187	Plant	251	Window
60	X	124	Freezer	188	Police	252	Yard
61	Y	125	Front	189	Pool	253	Zone
62	Z	126	Furnace	190	Power	254	NULL (NOTHING)
63	!	127	Game	191	Proximity	255	ERASE ENTIRE LINE

Figure 44. KD-90 LCD Captions

Accessory Installation

Use the following functions to install accessories such as Control Stations (keypads). Wireless keypads (Model TK-90) do not need further action after being learned during Sensor Installation (function 001.000 or 002.000).

☞ **After installing or removing an accessory always reset the system by cycling power off and on with the MASTER POWER switch.** *After the system restores, it will verify the correct operation of all attached accessories.*

020.000 Display Installed Accessories

The value field displays the number of installed accessories. Pressing STORE starts the display scrolling through each installed accessory number. Pressing STORE stops the display and returns the display to the value field. Accessories are numbered 65 through 72.

021.000 Install Connected Accessories

Pressing the STORE key permanently installs all connected accessories. You must use this function after connecting any control station or other accessory to store the accessory's identification number in memory. **Always use this function after initial installation, and after connecting a new accessory, even if the accessory appears to be responding normally.**

023.000 Remove Installed Accessory
[selector range 65-72]

The value field will display the accessory number (65-72) of the controlling keypad. Use this function to determine the accessory number of a keypad if it is not known. Pressing the STORE key causes the selected accessory to be deleted from the system. The rejection tones will sound if the selected accessory does not exist, or if an attempt is made to delete the controlling keypad (you can't delete the keypad you are using to program the system).

024.000.000 Keypad Emergency Keys
[selector range 65-72] [value range 0-7, default = 7]

Each keypad can have its three emergency keys independently enabled or disabled. Use the Keypad Emergency Key Table on the next page to choose a value corresponding to the desired option.

025.000.000 Inactive Display Intensity
[selector range 65-72] [value range 0-3, default = 0]

Control Station display lighting is turned on when someone presses a key or during entry/exit delays (if programmed). The display remains on for a period of 45 seconds after the last keystroke and then the display is made inactive and the lighting intensity is set to the level specified by this value. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

026.000.000 Inactive Downlight Intensity
[selector range 65-72] [value range 0-3, default = 0]

Control Station downlights are turned on when someone presses a key or during entry/exit delays (if programmed). The downlights remain on for a period of 45 seconds after the last keystroke and then the downlights are made inactive and the lighting intensity is set to the level specified by this value. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

027.000.000 Active Display Intensity
[selector range 65-72] [value range 0-3, default = 2]

Control Station displays are made active when someone presses a key or during entry/exit delays (if programmed). The display intensity is set to the level specified by this value. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

028.000.000 Active Downlight Intensity
[selector range 65-72] [value range 0-3, default = 2]

Control Station downlights are made active when someone presses a key or during entry/exit delays (if programmed). The downlight intensity is set to the level specified by this value. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

029.000.000 Lights During Entry Delay
[selector range 65-72] [value range 0-1, default = 1]

A value of 1 causes the selected keypad's display and downlights to be set to the programmed active intensity during entry delays. A value of 0 causes lights to be off during the entry delay.

030.000.000 Lights During Exit Delay
[selector range 65-72] [value range 0-1, default = 1]

A value of 1 causes the selected keypad's display and downlights to be set to the programmed active intensity during exit delays. A value of 0 causes lights to be off during the exit delay.

031.000.000 Keystroke Beep Loudness
[selector range 65-72] [value range 0-3, default = 2]

When a keypad key is pressed, a beep is made to provide the operator with some audible feedback. The loudness of this beep can be controlled. Each keypad can be individually set for keystroke beep loudness. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

032.000.000 Annunciation Loudness
[selector range 65-72] [value range 0-3, default = 2]

System annunciation tone loudness can be individually set for each selected keypad. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

033.000.000 Alarm Tone Loudness
[selector range 65-72] [value range 0-3, default = 2]

System alarm tone loudness can be individually set for each selected keypad. Program a value of 0 for off; 1 for low; 2 for medium; 3 for high.

034.000.000 Emergency Key Audio
[selector range 65-72] [value range 0-2, default = 0]

If the optional two-way audio feature is installed, and an alarm is caused by one of the keypad emergency keys, then, on completion of the central station report, the system will enter an audio mode as specified by this value. A value of 0 selects no audio response, a value of 1 selects listen in audio only and a value of 2 selects two-way audio.

035.000.000 KD-90 LCD Keypad Captions
[selector range 65-72] [value range 0-255]

Refer to the table on the previous page to select words that describe each keypads location. Enter the word number as the value in each selector for each sensor. **More than one value can be entered for each sensor for multiple word entries.** As each value is entered, the word with a blank space after it will appear on the bottom line of the KD-90 display. **Use the # key to backspace the display cursor.** Enter 250 as a value to erase the entire display line.

ACCESSORY INSTALLATION TABLE					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
20	0			DISPLAY INSTALLED ACCESSORIES	PRESS STORE, DISPLAY WILL SHOW ALL INSTALLED ACCESSORIES
21	0			AUTOINSTALL ACCESSORIES	PRESS STORE, CONNECTED ACCESSORIES ARE PERMANENTLY INSTALLED
23	65-72			MANUALLY REMOVE ACCESSORY	SET SELECTOR TO ACCESSORY #, PRESS STORE TO REMOVE FROM MEMORY
24	65-72	0-7	7	KEYPAD EMERGENCY KEYS ENABLE	USE KEYPAD EMERGENCY KEY TABLE TO CHOOSE DESIRED OPTION. ENTER VALUE 0-7
25	65-72	0-3	0	INACTIVE DISPLAY INTENSITY	0 = OFF 1 = LOW 2 = MEDIUM 3 = HIGH
26	65-72	0-3	0	INACTIVE DOWNLIGHT INTENSITY	
27	65-72	0-3	2	ACTIVE DISPLAY INTENSITY	
28	65-72	0-3	2	ACTIVE DOWNLIGHT INTENSITY	
29	65-72	0-1	1	KEYPAD LIGHTS DURING ENTRY DELAY	0 = LIGHTS OFF DURING ENTRY DELAY 1 = LIGHTS ON DURING ENTRY DELAY
30	65-72	0-1	1	KEYPAD LIGHTS DURING EXIT DELAY	0 = LIGHTS OFF DURING EXIT DELAY 1 = LIGHTS ON DURING EXIT DELAY
31	65-72	0-3	2	KEYPAD KEYSTROKE BEEP LOUDNESS	0 = OFF/SILENT 1 = LOW 2 = MEDIUM 3 = HIGH
32	65-72	0-3	2	KEYPAD SYSTEM ANNUNCIATION TONE LOUDNESS	
33	65-72	0-3	2	KEYPAD ALARM TONE LOUDNESS	
34	65-72	0-2	0	KEYPAD EMERGENCY KEY AUDIO RESPONSE	0 = NO AUDIO 1 = LISTEN IN 2 = TWO WAY AUDIO
35	65-72	0-250		KD-90 LCD CAPTIONS	ENTER ACCESSORY NAMES TO BE DISPLAYED ON KD-90 LCD KEYPAD

KEYPAD EMERGENCY KEY TABLE			
VALUE	OPTION	VALUE	OPTION
0	DISABLE ALL THREE EMERGENCY KEYS	4	FIRE KEY ACTIVE ONLY
1	POLICE KEY ACTIVE ONLY	5	FIRE & POLICE KEYS ACTIVE
2	EMERGENCY KEY ACTIVE ONLY	6	FIRE & EMERGENCY KEYS ACTIVE
3	EMERGENCY & POLICE KEYS ACTIVE	7	ENABLE ALL THREE EMERGENCY KEYS

Figure 45. Accessory Inst. & Emergency Tables

General Communicator Operation

Use the following functions and selectors to change values for general communicator operation. The default values already in memory should be correct for most applications.

☞ *NOTE: For each of the following functions, unless otherwise stated, pressing the STORE key causes the new value to be stored into the CP-90's memory and the display will return to the function field. If the command is accepted, the accept tones will sound.*

050.001.000 Communicator On/Off
[value range 0-1, default = 0]

This function enables or disables the CP-90's built-in digital communicator. Enter a value of 0 for a local alarm system. Enter a value of 1 to enable the communicator to report to one or more central stations. **This value must be set to 1 if the system is to be monitored.**

050.002.000 Communication Format 1
[value range 0-12, default = 5]

Selects the first central station communications format. All telephone numbers programmed can select either communications format 1 or 2 (see Function 61). Enter a value matching the desired format from the Communicator Format Table on the next page.

050.003.000 Communication Format 2
[value range 0-12, default = 5]

Selects the second central station communications format. All telephone numbers programmed can select either communications format 1 or 2 (see Function 61). Enter a value matching the desired format from the Communicator Format Table on the nexr page.

