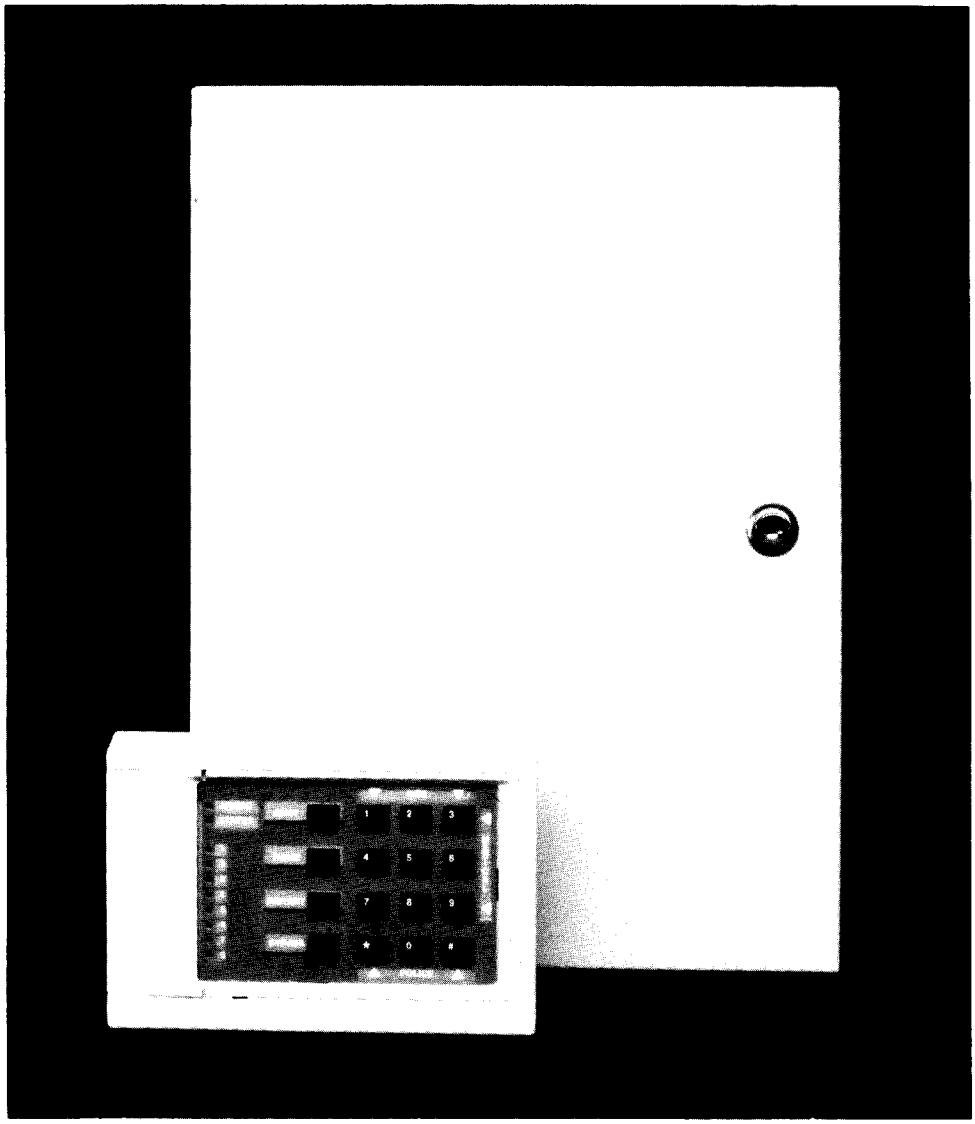
ARITECH



ATENDER® 100
INSTALLER'S INSTRUCTIONS

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1.0 FUNCTIONAL DESCRIPTION

1.1 System Overview

The Attender 100 is a state-of-the-art, microprocessor controlled security system designed to protect homes, shops, offices, and manufacturing plants from fire, theft and other emergency conditions.

The system can report violations in 11 zones:

8 automatically-activated zones individually programmable as Burglar, Fire, Police, Medical, Communicator trip, or Key and

3 optional 24-hour, manually-activated zones for Fire, Police, and Medical emergencies.

The system monitors and automatically reports violations in up to 8 zones. Each of the 8 zones is dedicated (programmed) at the time of installation, but may be changed later if the user so desires. This feature makes the system very flexible in providing protection coverage.

The 3 optional manual zones are activated from the Keypad and are completely independent of the 8 automatic zones. These alarms may be activated at any time.