050.004.000 Dialing Format
[value range 0-1, default = 0]

Selects how the telephone will be dialed. Enter 0 for tone (DTMF) dialing; 1 for pulse (rotary) dialing. Be sure the telephone system that the CP-90 is connected to can support tone dialing if entering 0.

050.005.000 Opening Reports by Exception
[value range 0-1, default = 0]

Selects whether opening reports will be sent each time the system is disarmed or only after an alarm has occurred. This is helpful in commercial accounts so that the central station knows when the subscriber has arrived on-site to check the cause of the alarm. Enter 0 for standard opening reports; 1 for opening reports only after an alarm.

050.006.000 Closing Reports by Exception
[value range 0-1, default = 0]

Selects whether closing reports will be sent each time the system is armed or only after the system is armed with bypassed sensors. This is helpful in commercial and residential accounts so that the central station knows when the subscriber has partially armed the system without complete protection. Bypassed sensors are reported with extended reporting formats. Enter 0 for standard closing reports; 1 for closing reports only after sensors have been bypassed.

050.007.000 Tamper Reporting
[value range 0-1, default = 0]

Tamper reports normally use the supervisory call routing path (Function 060.006) to send their messages to the central station. By setting this value to 1, tamper reports will use the alarm call routing path (Function 060.001).

050.008.000 Dialing Start Delay
[value range 0-250, default = 0]

The value number entered equals the number of seconds of delay after an alarm before the communicator will start dialing out. This setting allows time for the subscriber to disarm the system after accidentally triggering the alarm before it dials out. Don't set this value too long, because actual alarm reports caused by real intruders will also be delayed.

050.009.000 Dial Attempts Before Routing Change
[value range 1-250, default = 2]

Enter the number of unsuccessful attempts to dial the central station before the alternate call routing (Function 60) is tried.

050.010.000 Dial Attempts Before Sleep Cycle
[value range 1-250, default = 2]

Enter the number of unsuccessful call routing changes before communicator goes into a sleep cycle (Function 050.012)

050.011.000 Number of Sleep Cycles Allowed
[value range 0-250, default = 2]

After exhausting all programmed attempts to complete a call to a central station, the CP-90 can be programmed to either "sleep" or cancel further attempts. Enter a value for the number of sleep cycles. If this value is greater than 0 the CP-90 will wait the programmed sleep cycle time (Function 050.012), then "wake-up" and begin the calling sequence, including all dialing attempts and routing changes again. If the value entered is 0, no further dial attempts will be made.

050.012.000 Sleep Cycle Time
[value range 1-250, default = 10]

Sets the duration of a sleep cycle (see Function 050.011). This time is specified in minutes. The shortest *practical* sleep time is about 5 minutes. Enter a value in minutes.

050.013.000 Anti-Jam Time
[value range 1-250, default = 40]

If the communicator fails to successfully complete a call to a central station, it can make additional attempts if programmed to do so. Before the second attempt, the communicator first enters an anti-jam delay in case the first failure was due to the telephone being either off-hook or being called (ringing) when the line was first seized. By maintaining line seizure during this interval, the communicator tries to ensure that the line will be off-hook long enough to result in a dial tone on the next attempt.

The anti-jam time is specified in seconds: a typical value for the United States is 40 seconds; the requirement is different in some other countries. Enter a number in seconds.

GENERAL COMMUNICATOR OPERATION					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
50	1	0-1	0	COMMUNICATOR ON/OFF	0 = LOCAL ALARM OPERATION ONLY 1 = DIGITAL COMMUNICATOR SENDS CENTRAL STATION REPORTS
50	2	0-12	5	COMMUNICATIONS FORMAT #1	USE FORMAT TABLE TO CHOOSE DESIRED FORMAT, ENTER VALUE 0-12
50	3	0-12	5	COMMUNICATIONS FORMAT #2	
50	4	0-1	0	DIALING FORMAT	0 = DTMF (TONE) DIALING 1 = PULSE DIALING
50	5	0-1	0	OPENING REPORTS BY EXCEPTION	0 = NORMAL OPENING REPORTS 1 = OPENING REPORTS ONLY WHEN DISARMING AFTER AN ALARM
50	6	0-1	0	CLOSING REPORTS BY EXCEPTION	0 = NORMAL CLOSING REPORTS 1 = CLOSING REPORTS ONLY WHEN FORCE ARMING
50	7	0-1	0	TAMPER REPORTING	0 = TAMPERS REPORTED AS SUPERVISORY EVENTS 1 = TAMPERS REPORTED AS ALARMS
50	8	0-250	0	DIALING START DELAY	ENTER NUMBER OF SECONDS FOR DELAY AS VALUE
50	9	1-250	2	DIAL ATTEMPTS BEFORE ROUTING CHANGE	ENTER NUMBER OF UNSUCCESSFUL ATTEMPTS TO CONNECT BEFORE ALTERNATE CALL ROUTING IS TRIED
50	10	1-250	2	DIALING ATTEMPTS BEFORE SLEEP CYCLE (ALL LINES)	ENTER NUMBER OF UNSUCCESSFUL ROUTING CHANGES BEFORE SLEEP CYCLE
50	11	0-250	2	NUMBER OF SLEEP CYCLES ALLOWED	ENTER NUMBER OF SLEEP CYCLES MADE BEFORE COMMUNICATIONS FAILURE
50	12	1-250	10	SLEEP CYCLE TIME	ENTER NUMBER OF MINUTES TO SLEEP BEFORE ATTEMPTING NEXT DIALING CYCLE
50	13	1-250	40	ANTI-JAM TIME	ENTER NUMBER OF SECONDS TO REMAIN ON-HOOK AFTER FAILURE TO DETECT DIAL TONE
50	14	0-250	0	AUTOMATIC TEST REPORT DELAY	ENTER NUMBER OF HOURS FROM PRESENT TIME UNTIL FIRST TEST REPORT IS SENT
50	15	0-10	0	SWINGER ELIMINATOR COUNT	0 = ALL VIOLATIONS REPORTED 1-10 = THE NUMBER OF REPORTED VIOLATIONS ANY SENSOR/LOOP CAN HAVE IN ONE ARM/DISARM CYCLE
50	16	0-1	1	REMOTE PROGRAMMING LOCKOUT	0 = NO REMOTE PROGRAMMING 1 = REMOTE PROGRAMMING ALLOWED
50	17	0-250	1	INVALID ACCESS TIMEOUT	0 = NO TIMEOUT 1-255 = TIME IN MINUTES TO DISCONNECT AFTER CP-90 ANSWERS FOR REMOTE PROGRAMMING AND COMMUNICATION IS NOT ESTABLISHED
50	18	0-7	1	AUTOMATIC TEST REPORT INTERVAL	0 = TEST REPORTS EVERY 12 HOURS 1-7 = TEST REPORTS EVERY 1-7 DAYS
51	1-6	0-999999		REMOTE PROGRAM ACCESS CODE	PASSWORD FOR REMOTE PROGRAMMING ACCESS, MUST BE PROGRAMMED IF VALUE FOR FUNCTION 050-016 IS 1

COMMUNICATOR FORMAT TABLE		
VALUE	FORMAT	FORMAT SPECIFICATIONS
0	10PPS 3x1 (ADEMCO STANDARD)	1400 Hz HANDSHAKE, 1900 Hz DATA
1	10PPS 3x1 TWO LINE EXTENDED	
2	10PPS 4x1	
3	10PPS 4x2 (SILENT KNIGHT)	
4	20PPS 3x1 (SESCOA STANDARD)	2300 Hz HANDSHAKE, 1800 Hz DATA
5	20PPS 3x1 TWO LINE EXTENDED	
6	20PPS 4x1	
7	20PPS 4x2	
8	40PPS 3x1 (RADIONICS HEX)	
9	40PPS 3x1 TWO LINE EXTENDED	
10	BFSK	STANDARD RADIONICS FORMAT
11	SIA	
12	SESCOA SUPERSPEED	2300 Hz HANDSHAKE, 1800 Hz DATA

Figure 46. General Communicator Operation Table

050.014.000 **Automatic Test Report Delay**
[value range 0-250, default = 0]

The communicator can be programmed to send automatic test reports at a variety of intervals. The first report will be sent immediately after leaving the programming Level 9 unless a value is entered for this Selector. Enter the number of hours as a value for the time delay after leaving programming before the first automatic test report is sent.

050.015.000 **Swinger Eliminator Count**
[value range 0-10, default = 0]

The CP-90 normally reports all fault events (changes from restored to fault condition) on loops or wireless sensors, no matter how many faults occur. An unwanted series of multiple faults (usually caused by a bad sensor) is called a "swinger."

The CP-90 can be programmed to stop reporting these faults after a specified number of reports have transmitted within the current arming period. Enter a value for the maximum number of reports any sensor/loop can make in one arming period.

050.016.000 **Remote Programming Lockout**
[value range 0-1, default = 0]

The CP-90 is capable of being accessed either locally through a wired keypad or from a remote location via Linear's special modem. If remote access is required the value for this selector must be set to 1. For no remote access set this value to 0. If this selector value is set to 1 the Remote Program Access Code must be set with Function 51.

050.017.000 **Invalid Access Timeout**
[value range 0-250 default = 1]

When the CP-90 Remote Programming is enabled, the system will communicate with the programming modem over the telephone line. If communications with the programming modem are *not* established in the length of time specified in this selector value, the CP-90 will disconnect from the telephone line. Enter 0 for no timeout or enter a value in minutes to wait for connection.

050.018.000 **Automatic Test Report Interval**
[value range 0-7, default = 1]

Selects how often the Automatic Test Reports are sent to a central station. Enter 0 for test reports every 12 hours. Enter 1-7 for test reports every 1-7 days (7 = once a week). Test reports can be disabled with format reporting options.

051.000.000 **Remote Program Access Code**
[selector range 1-6] **[value range 0-999999]**

If the Remote Programming Lockout (Function 050.016) is set to 1 so that remote programming is allowed, a password should be entered in this function to prevent unauthorized access. Enter a 6-digit numeric code value in selectors 1-6.

Communicator Routing, Telephone #'s & Account #'s

Use the following functions to set up the communicator telephone and account numbers and the way the calls are routed. Two copy steps (Functions 64 & 67) are provided to make it easier to duplicate the primary line information to the secondary and supervisory lines.

060.001.000 **Alarm Call Routing**
[value range 0-3, default = 0]

This selector value directs which telephone line(s) alarm calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only.

060.002.000 **Open/Close Call Routing**
[value range 0-6, default = 0]

This selector value directs which telephone line(s) opening and closing calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only; 4 for supervisory only; 5 for supervisory then primary if the supervisory fails; 6 for supervisory then secondary if the supervisory fails.

060.003.000 **Restore Call Routing**
[value range 0-6, default = 0]

This selector value directs which telephone line(s) restore calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only; 4 for supervisory only; 5 for supervisory then primary if the supervisory fails; 6 for supervisory then secondary if the supervisory fails.

060.004.000 **Automatic/Manual Test Call Routing**
[value range 0-6, default = 0]

This selector value directs which telephone line(s) automatic and manual test calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only; 4 for supervisory only; 5 for supervisory then primary if the supervisory fails; 6 for supervisory then secondary if the supervisory fails.

060.005.000 **Audio Events Call Routing**
[value range 0-6, default = 0]

This selector value directs which telephone line(s) audio calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only; 4 for supervisory only; 5 for supervisory then primary if the supervisory fails; 6 for supervisory then secondary if the supervisory fails.

060.006.000 **Supervisory/Trouble Call Routing**
[value range 0-6, default = 0]

This selector value directs which telephone line(s) supervisory and trouble calls will go out on. Enter 0 for primary line only; 1 for primary then secondary if the primary fails; 2 for secondary then primary if the secondary fails; 3 for secondary only; 4 for supervisory only; 5 for supervisory then primary if the supervisory fails; 6 for supervisory then secondary if the supervisory fails.

COMMUNICATOR ROUTING, TELEPHONE #'S AND ACCOUNT #'S					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
60	1	0-3	0	ALARM CALL ROUTING	0 = PRIMARY LINE ONLY 1 = PRIMARY THEN SECONDARY 2 = SECONDARY THEN PRIMARY 3 = SECONDARY ONLY
60	2	0-6	0	OPEN/CLOSE CALL ROUTING	0 = PRIMARY LINE ONLY 1 = PRIMARY THEN SECONDARY 2 = SECONDARY THEN PRIMARY 3 = SECONDARY ONLY 4 = SUPERVISORY ONLY 5 = SUPERVISORY THEN PRIMARY 6 = SUPERVISORY THEN SECONDARY
60	3	0-6	0	RESTORE CALL ROUTING	
60	4	0-6	0	AUTOMATIC/MANUAL TEST CALL ROUTING	
60	5	0-6	0	AUDIO EVENTS CALL ROUTING	
60	6	0-6	0	SUPERVISORY/TROUBLE CALL ROUTING	
61	1	1-2	1	PRIMARY LINE FORMAT	CHOOSE FORMAT 1 OR 2 (FORMAT TYPE SELECTED AT FUNCTION 050.002 & 050.003)
61	2	1-2	1	SECONDARY LINE FORMAT	
61	3	1-2	1	SUPERVISORY LINE FORMAT	
62	1-24	UP TO 24 DIGITS		PRIMARY LINE TELEPHONE NUMBER	ENTER TELEPHONE NUMBER ENDING WITH A "15", SEE DIALING TABLE FOR SPECIAL DIALING CODES
63	1-6	SEE ACCT. # TABLE		PRIMARY LINE ACCOUNT NUMBER	ENTER UP TO A 6 -DIGIT ACCOUNT # FOR THIS TELEPHONE NUMBER, END WITH A "15", SEE ACCOUNT NUMBER TABLE
64	1			COPY PRIMARY SETUP TO SECONDARY	PRESS STORE TO COPY PRIMARY TELEPHONE & ACCOUNT NUMBERS TO THE SECONDARY LINE
65	1-24	UP TO 24 DIGITS		SECONDARY LINE TELEPHONE NUMBER	ENTER TELEPHONE NUMBER ENDING WITH A "15", SEE DIALING TABLE FOR SPECIAL DIALING CODES
66	1-6	SEE ACCT. # TABLE		SECONDARY LINE ACCOUNT NUMBER	ENTER UP TO A 6 -DIGIT ACCOUNT # FOR THIS TELEPHONE NUMBER, END WITH A "15", SEE ACCOUNT NUMBER TABLE
67	1			COPY SECONDARY SETUP TO SUPERVISORY	PRESS STORE TO COPY SECONDARY TELEPHONE & ACCOUNT NUMBERS TO THE SUPERVISORY LINE
68	1-24	UP TO 24 DIGITS		SUPERVISORY LINE TELEPHONE NUMBER	ENTER TELEPHONE NUMBER ENDING WITH A "15", SEE DIALING TABLE FOR SPECIAL DIALING CODES
69	1-6	SEE ACCT. # TABLE		SUPERVISORY LINE ACCOUNT NUMBER	ENTER UP TO A 6 -DIGIT ACCOUNT # FOR THIS TELEPHONE NUMBER, END WITH A "15", SEE ACCOUNT NUMBER TABLE

SPECIAL DIALING VALUES		ACCOUNT NUMBER DETAILS	
TELEPHONE NUMBER VALUE	DIALING RESULT	FORMAT USED	VALID ACCOUNT NUMBERS
11	EQUAL TO TOUCH TONE "*"	3x1 OR 3x2	ENTER 3 DIGITS - 0-9 AND 10-15 (A-F)
12	EQUAL TO TOUCH TONE "#"	4x1 OR 4x2	ENTER 4 DIGITS - 0-9 AND 10-15 (A-F)
13	3-SECOND DIALING PAUSE	SUPERSPEED	ENTER 4 DIGITS - 0000 TO 3374
14	WAIT FOR DIAL TONE	SIA	ENTER 1 TO 6 DIGITS - 000000 TO 999999
15	END OF PHONE NUMBER, ALWAYS ENTER A "15" AT THE END OF EACH PHONE NUMBER	ALL	ALWAYS ENTER A "15" AT THE END OF THE ACCOUNT NUMBER

Figure 47. Communicator Routing & Phone #'s Table

061.001.000 Primary Line Format
[value range 1-2, default = 1]
Selects which communicator format the primary telephone number will use. The formats 1 & 2 are selected with Function 050.002 & 050.003. Enter 1 for format 1; enter 2 for format 2.

061.002.000 Secondary Line Format
[value range 1-2, default = 1]
Selects which communicator format the secondary telephone number will use. The formats 1 & 2 are selected with Function 050.002 & 050.003. Enter 1 for format 1; enter 2 for format 2.

061.003.000 Supervisory Line Format
[value range 1-2, default = 1]
Selects which communicator format the supervisory telephone number will use. The formats 1 & 2 are selected with Function 050.002 & 050.003. Enter 1 for format 1; enter 2 for format 2.

062.000 Primary Line Telephone Number
[selector range 1-24]
This function programs the primary line telephone number. Up to 24 digits can be used. Enter values into the selectors 1-24. **Always enter a 15 after the last digit to end the values.**
Special values are: 11 equals " ★ "; 12 equals "#"; 13 is a 3-second dialing pause; 14 is an additional wait for dial tone.