The Attender 100 system normally provides visual and/or audible alarms when a zone is violated. If the Communicator is enabled, a wide range of data can be sent to a Central Monitoring Station such as Fire/Medical/Police emergencies, openings and closings, bypass, auto-test, etc.

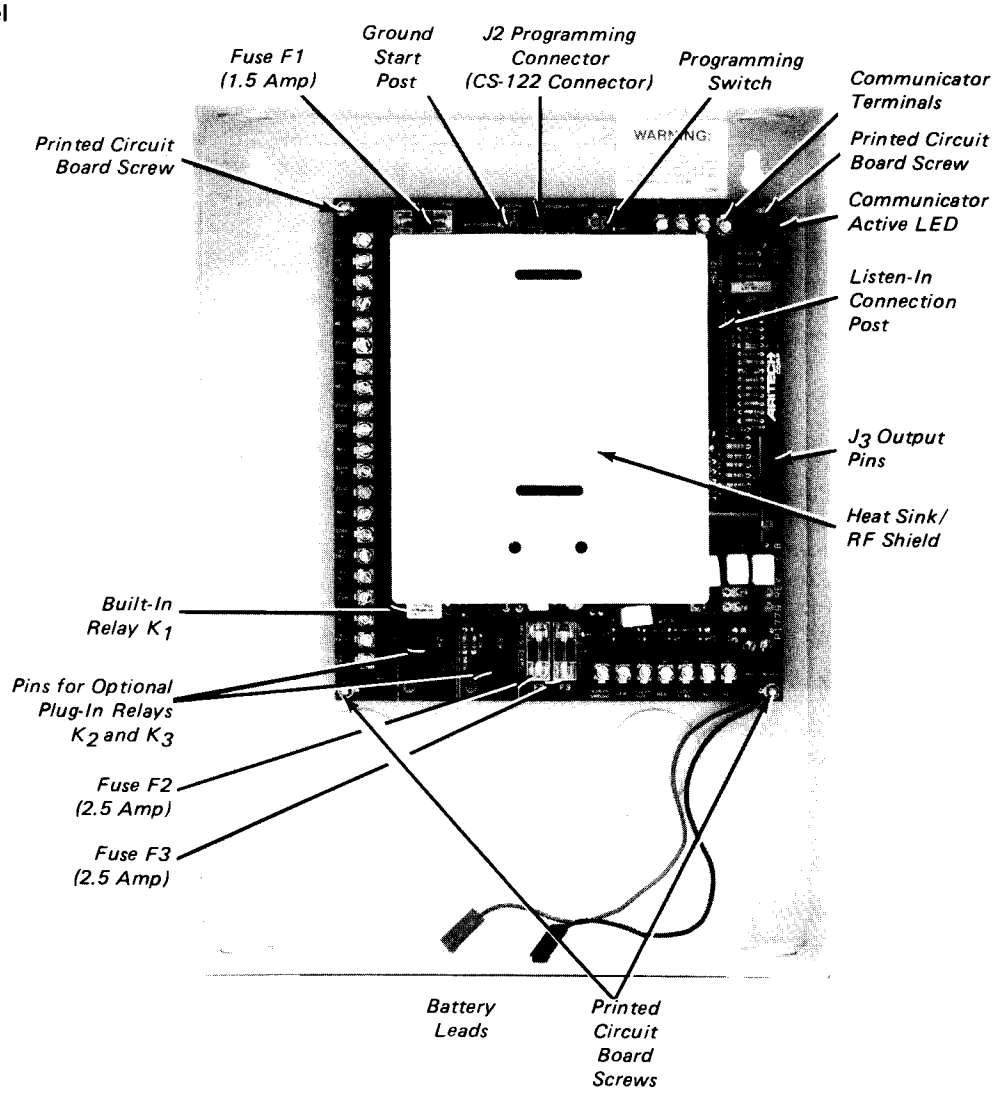
Operation of the system is controlled by the user from a Remote Keypad containing numerical data-entry keys, special command keys, and indicator lights. Up to 5 Remote Keypads can be installed per system.

The basic System Operating Program, as well as certain programmable options, are stored in a non-volatile memory device called an "EEPROM" (Electronically-Erasable, Programmable, Read-Only Memory). The EEPROM retains all stored data even if a.c. power to the system is interrupted and the standby battery is exhausted. The programmable options may be changed from factory settings to optimize system performance for any given installation.

A degree of self-testing and fault-correction has been designed into the system so that the most common microprocessor faults are automatically corrected without intervention by the Installer.