063.000 Primary Line Account Number
[selector range 1-6]
Enter the account number for the primary line. Up to 6 digits can be entered. Each communicator format requires different length account numbers. All digits of the account number must be entered (add leading 0's). Refer to the Account Number Table on the previous page for account number length. **Always enter a 15 after the last digit of the account number.**

064.001 Copy Primary Setup to Secondary
This function copies the primary line telephone and account number information to the secondary line Functions 65 & 66.

065.000 Secondary Line Telephone Number
[selector range 1-24]
This function programs the secondary line telephone number. Up to 24 digits can be used. Enter values into the selectors 1-24. **Always enter a 15 after the last digit to end the values.**
Special values are: 11 equals " ★ "; 12 equals "#"; 13 is a 3-second dialing pause; 14 is an additional wait for dial tone.

066.000 Secondary Line Account Number
[selector range 1-6]
Enter the account number for the secondary line. Up to 6 digits can be entered. Each communicator format requires different length account numbers. All digits of the account number must be entered (add leading 0's). Refer to the Account Number Table on the previous page for account number length. **Always enter a 15 after the last digit of the account number.**

067.001 Copy Secondary Setup to Supervisory
This function copies the secondary line telephone and account number information to the supervisory line Functions 65 & 66.

068.000 Supervisory Line Telephone Number
[selector range 1-24]
This function programs the supervisory line telephone number. Up to 24 digits can be used. Enter values into the selectors 1-24. **Always enter a 15 after the last digit to end the values.**
Special values are: 11 equals " ★ "; 12 equals "#"; 13 is a 3-second dialing pause; 14 is an additional wait for dial tone.

069.000 Supervisory Line Account Number
[selector range 1-6]
Enter the account number for the supervisory line. Up to 6 digits can be entered. Each communicator format requires different length account numbers. All digits of the account number must be entered (add leading 0's). Refer to the Account Number Table on the previous page for account number length. **Always enter a 15 after the last digit of the account number.**

Reporting Codes For All Formats Except SuperSpeed & SIA

The following functions and selectors set the reporting codes for all of the communicator formats *except* SuperSpeed and SIA formats. The default values already in memory should be correct for most applications. If the central station(s) that this system reports to require different codes, enter their values for each format. If only one format is being used, the format #2 settings need not be changed. **A value of 0 disables that report.** Extended reporting formats will send the sensor number (1-15) after the report code.

Fire Sensor/Loop [value range 0-15, default = 1]
Format #1 070.001.000 Format #2 075.001.000
These selectors set the reporting code for the fire loop or sensors programmed to the fire zone.

Exterior Intrusion [value range 0-15, default = 3]
Format #1 070.002.000 Format #2 075.002.000
These selectors set the reporting code for the exterior zone sensors.

Interior Intrusion [value range 0-15, default = 6]
Format #1 070.003.000 Format #2 075.003.000
These selectors set the reporting code for the interior zone sensors.

Police/Hold Up [value range 0-15, default = 2]
Format #1 070.004.000 Format #2 075.004.000
These selectors set the reporting code for the police/hold up zone sensors.

Emergency [value range 0-15, default = 4]
Format #1 070.005.000 Format #2 075.005.000
These selectors set the reporting code for the emergency zone sensors.

Environmental [value range 0-15, default = 0]
Format #1 070.006.000 Format #2 075.006.000
These selectors set the reporting code for the environmental type "A" sensors.

Restore [value range 0-15, default = 14(E)]
Format #1 070.007.000 Format #2 075.007.000
These selectors set the reporting code for the restored sensors.

REPORTING CODES FOR ALL FORMATS EXCEPT SUPERSPEED & SIA						
FUNCTION		SELECTOR	RANGE	DEFAULT REPORT CODE	REPORT CODE DESCRIPTION	ACTION/VALUE ENTER NEW CODE IF DIFFERENT THAN DEFAULT (0 = NO REPORT)
FRMT #1	FRMT #2					
70	75	1	0-15	1	FIRE SENSOR/LOOP	EXTENDED SENSOR ID REPORT 1-15
70	75	2	0-15	3	EXTERIOR INTRUSION	
70	75	3	0-15	6	INTERIOR INTRUSION	
70	75	4	0-15	2	POLICE/HOLDUP	
70	75	5	0-15	4	EMERGENCY	
70	75	6	0-15	0	ENVIRONMENTAL	
70	75	7	0-15	14 (E)	RESTORE	
70	75	8	0-15	0	SENSOR TAMPER	
70	75	9	0-15	0	BYPASSED SENSOR/LOOP	
70	75	10	0-15	1	KEYPAD FIRE	
70	75	11	0-15	2	KEYPAD POLICE/HOLD-UP	
70	75	12	0-15	4	KEYPAD EMERGENCY	
70	75	13	0-15	0	DURESS	EXTENDED PAC ID REPORTING 1-15
70	75	14	0-15	11 (B)	OPENING	
70	75	15	0-15	12 (C)	CLOSING	
70	75	16	0-15	13 (D)	CANCEL	
70	75	17	0-15	0	COMMUNICATOR AUTOMATIC TEST	
70	75	18	0-15	0	COMMUNICATOR MANUAL TEST	
70	75	19	0-15	0	CONTROL PANEL DOOR TAMPER	
70	75	20	0-15	0	KEYPAD TAMPER	
70	75	21	0-15	15 (F)	SUPERVISORY TROUBLE	(SUPERVISORY) EXTENDED SUPERVISORY REPORTING 1-13
70	75	22	0-15	0	CONTROL PANEL LOW BATTERY	EXTENDED SUP/TBL CODE 1
70	75	23	0-15	0	CONTROL PANEL BATTERY RESTORE	EXTENDED SUP/TBL CODE 2
70	75	24	0-15	0	AC FAILURE	EXTENDED SUP/TBL CODE 3
70	75	25	0-15	0	AC RESTORE	EXTENDED SUP/TBL CODE 4
70	75	26	0-15	0	MEMORY ERROR	EXTENDED SUP/TBL CODE 5
70	75	27	0-15	0	AUXILIARY FUSE BLOWN	EXTENDED SUP/TBL CODE 6
70	75	28	0-15	0	FIRE POWER FUSE BLOWN	EXTENDED SUP/TBL CODE 7
70	75	29	0-15	0	BATTERY FUSE BLOWN	EXTENDED SUP/TBL CODE 8
70	75	30	0-15	0	COMMUNICATION FAILURE	EXTENDED SUP/TBL CODE 9
70	75	31	0-15	0	KEYPAD TROUBLE	EXTENDED SUP/TBL CODE 10
70	75	32	0-15	0	SENSOR LOW BATTERY	EXTENDED SUP/TBL CODE 11
70	75	33	0-15	0	SENSOR SUPERVISORY/TROUBLE	EXTENDED SUP/TBL CODE 12
70	75	34	0-15	12 (C)	FORCE CLOSE	EXTENDED SUP/TBL CODE 13
71	76	1-64	0-15		DEFAULT REPORT CODE OVERRIDE	ENTER DESIRED REPORT CODE FOR SPECIFIC SENSOR(S)

Figure 48. Standard Reporting Code Table

Sensor Tamper **[value range 0-15, default = 0]**
Format #1 070.008.000 **Format #2 075.008.000**
These selectors set the reporting code for sensor tampers.

Bypassed Sensor/Loop **[value range 0-15, default = 0]**
Format #1 070.009.000 **Format #2 075.009.000**
These selectors set the reporting code for bypassed sensors and loops.

Keypad Fire **[value range 0-15, default = 1]**
Format #1 070.010.000 **Format #2 075.010.000**
These selectors set the reporting code for the keypad fire buttons.

Keypad Police/Hold Up **[value range 0-15, default = 2]**
Format #1 070.011.000 **Format #2 075.011.000**
These selectors set the reporting code for the keypad police/hold up button.

Keypad Emergency **[value range 0-15, default = 4]**
Format #1 070.012.000 **Format #2 075.012.000**
These selectors set the reporting code for the keypad emergency button.

Duress **[value range 0-15, default = 0]**
Format #1 070.013.000 **Format #2 075.013.000**
These selectors set the reporting code for the keypad duress code.

Opening **[value range 0-15, default = 11(B)]**
Format #1 070.014.000 **Format #2 075.014.000**
These selectors set the reporting code for opening reports.

Closing **[value range 0-15, default = 12(C)]**
Format #1 070.015.000 **Format #2 075.015.000**
These selectors set the reporting code for closing reports.

Cancel **[value range 0-15, default = 13(D)]**
Format #1 070.016.000 **Format #2 075.016.000**
These selectors set the reporting code for cancel.

Communicator Automatic Test
[value range 0-15, default = 0]
Format #1 070.017.000 **Format #2 075.017.000**
These selectors set the reporting code for the automatic test reports.