Simple, easy-to-understand operation enables the user to learn how to use his Attender 100 system in a minimum of time. This simplicity of operation, together with the supporting User's Manual, make the Attender 100 a very "user-friendly" system.

1.2 Control Panel



continued

The Control Panel is the main component of the Attender 100 system. It is a metal cabinet intended to be installed in a closet, basement, or utility room. It contains:

Control Panel Printed Circuit Board
(includes the Digital Communicator)
Terminals/Connectors for External Wiring
Space for the Standby Battery

1.2.1 Control PCB

The control board is the heart of the system. It is a Printed Circuit Board containing the system microprocessor, memory, relays, switches, and associated electronic components. The main function of the control board is to monitor all 8 zones and to generate the appropriate alarms whenever a zone is violated.

The heat-sink design protects sensitive integrated circuits from mechanical damage, provides heat dissipation for the voltage regulators, and electrostatically shields the circuitry.

A test mode is built into the control board that allows each function to be exercised individually. Users are encouraged to perform system tests regularly to keep them familiar with system features and functions. The test mode is controlled by the Remote Keypad.

The functions of the main components of the PCB are as follows:

a) Microprocessor

There are 2 microprocessors in the Control Unit and 1 microprocessor in each keypad.

b) Watchdog Circuit

Once every 40 milliseconds, the microprocessor sends a signal to the watchdog circuit to indicate that it is still working properly. If these signals should scramble or stop, the watchdog circuit will turn the 5 V supply off for a fraction of a second, enabling the microprocessor to reset.

c) EEPROM

This is a non-volatile memory which contains all the programmed information such as the account number, phone number(s), Access Codes, zone configuration, etc. The EEPROM can be removed and inserted in a replacement board without losing its contents so that systems need not be reprogrammed if a circuit board is replaced.

d) Keypad Control Microprocessor

This processor is the interface between the Control Panel and the Remote Keypads. It receives the data entered at the Keypads, and it sends out the information required to control the LEDs located at the Keypad.

e) Clock

The clock is a crystal oscillator that provides the timing for all microprocessors.

f) Battery Test Circuit

The microprocessor constantly monitors the battery voltage. When the nominal +12 V drops below 11.2 V level the microprocessor causes a general system trouble indication (flashing status LED). Should the battery voltage drop below a preset level, the microprocessor automatically shuts down the system. It is also possible to perform a dynamic, high-current battery test by placing a 5-ohm load across the battery terminals. This dynamic test can be performed in two different ways:

Manually, by pressing key [7].

Automatically, by programming functions 12 and 35. (for details see Section 5.0, "Programming the System".)

During manual and automatic battery tests, +12 V fire power (terminal 26) is disconnected.

g) 12 V Power Supply

This is a regulated power supply which converts the 18 V a.c. input to 12 V d.c., which is used to charge the battery and supply all the power required by the system. The output of this supply is also available for powering external accessories: 900 mA of continuous or interruptable power for auxiliary sensors, and up to five (5) remote keypads and 1.5 A in alarm for the siren driver, siren(s) and bell.

h) 5 V Power Supply

This is a voltage regulator that powers all the control logic circuits. The 5 V output is not accessible externally.

i) Program Switch

The program switch, which allows entry into installer function programming, is located at the top/center edge of the control board. Momentarily depressing the program switch starts a 3 minute timer, allowing entry to Installer level programming. Each time a key is depressed in the program mode, the 3 minute timer is restarted. The Control Panel will beep as long as the program switch is held down.

j) Connectors

There are 2 plug-in connectors and 2 optional relay connectors on the control board located as shown in page 1 photo. (See Appendix 1 for details.)

The function of each connector is as follows:

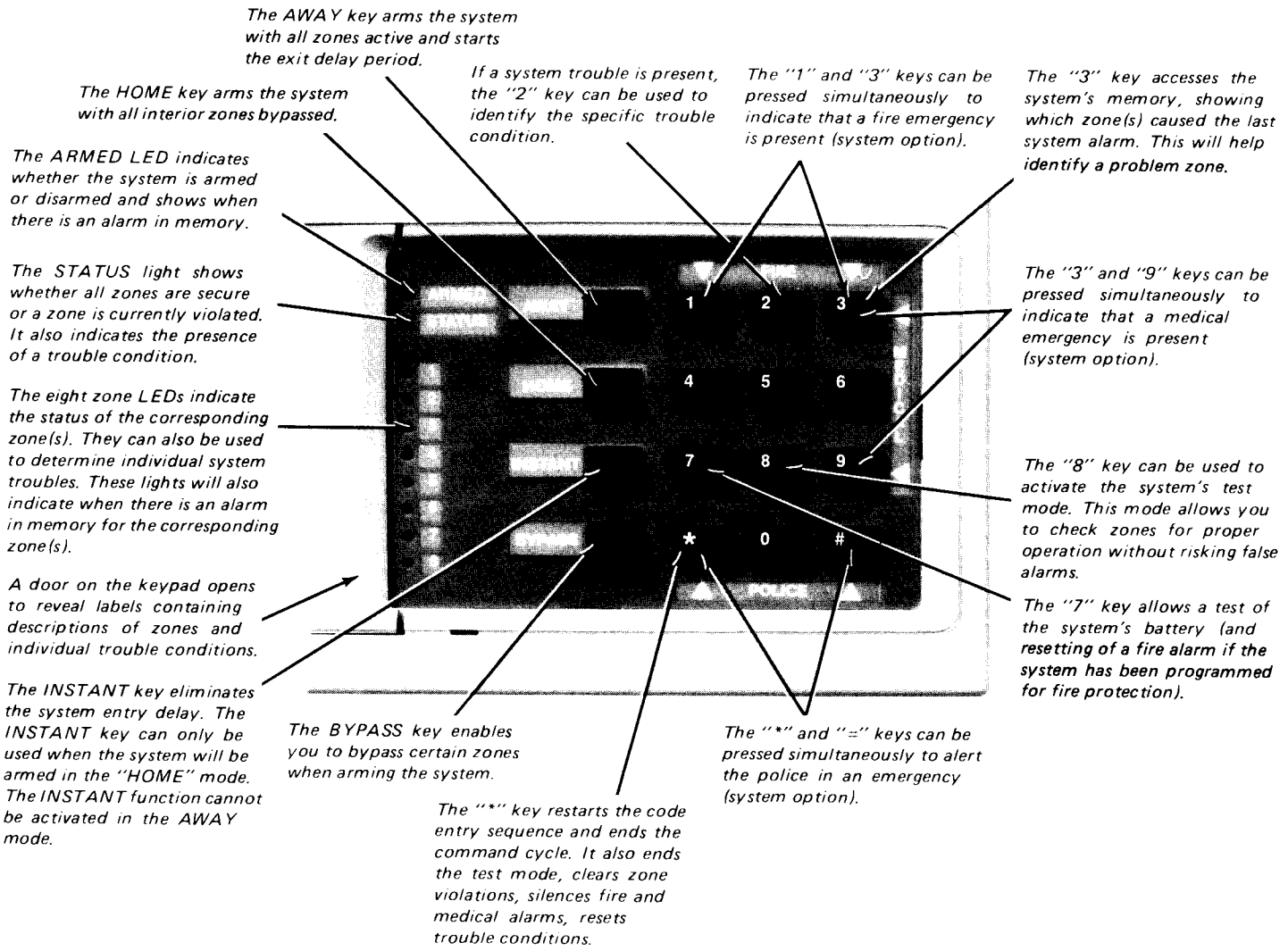
J2 Program Connector, with the following inputs/outputs:

Pin	1	Negative
	2	+12 V
	3	Strap Chip Select
	4	Reset
	5	Chip Select
	6	Data Output
	7	Clock
	8	Data Input
	9	Strap Data Out

J3 Output Connector, with the following 40mA outputs:

Pin	1	+12 V
	2	Negative
	3	Not Used
	4	Light
	5	Pre-Alarm
	6	Status
	7	Violation
	8	Armed
	9	Medical Alarm
	10	Police Alarm
	11	Fire Alarm
	12	Burglar Alarm

1.3 Remote Keypad



The Remote Keypad consists of 16 keys for entering commands to the Control Panel, and 10 LEDs that display the status of the system. It is attractively housed in a low profile plastic case suitable for mounting in the subscriber's living area (as above).

The Keypad is connected to the control panel with 4 wires: two for power, two for data. Up to five Keypads can be connected in parallel to the same four wires. All four wires are monitored to detect opens and shorts between wires, or removal of a keypad.

When the Keypad door is open, space is available for Trouble Code and Zone Assignment labels as shown at right:

1.3.1 Keypad Keys

There are 12 keys similar to the 12 keys of a Touchtone® telephone. Some of the keys have a dual function. There are four special-purpose keys:

AWAY — Arms the system in the "premises vacant" mode.

HOME — Arms the system in the "premises occupied" mode.