Communicator Manual Test
[value range 0-15, default = 0]
Format #1 070.018.000 **Format #2 075.018.000**
These selectors set the reporting code for the Level 7 manual test.

Control Panel Door Tamper
[value range 0-15, default = 0]
Format #1 070.019.000 **Format #2 075.019.000**
These selectors set the reporting code for control panel cabinet door tamper.

Keypad Tamper **[value range 0-15, default = 0]**
Format #1 070.020.000 **Format #2 075.020.000**
These selectors set the reporting code for keypad tamper.

Supervisory Trouble **[value range 0-15, default = 15(F)]**
Format #1 070.021.000 **Format #2 075.021.000**
These selectors set the reporting code for supervisory events.

Control Panel Low Battery
[value range 0-15, default = 0]
Format #1 070.022.000 **Format #2 075.022.000**
These selectors set the reporting code for control panel low battery.

Control Panel Battery Restore
[value range 0-15, default = 0]
Format #1 070.023.000 **Format #2 075.023.000**
These selectors set the reporting code for control panel battery restore.

AC Failure **[value range 0-15, default = 0]**
Format #1 070.024.000 **Format #2 075.024.000**
These selectors set the reporting code for AC power failure.

AC Restore **[value range 0-15, default = 0]**
Format #1 070.025.000 **Format #2 075.025.000**
These selectors set the reporting code for AC power restoral.

Memory Error **[value range 0-15, default = 0]**
Format #1 070.026.000 **Format #2 075.026.000**
These selectors set the reporting code for system memory error.

Auxiliary Fuse Blown **[value range 0-15, default = 0]**
Format #1 070.027.000 **Format #2 075.027.000**
These selectors set the reporting code for blown auxiliary power fuse.

Fire Fuse Blown **[value range 0-15, default = 0]**
Format #1 070.028.000 **Format #2 075.028.000**
These selectors set the reporting code for blown fire power fuse.

Battery Fuse Blown **[value range 0-15, default = 0]**
Format #1 070.029.000 **Format #2 075.029.000**
These selectors set the reporting code for blown battery fuse.

Communication Failure **[value range 0-15, default = 0]**
Format #1 070.030.000 **Format #2 075.030.000**
These selectors set the reporting code for failed communications after all attempts.

Keypad Trouble **[value range 0-15, default = 0]**
Format #1 070.031.000 **Format #2 075.031.000**
These selectors set the reporting code for supervisory trouble from a keypad.

Sensor Low Battery **[value range 0-15, default = 0]**
Format #1 070.032.000 **Format #2 075.032.000**
These selectors set the reporting code for low battery from a wireless sensor.

Sensor Supervisory Trouble
[value range 0-15, default = 0]
Format #1 070.033.000 **Format #2 075.033.000**
These selectors set the reporting code for supervisory reports from a wireless sensor.

Force Close **[value range 0-15, default = 12(C)]**
Format #1 070.034.000 **Format #2 075.034.000**
These selectors set the reporting code for arming the system with one or more bypassed sensor.

Default Report Code Override
[selector range 1-64] **[value range 0-15, default = 0]**
Format #1 071.000.000 **Format #2 076.000.000**
These selectors set special reporting codes for each sensor/loop. Enter a value from 0 to 15 for any sensor that needs a special reporting code.

SuperSpeed & SIA Format Reporting Options

Use the following functions and selectors to enable and disable different SIA and SuperSpeed reporting options. **These selectors are only valid if SIA or SuperSpeed formats have been selected as format #1 or #2 (functions 050.002 & 050.003).**

Opening **[value range 0-1, default = 1]**
For SIA: Format #1 072.001.000 **Format #2 077.001.000**
For SuperSpeed: Format #1 074.001.000 **Format #2 079.001.000**
Default value of 1 enables opening reports. Enter value of 0 to disable opening reports.

Closing **[value range 0-1, default = 1]**
For SIA: Format #1 072.002.000 **Format #2 077.002.000**
For SuperSpeed: Format #1 074.002.000 **Format #2 079.002.000**
Default value of 1 enables closing reports. Enter value of 0 to disable closing reports.

Force Arm **[value range 0-1, default = 1]**
For SIA: Format #1 072.003.000 **Format #2 077.003.000**
For SuperSpeed: Format #1 074.003.000 **Format #2 079.003.000**
Default value of 1 enables force arming reports. Enter value of 0 to disable force arming reports.

Automatic Test **[value range 0-1, default = 0]**
For SIA: Format #1 072.004.000 **Format #2 077.004.000**
For SuperSpeed: Format #1 074.004.000 **Format #2 079.004.000**
Default value of 0 disables automatic communicator test reports. Enter value of 1 to enable automatic communicator test reports.

Manual Test **[value range 0-1, default = 0]**
For SIA: Format #1 072.005.000 **Format #2 077.005.000**
For SuperSpeed: Format #1 074.005.000 **Format #2 079.005.000**
Default value of 0 disables manual communicator test reports. Enter value of 1 to enable manual communicator test reports.

AC Failure **[value range 0-1, default = 1]**
For SIA: Format #1 072.006.000 **Format #2 077.006.000**
For SuperSpeed: Format #1 074.006.000 **Format #2 079.006.000**
Default value of 1 enables AC failure reports. Enter value of 0 to disable AC failure reports.

AC Restore **[value range 0-1, default = 1]**
For SIA: Format #1 072.007.000 **Format #2 077.007.000**
For SuperSpeed: Format #1 074.007.000 **Format #2 079.007.000**
Default value of 1 enables AC restoral reports. Enter value of 0 to disable AC restoral reports.

Control Panel Low Battery [value range 0-1, default = 1]
For SIA: Format #1 072.008.000 **Format #2 077.008.000**
For SuperSpeed: Format #1 074.008.000 **Format #2 079.008.000**
Default value of 1 enables control panel low battery reports. Enter value of 0 to disable control panel low battery reports.

Control Pan. Batt. Restore [value range 0-1, default = 1]
For SIA: Format #1 072.009.000 **Format #2 077.009.000**
For SuperSpeed: Format #1 074.009.000 **Format #2 079.009.000**
Default value of 1 enables control panel battery restore reports. Enter value of 0 to disable control panel battery restore reports.

Sensor/Loop Restore **[value range 0-1, default = 1]**
For SIA: Format #1 072.010.000 **Format #2 077.010.000**
For SuperSpeed: Format #1 074.010.000 **Format #2 079.010.000**
Default value of 1 enables sensor/loop restoral reports. Enter value of 0 to disable sensor/loop restoral reports.

Sensor/Loop Tamper **[value range 0-1, default = 1]**
For SIA: Format #1 072.011.000 **Format #2 077.011.000**
For SuperSpeed: Format #1 074.011.000 **Format #2 079.011.000**
Default value of 1 enables sensor/loop tamper reports. Enter value of 0 to disable sensor/loop tamper reports.

Sensor/Loop Supervisory **[value range 0-1, default = 1]**
For SIA: Format #1 072.012.000 **Format #2 077.012.000**
For SuperSpeed: Format #1 074.012.000 **Format #2 079.012.000**
Default value of 1 enables sensor/loop supervisory reports. Enter value of 0 to disable sensor/loop supervisory reports.

Sensor Low Battery **[value range 0-1, default = 1]**
For SIA: Format #1 072.013.000 **Format #2 077.013.000**
For SuperSpeed: Format #1 074.013.000 **Format #2 079.013.000**
Default value of 1 enables sensor low battery reports. Enter value of 0 to disable sensor low battery reports.

Supervisory Trouble **[value range 0-1, default = 1]**
For SIA: Format #1 072.014.000 **Format #2 077.014.000**
For SuperSpeed: Format #1 074.014.000 **Format #2 079.014.000**
Default value of 1 enables supervisory trouble reports. Enter value of 0 to disable supervisory trouble reports.

SIA Default Report Code Override
For SIA: Format #1 073.000.000 **Format #2 078.000.000**
[selector range 1-64] **[value range 0-12, default = 0]**
For SuperSpeed: Not Supported
These selectors set special reporting codes for each sensor/loop. The codes are shown in the Report Code Override Table on the next page. Enter a value for any sensor that needs a special reporting code. The message to the central station will have 2 characters for the type of alarm, followed by 2 digits for the sensor number.