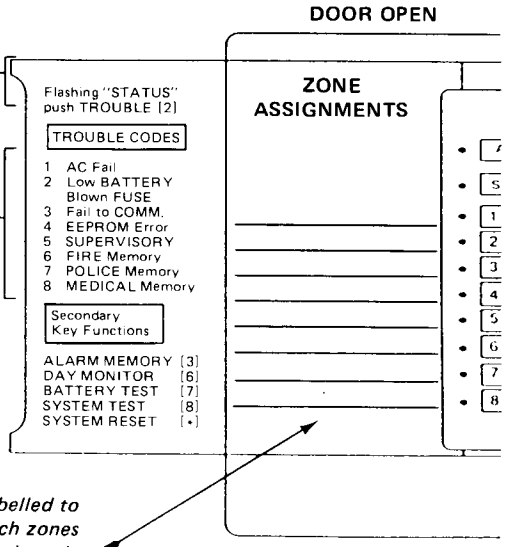
INSTANT — Causes immediate alarm when exit/entry door is opened.

BYPASS — Removes selected zones from protection.

(See Section 1.3.2 for Arming details.)

NOTE:
To read TROUBLE codes you must first enter your Access Code, then press key [2].

In TROUBLE mode, zone lights indicate the kind of trouble in the system.



The function of the digital keys are:

KEY	PRIMARY FUNCTION	SECONDARY FUNCTION
[0]	Enters digit 0	(None)
[1]	Enters digit 1	(See below)
[2]	Enters digit 2	Shows which kind of trouble caused the green STATUS light to flash.
[3]	Enters digit 3	(a) Shows which zone(s) had an alarm during most recent armed cycle. (b) (See below)
[4]	Enters digit 4	(None)
[5]	Enters digit 5	(None)
[6]	Enters digit 6	Turns the CHIME mode on and off.
[7]	Enters digit 7	Performs dynamic test on battery/resets smoke detectors.
[8]	Enters digit 8	Places system in TEST mode of operation.
[9]	Enters digit 9	(See below)
[*]	Reset/Store	(See below)
[#]	Locate a programming function	(See below)

If programmed, the following *key pairs,* **when pressed simultaneously,** activate alarms from the Remote Keypad.

[1] & [3] — FIRE
[3] & [9] — MEDICAL
[*] & [#] —POLICE

If the Communciator is enabled, the above alarms will be automatically transmitted to the Central Monitoring Station.

A description of the secondary key functions is as follows:

KEY — **SECONDARY FUNCTION**

[2] - TROUBLE

The secondary function of key [2] will show what kind of trouble caused the green STATUS LED to flash. When key [2] is pressed after a valid access code, one or more of the zone LEDs, will come on to indicate the type of system trouble:

Zone LED	Type Trouble
1	A.C. Fail
2	Low battery or fuse blown
3	Fail to Communicate
4	EEPROM Error
5	Supervisory
6	FIRE alarm in memory
7	POLICE alarm in memory
8	MEDICAL alarm in memory

[3] - ALARM MEMORY

Shows what zone(s) alarmed during a past arming cycle. Memory is held until a new alarm occurs. A new alarm clears the memory and stores all new alarms occurring during that arming cycle.

[6] - CHIME

Key [6] causes the system to monitor exits and entrances during the day, and to cause keypad beeps (instead of siren/bell alarms) when someone enters or leaves via an exit/entry or perimeter zone. Useful for calling attention to the arrival of customers in a shop or office.

[7] - BATTERY TEST

Secondary function [7] will do a dynamic test on the battery. The "+12 V Fire Power" voltage to smoke/heat sensors is also interrupted during the battery test.

[8] - TEST

Test mode will cause the Keypad sounder to beep as long as a zone is violated. Zone LEDs will latch on until TEST mode is terminated. Pushing the appropriate key pairs will activate BURGLARY/FIRE/MEDICAL alarms. The Keypad sounder will beep every 60 seconds while in the TEST mode.

[*] - RESET/STORE

Reset is the only command key which can be used without user or Installer access codes. Reset does the following:

- Restarts code entry sequence
- Ends TEST mode
- Silences Keypad sounder
- Ends command mode
- Ends PROGRAM mode

When in the PROGRAM mode, the [*] key is also used to store just-entered data in computer memory.

[#]

The main purpose of the [#] key is to find specific program functions when in the PROGRAM mode.

1.3.2 Special Function Keys

The function of the Special Purpose Keys are:

AWAY — Will arm the system in the "premises vacant" mode. Entry/exit zone(s) will be in delay mode. Interior zones will be active. Pressing AWAY starts the delay timer and terminates the command mode.