SUPERSPEED REPORTING CODES

REPORT CODE	REPORT DESCRIPTION xx = SENSOR/LOOP # xxx = PAC ID #
Axx	ALARM
Exx	RESTORE
Dxx	SUPERVISORY/TROUBLE
IOP xxx	OPENING WITH PAC ID xxx
ICL xxx	CLOSING WITH PAC ID xxx
DU	DURESS
24H	AUTO COMMUNICATOR TEST
CH	MANUAL COMMUNICATOR TEST
LO	PANEL LOW BATTERY
ELO	PANEL LOW BATTERY RESTORE
AC	AC POWER FAILURE
EAC	AC POWER RESTORE

SUPERVISORY TROUBLE CODES	
D73	COMMUNICATION FAILURE
D75	AUXILIARY FUSE BLOWN
D76	FIRE POWER FUSE BLOWN
D77	PANEL RADIO FAILURE
D79	PANEL TAMPER
D81	PANEL EEPROM FAILURE
D82	FIRMWARE FAILURE
D88	PANEL MEMORY ERROR

Figure 49. SuperSpeed Reporting Codes

SIA & SUPERSPEED FORMAT REPORTING OPTIONS								
FUNCTION FOR SIA		FUNCTION FOR SUPRSPD		SELECTOR	RANGE	DEFAULT	REPORT DESCRIPTION	ACTION/VALUE
FRMT #1	FRMT #2	FRMT #1	FRMT #2					
72	77	74	79	1	0-1	1	OPEN ING	0 = NO REPORT 1 = REPORT
72	77	74	79	2	0-1	1	CLOSING	
72	77	74	79	3	0-1	1	FORCE ARM	
72	77	74	79	4	0-1	0	AUTOMATIC TEST	
72	77	74	79	5	0-1	0	MANUAL TEST	
72	77	74	79	6	0-1	1	AC FAILURE	
72	77	74	79	7	0-1	1	AC RESTORE	
72	77	74	79	8	0-1	1	CONTROL PANEL LOW BATTERY	
72	77	74	79	9	0-1	1	CONTROL PANEL BATTERY RESTORE	
72	77	74	79	10	0-1	1	SENSOR/LOOP RESTORE	
72	77	74	79	11	0-1	1	SENSOR/LOOP TAMPER	
72	77	74	79	12	0-1	1	SENSOR/LOOP SUPERVISORY	
72	77	74	79	13	0-1	1	SENSOR LOW BATTERY	
72	77	74	79	14	0-1	1	SUPERVISORY TROUBLE	
73	78			1-64	0-12		DEFAULT REPORT CODE OVERRIDE	USE SIA REPORT CODE TABLE TO SELECT CODE FOR SPECIFIC SENSOR
NOTE: THE VALUES IN THIS TABLE ARE ONLY VALID IF SIA OR SUPERSPEED FORMATS ARE SELECTED								

SIA REPORT CODES						
SENSOR OR LOOP TYPE	ALARM	RE-STORE	TAMPER	LOW BAT	SUPRV	BYPASS
BURGLARY	BAxx	BRxx	TAxx	XTxx	BSxx	BBxx
FIRE	FAxx	FRxx	TAxx	XTxx	FSxx	FBxx
EMERGENCY	MAxx	MRxx	TAxx	XTxx	MSxx	MBxx
POLICE	PAxx	PRxx	TAxx	XTxx	PSxx	PBxx
ENVIRONMENT	UAxx	URxx	TAxx	XTxx	USxx	UBxx
TAMPER	TAxx	TRxx	TAxx	XTxx	TSxx	TBxx
DURESS	HAxx					
OPENING	OPpp					
CLOSING	CLpp					
FORCE ARM	CFpp					
CANCEL	BCpp					
AUTO TEST	RP					
MAN. TEST	RX					
PANEL TAMP.	TA79					
PAN. LOW/BAT	YT					
PAN. BAT. RES.	YR		AUX FUSE BLOWN	UT75		
AC FAIL	AT		FIRE FUSE BLOWN	FT		
AC RESTORE	AR		COMM. FAILURE	YC		
MEMORY ERR.	UT80		KEYPAD TROUBLE	UTxx		

SIA CODE OVERRIDE VALUES		
OVER-RIDE VALUE	REPORT CODE xx = SENSOR pp = PAC CODE	DESCRIPTION
0		USES DEFAULT
1	BAxx	BURGLARY ALARM
2	FAxx	FIRE ALARM
3	GAxx	GAS ALARM
4	HAxx	HOLDUP ALARM
5	KAxx	HEAT ALARM
6	MAxx	MEDICAL ALARM
7	PAxx	PANIC ALARM
8	SAxx	SPRINKLER ALARM
9	TAxx	TAMPER ALARM
10	UAxx	UNTYPED ALARM
11	WAxx	WATER ALARM
12	ZAxx	FREEZE ALARM

Figure 50. SIA & SuperSpeed Format Options

Personal Access Code (PAC) Installation

Personal Access Codes (2 to 5 digits) are used to authorize different levels of system control. There are 32 different codes numbered 1 - 32 with number 1 assigned as a temporary PAC. Various levels of control authorization can be programmed for each PAC. PAC ID's (1 - 32) are reported to the Central Station with Opening/Closing reports, if the format allows. PAC's can be changed by the user without entering system programming level (Level 9). See the users guide for details.

The factory defaults are PAC's 1-31 empty, PAC number 32 set to 98765 with Level 9 programming privilege.

☞ *NOTE: In each of the following steps pressing the STORE key causes the new value to be assigned to the selected PAC code and the display returns to the function field.*

090.000 **Personal Access Code Entry**
[selector range 1-32]

To enter a PAC, first select function 090, press CYCLE and enter which PAC you want to change (1-32). Press CYCLE again and then start entering the new PAC, 2 to 5 digits. Then press the STORE key to accept the new value and the display returns to the function field. The rejection tones will sound if two few or too many digits are entered. If you make a mistake, repeat the entire sequence. For security, PAC's are never displayed once entered.

091.000 **Cancel a PAC**
[selector range 2-32]

To cancel a PAC, select which PAC to delete and press STORE. The old PAC will be deleted and the accept tones will sound.

092.000.000 **High Security Level Limit**
[selector range 2-32] **[value range 0-9, default = 8]**

Sets the highest security level that a PAC may select. Only meaningful if "Quick Arm" is disabled (see function 121.012). Must be set to 9 if entry into system level programming (Level 9) is desired.

093.000.000 **Low Security Level Limit**
[selector range 2-32] **[value range 0-9, default = 0]**

Sets the lowest security level that a PAC may select. Only meaningful if set to 0 or 1. Otherwise, the system could not be disarmed or alarms cancelled.

094.000.000 **Duress PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

Setting the value to 1 for the selected PAC, causes a duress report code to be sent to the Central Station when this PAC is used to arm or disarm the control (report code must be programmed). In all other respects the PAC operates normally.

095.000.000 **Master PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

If the control is armed with a master PAC, then only that PAC or another master PAC may disarm. Setting the value to 1 for the selected PAC programs a master PAC. A 0 programs a normal PAC.

096.000.000 **Arm Only PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

An Arm Only PAC may not disarm the control, independent of any other PAC settings. Setting the value to 1 for the selected PAC programs an Arm Only PAC. A 0 programs a normal PAC. Only meaningful if "Quick Arm" is disabled (see function 121.012).

097.000.000 **No Bypass PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

A No Bypass PAC cannot arm the system if any sensors are violated. Likewise, this type of PAC may not directly bypass sensors. A value of 1 selects a No Bypass PAC, a value of 0 selects a normal PAC. Only meaningful if "Quick Arm" is disabled (see function 121.012).

098.000.000 **Access Output PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

If this feature is programmed, then each time this PAC is entered the access output is activated for the programmed time. A value of 1 selects Access Output, a value of 0 selects no Access Output.

099.000.000 **Access Output Only PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

A PAC code programmed with this feature cannot perform any security level changes. The user must enter a security level followed by his PAC code to activate the access output. The security level digit is ignored (i.e. no level change takes place).

100.000.000 **Locked PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

Setting this option keeps the user from changing his own PAC, only a PAC with programming privilege may change the code. Do not confuse this with Level 9 or system level programming access. Setting the value to 1 selects the option, a value of 0 selects a normal PAC.

101.000.000 **Programmer PAC**
[selector range 2-32] **[value range 0-1, default = 0]**

Setting this option allows this PAC to program other PAC's. Otherwise a PAC may only change it's own code. A value of 1 selects the option, a value of 0 specifies a normal PAC.