HOME — Will arm the system in the "premises occupied" mode. Interior zone(s) are automatically bypassed. Pressing HOME starts the delay timer and terminates the command mode.

INSTANT — Pressing the INSTANT key prior to arming in the HOME mode, eliminates the entry delay for that arming cycle.

BYPASS — Enables individual zones to be eliminated from protection. Pressing BYPASS, followed by a zone digit, will bypass that zone. BYPASS must be pressed before each zone digit.

Example: to bypass zones 3, 5, and 7 — enter a user code — press BYPASS [3], BYPASS [5], BYPASS [7] and then the HOME or AWAY key, as applicable. The LEDs for the bypassed zones will flash during the exit delay as a reminder that these zones are bypassed. The bypassed zones will restore automatically when the system is disarmed.

1.3.3 LEDs

There are 10 LEDs on the Remote Keypad. The operating characteristics of each LED are given below.

ARMED (Red) — On — system is armed in HOME or AWAY mode.

Flashing — alarm or alarm memory.

Off — system is not armed.

STATUS (Green) — On — all zones are secure (or if a violated zone is bypassed).

Off — a zone is violated.

Flashing — general system trouble, or test mode.

ZONE (Red; 8 total) — Off — an individual zone is secure.

On — zone is violated, or indicates a specific fault when key [2] is pressed during a general system TROUBLE.

Flashing — alarm memory to show which zone(s) violated during the armed cycle, a zone is bypassed, or the PROGRAM mode is first entered (all 8 LEDs will flash).

The zone LEDs will be predominantly on or off as a function of zone status.

Zone LEDs will scroll for ROM error.

1.3.4 Using the Remote Keypad

Operations of the Attender 100 system can easily be performed using the Remote Keypad. To prevent unauthorized persons from gaining access to the system, however, a coded sequence of numbers must first be entered on the Keypad before any changes to the system can be made. These codes are stored in EEPROM memory. The computer compares the code just entered with those stored in memory and, if there is a match, the person entering the code may proceed.

However, there are three different kinds of codes according to who the holder of the code is, and what level of system access that person needs:

User Access Code (1-5 digits) — Allows complete operation of the system. Each code can be one to five digits in length. The factory-programmed value for User Access Code 1 is "7777". A total of 9 User Access Codes may be programmed for allocation to different users. An Access Level is assigned by the Installer to each of the 9 codes which tells the system how a particular User Acess Code may be used.

User Program Code (1-5 digits) — Allows user programming of the system. The factory programmed User Program Code is "98888".

Installer Program Code (1-5 digits) — Allows a technically qualified person to program all functions of the system. The factory-programmed Installer Program Code is "0852".

The User Access Code must be entered with no more than 10 seconds between successive digits. After the last digit of the code is entered, there is a 30 second interval during which any command can be entered. Any key entry other than HOME, AWAY or RESET restarts the 30 second timer.

If the HOME, AWAY or RESET commands are entered, or if 30 seconds have elapsed since the last entry, the panel will not accept any more commands until the User Access Code is entered again.

The following table describes the various system Access Levels, any one of which may be assigned to individual User Access Codes (programming functions 54-62):

Access Level Code	Level of Security
0	Secondary key function Access Code. No arm or disarm possible with this code. User can identify troubles, alarm memory, activate the test mode, activate/de-activate chime and perform a battery test.
1	Full function Access Code. User Access Codes with this digit may be used to arm/ disarm, bypass zones, reset after alarm, and test the system.

continued

Access Level Code	Level of Security
8	Allows User Access Codes with this digit to disarm/re-arm an individual zone (as opposed to all zones). This single-zone disarm/re-arm feature operates only when the system has been armed normally. (See Section 1.4.1 for details.)
9	User Access Codes with this digit will arm/disarm the system in a normal manner, and will send a silent "duress" alarm to the Central Monitoring Station (if the Communicator is enabled).
10-15	Allows User Access Codes with these digits to disarm/re-arm a group of zones. This feature operates only when the system has been armed normally. (See Section 1.4.1 for details.)

1.3.5 Keypad Sounder

A piezo-electric sounder is built into the Remote Keypad. The sounder has several functions:

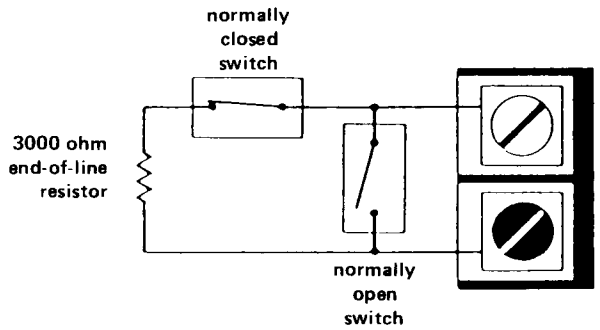
a) Audible indication of keystroke entry (beep).
b) Local alarm indication (constant tone).
c) Audible indication of exit/entry delay (beeps).
d) Data-entry error (2-second tone).
e) Confirmation of a valid access code entry (3 beeps).
f) Confirmation of a new access code in memory (2 beeps).

The exit beeping is disabled when the system is armed in the HOME mode.

Programming options allow the Keypad sounder functions to be altered.

1.4 Zoning

The Attender 100 provides eight programmable zones, one of which can be used as a keyswitch zone. All 8 zones are supervised by means of a 3000 Ohm End-of-Line resistor. Each loop may be programmed to work with a combination of standard normally-open and normally-closed devices. Loops can be programmed to provide a trouble signal when the loop opens and an alarm when the loop shorts, or vice versa.



Supervised Protective Zone Hook-Up

Provided the resistor is installed in series with the loop at the furthest, most remote end, any opening or shorting of the loop between the resistor and control terminals will violate the zone. By utilizing the E.O.L. resistor in its intended manner, the overall versatility and security of the installation will be enhanced. Fire-defined zones must have the E.O.L. resistor installed in the loop after the last fire detection device in order to detect troubles or breaks in the fire loop.

If a zone is programmed as a 24-hour circuit, it is always fully supervised, and the installed device can have a normally-open or normally-closed circuit that causes an alarm upon activation.

If a zone is programmed as a Fire Alarm circuit, it is a fully-supervised latching circuit that is active at all times (unless bypassed). Connect smoke, heat, or manually-activated devices to this circuit. The circuit activates a supervisory condition if the wiring is cut and an alarm condition if the wiring is shorted, or upon closure of contacts in a sensor device. Fire loops always require an E.O.L. resistor.

Protective zones may be connected to door switches, window switches, motion detectors, smoke/heat detectors, or other protective devices located throughout the premises. Large areas may be sub-divided, and detection devices may be grouped into different zones so that violated detectors may be easily identified.

Multiple zones may be programmed for BURGLAR, FIRE, POLICE, MEDICAL and COMMUNICATOR TRIP. Any one zone may be programmed as a momentary keyswitch zone, but only one keyswitch zone may exist per system. Sub-options exist for each zone.

The characteristics of the different types of zones are shown by the table below.

ZONE TYPE	OPTIONS	SUB-OPTIONS
Burglar	Instant Entrance Delay 1 Entrance Delay 2 Interior Perimeter Silent Perimeter Priority (non-shuntable)	Slow or Fast Loop Response Time Supervisory/Trouble
Fire		Slow or Fast Loop Response Time Shuntable
Police		Slow or Fast Loop Response Time Silent or Audible Supervisory/Trouble
Medical		Slow or Fast Loop Response Time Supervisory/Trouble
Communicator Trip		Slow or Fast Loop Response Time Supervisory/Trouble
Keyswitch (Momentary Only)		Supervisory/Trouble Shuntable

1.4.1 Individual/Group Zone Disarming

The Attender 100 system provides the ability to disarm/re-arm individual or a group of zones of an armed burglar system without disarming the entire system. A unique code must be entered at the Remote Keypad to disarm/re-arm individual or a group of zones. Any time the main system is disarmed, all zones are disarmed.

To disarm/re-arm an individual or group of zones the following configuration digits must be assigned to the User Access Codes:

8 - One Zone only
10 - Two Zones
11 - Three Zones
12 - Four Zones
13 - Five Zones
14 - Six Zones
15 - Seven Zones

} Must be successive zones beginning with the first zone to be disarmed/re-armed.

Example: Individual disarm/re-arm of one zone only. If zone 3 is to be individually disarmed/re-armed, set User Access Code 3 to the desired code (programming function 3) and set Access level for user code 3 to an "8" (programming function 056). User Acess Code 3 will now disarm/re-arm zone 3 only.

Disarm/re-arm of a group of zones. If zones 4, 5 and 6 are to be disarmed/re-armed, set User Access Code 4 to the desired code (programming function 4) and set Access level for user code 4 to an "11" (programming function 057). User Access Code 4 will now disarm/re-arm zones 4, 5 and 6.

If a "15" is selected for the Access level for user code 4 (programming function 057), zones 4, 5, 6, 7, 8, 1 and 2 will be disarmed/re-armed with user code 4.