PERSONAL ACCESS CODE (PAC) INSTALLATION					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
90	1-32			PERSONAL ACCESS CODE ENTRY	ENTER 2 TO 5 DIGITS, THEN PRESS STORE (PAC #1 IS TEMPORARY PAC)
91	2-32			CANCEL A PAC	PRESS STORE TO REMOVE PAC SELECTED
92	2-32	0-9	8	HIGH SECURITY LEVEL LIMIT	HIGHEST SECURITY LEVEL THIS PAC CAN USE
93	2-32	0-9	0	LOW SECURITY LEVEL LIMIT	LOWEST SECURITY LEVEL THIS PAC CAN USE
94	2-32	0-1	0	DURESS PAC	0 = NORMAL SECURITY LEVEL CONTROL 1 = THIS IS A DURESS PAC
95	2-32	0-1	0	MASTER PAC CODE	0 = NORMAL PAC CODE 1 = MASTER PAC CODE
96	2-32	0-1	0	ARM ONLY PAC	0 = NORMAL SECURITY LEVEL CONTROL 1 = NO DISARMING ALLOWED
97	2-32	0-1	0	NO BYPASS PAC	0 = FULL BYPASS AUTHORITY 1 = NO BYPASS AUTHORITY
98	2-32	0-1	0	ACCESS OUTPUT PAC	0 = NO ACCESS CONTROL OUTPUT 1 = ACCESS CONTROL OUTPUT ACTIVATES
99	2-32	0-1	0	ACCESS OUTPUT ONLY	0 = NORMAL SECURITY LEVEL CONTROL 1 = ACTIVATE ACCESS OUTPUT ONLY
100	2-32	0-1	0	LOCKED PAC CODE	0 = USER CAN CHANGE OWN CODE 1 = USER CANNOT CHANGE OWN CODE
101	2-32	0-1	0	"PROGRAMMER" PAC	0 = THIS PAC CANNOT SET OTHER PAC'S 1 = PAC PROGRAM MODE ALLOWED

Figure 51. Personal Access Code (PAC) Inst. Table

Control Panel Configuration

Use the following functions and selectors to change values for control panel configuration. The default values already in memory should be correct for most applications.

☞ *NOTE: For each of the following functions, unless otherwise stated, pressing the STORE key causes the new value to be stored into the CP-90's memory and the display will return to the function field. If the command is accepted, the accept tones will sound.*

120.001.000 Entry Delay Time #1
[value range 1-250, default = 30]

Delayed sensors can be programmed for entry delay #1 or #2 (function 5). When the user enters the premises, violating sensors programmed for exit/entry delay, the entry timer is started. The keypad pre-alarm beeps may optionally be started at this time (function 121.007). If the user has not disarmed the system before the entry time expires, an alarm will be triggered. The value for this selector is entered in seconds.

120.002.000 Entry Delay Time #2
[value range 1-250, default = 45]

Delayed sensors can be programmed for entry delay #1 or #2 (function 5). When the user enters the premises, violating sensors programmed for exit/entry delay, the entry timer is started. The keypad pre-alarm beeps may optionally be started at this time (function 121.007). If the user has not disarmed the system before the entry time expires, an alarm will be triggered. The value for this selector is entered in seconds.

120.003.000 Exit Delay Time
[value range 1-250, default = 45]

An exit delay is necessary in installations where the system control station is located inside the premises. When the user arms the CP-90, the exit delay timer is started in order to allow the user time to leave the premises and secure the entry/exit door. The value for this selector is entered in seconds.

If the entry/exit door is not secure when the exit time expires, an entry delay sequence will be started. If the CP-90 is not disarmed before the entry time expires, an alarm will be triggered.

☞ *NOTE: Be realistic! Allow enough time for the user to get out of the premises and secure the door.*

120.004.000 Burglar Alarm Output Delay
[value range 0-250, default = 0]

When the system goes into alarm, its burglary output on the control output connector may be delayed by this selector. The value for this selector is entered in seconds. The delay gives the user time to disarm the system before the audible alarm sounder starts. **This selector value does not delay the keypad siren, only the burglary output.**

120.005.000 Burglar Alarm Cutoff Time
[value range 0-250, default = 5]

When the burglar alarm is triggered, the system will continue the alarm for the length of time specified by this selector. The value is entered in minutes. **Entering 0 will result in untimed alarms that will remain on until the system is disarmed.** Untimed, unlimited alarms are not allowed by law in many locations. Check local ordinances for details.

120.006.000 Fire Alarm Cutoff Time
[value range 0-250, default = 5]

When the fire alarm is triggered, the system will continue the alarm for the length of time specified by this selector. The value is entered in minutes. **Entering 0 will result in untimed alarms that will remain on until the system is disarmed.** Untimed, unlimited alarms are not allowed by law in many locations. Check local ordinances for details.

120.007.000 Police Alarm Cutoff Time
[value range 1-250, default = 5]

When the police alarm is triggered, the system will continue the alarm for the length of time specified by this selector. The value is entered in minutes. **Entering 0 will result in untimed alarms that will remain on until the system is disarmed.** Untimed, unlimited alarms are not allowed by law in many locations. Check local ordinances for details.

120.008.000 Emergency Alarm Cutoff Time
[value range 0-250, default = 5]

When the emergency alarm is triggered, the system will continue the alarm for the length of time specified by this selector. The value is entered in minutes. **Entering 0 will result in untimed alarms that will remain on until the system is disarmed.** Un-timed, unlimited alarms are not allowed by law in many locations. Check local ordinances for details.

120.009.000 Access Output On-Time
[value range 0-250, default = 5]

Sensors programmed to the access only zone will trigger the access output on the control output connector. This output is usually used to activate an electronic door strike. The length of time that this output is on is controlled by this selector's value. The value is entered in seconds.

120.010.000 Automation #1 Output On-Time
[value range 0-250, default = 5]

Sensors programmed to the automation #1 zone will trigger the automation #1 output on the control output connector. This output is usually used to activate an external device. The length of time that this output is on is controlled by this selector's value. The value is entered in seconds.

120.011.000 Automation #2 Output On-Time
[value range 0-250, default = 5]

Sensors programmed to the automation #2 zone will trigger the automation #2 output on the control output connector. This output is usually used to activate an external device. The length of time that this output is on is controlled by this selector's value. The value is entered in seconds.

121.001.000 Pulsing Burglar Output
[value range 0-1, default = 0]

This selector controls the burglary output on the control output connector. If this selector's value is 1, the output will pulse when activated; one second on, one second off. A value of 0 is for a steady output.

121.002.000 Pulsing Fire Output
[value range 0-1, default = 1]

This selector controls the fire output on the control output connector. If this selector's value is 1, the output will pulse when activated; one second on, one second off. A value of 0 is for a steady output.

CONTROL PANEL CONFIGURATION					
FUNCTION	SELECTOR	RANGE	DEFAULT	DESCRIPTION	ACTION/VALUE
120	1	1-250	30	ENTRY DELAY TIME #1	ENTER VALUE IN SECONDS FOR DELAY
120	2	1-250	45	ENTRY DELAY TIME #2	
120	3	1-250	45	EXIT DELAY TIME	
120	4	0-250	0	BURGLAR ALARM OUTPUT DELAY	
120	5	0-250	5	BURGLAR ALARM CUTOFF	ENTER VALUE IN MINUTES ENTER "0" FOR CONTINUOUS
120	6	0-250	5	FIRE ALARM CUTOFF	
120	7	0-250	5	POLICE ALARM CUTOFF	
120	8	0-250	5	EMERGENCY ALARM CUTOFF	
120	9	0-250	5	ACCESS OUTPUT ON-TIME	ENTER ACCESS OUTPUT TIME IN SECONDS 0 = TOGGLES ON/OFF EACH ACTIVATION
120	10	0-250	5	AUTOMATION #1 ON-TIME	
120	11	0-250	5	AUTOMATION #2 ON-TIME	
121	1	0-1	0	PULSING BURG OUTPUT	0 = STEADY 1 = ONE SECOND ON & ONE SECOND OFF
121	2	0-1	1	PULSING FIRE OUTPUT	
121	3	0-1	0	MULTIPLE BURGLAR ALARM SHUTDOWN	0 = MULTIPLE OUTPUTS PER ARM/DISARM 1 = ONLY ONE AUDIBLE OUTPUT PER ARM
121	4	0-1	0	DAY ALERT LATCH	0 = TRBL LIGHT CLEARS WHEN NO TRBL 1 = TRBL LIGHT LATCHES, CLEAR W/"ST97"
121	5	0-1	0	BELL TEST ON ARMING	0 = NO BELL TEST 1 = BELL TEST IN LEVEL 4 AT C.S. KISSOFF
121	6	0-1	0	START ENTRY DELAY #1 UPON KEYPAD ACTIVATION	0 = NORMAL OPERATION 1 = KEYPAD ENTRY STARTS DELAY
121	7	0-1	1	ENTRY DELAY BEEPS	0 = BEEPS OFF 1 = BEEPS ON
121	8	0-1	1	EXIT DELAY BEEPS	
121	9	0-1	0	SILENT POLICE ALARMS	0 = ALARM WILL SOUND 1 = SILENT ALARM
121	10	0-1	0	SILENT EMERGENCY ALARMS	
121	11	0-1	0	SILENT BURG ALARMS	
121	12	0-1	0	DISABLE QUICK ARMING	0 = QUICK ARMING ALLOWED 1 = QUICK ARMING NOT ALLOWED
121	13	0-1	0	AUTOMATIC RESTORAL	0 = BYPASSES CLEAR ON RESTORAL 1 = BYPASSES REMAIN ON RESTORAL
121	14	0-1	0	AUTO BYPASS ARMING	0 = AUTO BYPASS THEN ARM 1 = NO ARM UNTIL MANUAL BYPASS

Figure 52. Control Panel Configuration Table

121.003.000 **Multiple Burglar Alarm Shutdown**
[value range 0-1, default = 0]

Setting the value for this selector to 1 causes the CP-90 to allow only one burglary output for each time the system is armed. This selector only affects the burglary output on the control output connector and does not affect alarm reports to the central station (they can be limited by the swinger count with function 050.015) or other types of alarms.

121.004.000 **Day Alert Latch**
[value range 0-1, default = 0]

When sensors or accessories report trouble, (supervisory, low battery, tamper, etc.) the TROUBLE light on the wired keypads will blink. With this selector's value set at 0 the TROUBLE light will automatically clear (go out) when the cause of the trouble is corrected. If the value is set to 1 the TROUBLE light will latch on until it is manually reset. To reset the TROUBLE light in this mode, press STATUS 97 on any wired keypad.

121.005.000 **Bell Test on Arming**
[value range 0-1, default = 0]

Setting this selector's value to 1 causes the burglary output to activate for 1 second when the system is armed in Level 4 (away mode). The bell test occurs after the closing report communication to the central station is completed. If closing reports are disabled or the communicator is turned off, the bell test occurs as soon as Level 4 is entered. A value of 0 disables the bell test.

121.006.000
Start Entry Delay #1 Upon Keypad Activation
[value range 0-1, default = 0]

This feature is not available yet. Soon, setting this selector's value to 1 will cause the entry delay to begin as soon as any key is pressed on any keypad while the system is armed. This high security mode of operation protects against unusual intrusion methods where the intruder could get to the keypad without violating other sensors. A value of 0 is for normal operation where violating an exterior delay sensor starts the delay.

121.007.000 **Entry Delay Beeps**
[value range 0-1, default = 1]

The default setting of 1 causes the keypad(s) to sound beeps during the entry delay. This alerts the user that the system must be disarmed or an alarm will occur. Setting this selector's value to 0 will cause the entry delay to be silent.

121.008.000 **Exit Delay Beeps**
[value range 0-1, default = 1]

The default setting of 1 causes the keypad(s) to sound beeps during the exit delay. This alerts the user that the premises must vacated and secured before the delay time expires. Setting this selector's value to 0 will cause the exit delay to be silent.

121.009.000 **Silent Police Alarms**
[value range 0-1, default = 0]

Setting this selector's value to 1 will cause all sensors and keypad buttons that trigger the police/hold-up zone to produce silent alarms. The communicator must be turned on (function 050.001) to use this feature.

121.010.000 **Silent Emergency Alarms**
[value range 0-1, default = 0]

Setting this selector's value to 1 will cause all sensors and keypad buttons that trigger the emergency zone to produce silent alarms. The communicator must be turned on (function 050.001) to use this feature.

121.011.000 **Silent Burglar Alarms**
[value range 0-1, default = 0]

Setting this selector's value to 1 will cause all sensors that trigger the burglary zone to produce silent alarms. The communicator must be turned on (function 050.001) to use this feature.

121.012.000 **Disable Quick Arming**
[value range 0-1, default = 0]

Keypad quick arming allows the user to arm the system to Levels 1-6 simply by holding down the associated keypad number button (1-6) for about 1 second. Quick arming can only change the system into a higher security level than it's currently in. Enter a value of 0 to enable quick arming; a value of 1 to disable quick arming.

121.013.000 **Automatic Bypass Restoral**
[value range 0-1, default = 0]

Violated sensors can be bypassed when the system is armed either automatically (when arming from a remote) or manually from the keypad. If this selector's value is set to 0, when the sensor restores, the bypass will be removed. The formerly bypassed sensor will then be ready to cause a violation. If this value is set to 1, the sensor(s) will remain bypassed until the system is disarmed.

121.014.000 **Automatic Bypass Arming**
[value range 0-1, default = 0]

The system has the option of automatically bypassing violated sensors when arming. If the value for this selector is set to 0, and the system is armed with violated sensors, 45 seconds after the rejection tones sound the system will automatically bypass all violated sensors and arm to the security level selected. If this value is set to 1, sensors must be manually bypassed before the system can be armed.

SYSTEM TESTING

To assure continued protection, Linear recommends that the CP-90 be tested weekly. The system features two special levels (Level 7 and Level 8) for testing.

Level 7 Telephone Test

If the system is monitored, this level tests the telephone connection between the system and the Central Monitoring Station.

① Switch to Level 7, the level change gong and seven level count beeps will sound.
② Wait for test to complete.
③ If the test goes OK, the system will sound the accept tones and switch to Level 0 when test is complete.
④ If the test fails, the system will switch to Level 0 *without* sounding the accept tones.
⑤ Verify that the central station received the call correctly.

Level 8 Sensor Test

This level tests the radio link between each sensor and the control panel. Two different types of tests can be made. The *standard test* is for testing all sensors. The *individual test* is for testing specific sensors.

Standard Complete System Test

① Switch to Level 8, the level change gong and eight level count beeps will sound.
② The display will show each sensor number in order.
③ Activate each sensor.
④ As each sensor is activated, the sensor test beep will sound and the sensor number will be *removed* from the display.
⑤ Test keypads by quickly pressing each emergency key.
⑥ Continue testing until all sensor numbers have been removed from the display.
⑦ When all sensors and accessories have been tested the accept tones will sound.

Individual Sensor Test

① Switch to Level 8, the level change gong and eight level count beeps will sound.
② Press STATUS.
③ Display will show the last sensor activated.
④ Activate sensor(s), the sensor test beep will sound when a sensor is activated.
⑤ Check display for sensor number.

☞ *NOTE: The system will automatically switch from Level 8 back to Level 0 after 4 minutes of inactivity.*

How to Test Door and Window Sensors

① Open door or window; listen for sensor test beep.
② Close door or window.

How to Test Motion Detectors

① Stay out of protected area for **at least 5 minutes**.
② Walk through the protected area; listen for sensor test beep.

How to Test Smoke Detectors

① Press and hold the smoke detector test button until detector starts beeping.
② Hold for an additional 15 seconds; listen for the sensor test beep.

How to Test Keypads (Sensors 65-72)

✶ ***CAUTION: DO NOT HOLD THE KEYPAD EMERGENCY BUTTONS FOR MORE THAN 1 SECOND WHILE TESTING! THE ALARM WILL BE TRIGGERED.***

① Quickly press the fire button; listen for sensor test beep.
② Quickly press the medical button; listen for sensor test beep.
③ Quickly press the police button; listen for sensor test beep.
④ Check display, the keypad's sensor number should be gone.

How to Test Portable Sensors

① Press the portable sensor's button; listen for sensor test beep.

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LINEAR LIMITED WARRANTY

This Linear product is warranted against defects in material and workmanship for twelve (12) months. The Warranty Expiration Date is labeled on the product. **This warranty extends only to wholesale customers** who buy direct from Linear or through Linear's normal distribution channels. **Linear does not warrant this product to consumers.** Consumers should inquire from their selling dealer as to the nature of the dealer's warranty, if any. **There are no obligations or liabilities on the part of Linear Corporation for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation.** All implied warranties, including implied warranties for merchantability and implied warranties for fitness, are valid only until Warranty Expiration Date as labeled on the product. **This Linear Corporation Warranty is in lieu of all other warranties express or implied.**

For warranty service on Linear equipment return product, at sender's expense to:

Linear Service Center
2350 Camino Vida Roble, Suite A
Carlsbad, CA 92009
Attention: Repairs Department

IMPORTANT !!!

Linear radio controls provide a reliable communications link and fill an important need in portable wireless signalling. However, there are some limitations which must be observed.

* For U.S. installations only: The radios are required to comply with FCC Rules and Regulations as Part 15 devices. As such, they have limited transmitter power and therefore limited range.
* Receivers may be blocked by radio signals that occur on or near their operating frequencies, regardless of code settings.
* A receiver cannot respond to more than one transmitted signal at a time.
* Infrequently used radio links should be tested regularly to protect against undetected interference or fault.
* A general knowledge of radio and its vagaries should be gained prior to acting as a wholesale distributor or dealer, and these facts should be communicated to the ultimate users.

FCC NOTICE

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

Relocate the CP-90 away from the TV/radio receiver.

Plug the CP-90 into a different wall outlet so that the console is on a different branch circuit.

Re-orient the TV/radio antenna.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions.

✓ NOTE: Changes or modifications to the CP-90 may void FCC compliance.

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