If programmed for extended reporting, the digital Communicator will report by user if openings/closings are transmitted to the central monitoring station.

1.4.2 Loop Follower

The loop follower feature bypasses all interior-defined zones during entrance delay when entering through a delay-defined zone first. Unless designated as a delay zone, perimeter-defined zones have no exit delay, entrance delay, or loop follower feature. The loop follower option may be disabled with programming function 33.

1.4.3 Supervisory/Trouble Sub-Option

Supervisory/Trouble is a programmable sub-option which allows Burglar, Medical, Communicator trip, and Key-defined zones to be supervised and to respond specifically to loop opens versus loop shorts. Either an alarm or trouble response will be generated depending on the loop conditioning.

In order for the supervisory function to work, the zone loop must be wired properly with an End-of-Line resistor as per illustration on page 6.

Open-loop supervisory is the factory standard when the sub-option is selected. Upon detection of a supervisory (open loop) condition, the Remote Keypad beeps and the ZONE LED flashes. Pressing the [*] key will silence the Keypad. The zone LED will continue to blink as long as the open loop condition exists.

If the Communicator is enabled the system can be programmed to transmit a supervisory report code (function 111 and 146). When the open loop condition is cleared the system will automatically reset.

The supervisory sub-option can also be programmed to latch on (function 30) with the [*] key being required to reset.

1.4,4 Keyswitch Zones

Any one of the hardwire zones 1 through 8 may be defined as momentary keyswitch zone, but there can be only one keyswitch zone per system. When the keyswitch zone is momentarily shorted for at least one second, the Keypad sounder will beep to indicate that the exit delay is initiated. At the end of the exit delay the system arms (AWAY). If a keyswitch zone is also defined as a supervisory zone, any supervisory/trouble on the keyswitch zone will disable the keyswitch zone from arming or disarming the control.

1.4.5 "Home" Arming

The Attender 100 system automatically bypasses (turns off) interior-defined zones when armed in the HOME mode. This allows occupants of the home or building to move around freely without generating nuisance alarms.

1.4.6 Perimeter Zones

All perimeter zones normally give an immediate alarm when violated, except the exit/entry zone(s) which is (are) subject to a delay time to allow the person entering to go to the Remote Keypad and disarm the system before the alarm is activated. When the system is armed in the HOME mode, however, it is possible to override the exit/entry delay by pushing the [INSTANT] key. This method of arming causes an immediate alarm whenever any perimeter zone is violated.

1.5 Sensors

Any standard PIR, Ultrasonic, or other motion detector can be connected as an intrusion sensor in any of the 8 zones.

The following ARITECH sensors are recommended:

Passive Infrared	Ultrasonic	Photoelectric Beams
DR-100	DU-103/104	DO-550
DR-300 Series	DU-169	DO-565
DR-557/558		DO-591
DR-569		
DR-825		
DR-240/244		
DR-835		

1.6 Courtesy Light Output

The system provides a +12 V output signal at J3, pin 4, whenever: any Remote Keypad key is pressed, the exit or entry delay begins, a.c. power fails, or any type of alarm occurs. This +12 V signal can be connected to a relay to turn on a courtesy light, at the customers' option. The +12 V signal at J3-4 remains on for 2 minutes.

1.7 CS-122 Output Expansion Module

The CS-122 Expansion Module is an optional plug-in PCB giving ten additional outputs: the status of zones 1-8, plus a supervisory/trouble signal and a listen-in output.

The CS-122 module plugs into J2 (Programming Connector) on the main Control PCB. The outputs are available on a terminal strip mounted on the CS-122 PCB.

1.8 Power and Fuses

1.8.1 AC Power

An 18 V/35 VA transformer supplies a.c. power to the system. The a.c. power circuit is protected from transients by spark gaps and MOV transient suppressors. The input of the transformer should be connected to a non-switched 110 V/ 2 Amp outlet.

If a.c. power is interrupted for more than 10 seconds, the STATUS LED will begin flashing indicating a TROUBLE condition. If key [2] is then pushed the ZONE 1 LED will come on indicating "a.c. fail".

1.8.2 DC Power

A bridge rectifier circuit converts the incoming 18 V a.c. to d.c. which is fed to voltage regulator circuits. The +12 V and +5 V regulated outputs provide all power for the control electronics, detector power, annunciator power, and regulated-charging of the standby battery. The +12 V supply has a maximum capacity of 2.5 Amps.

A back-up 12 V/6 Ah rechargeable, sealed, lead-acid battery mounted in the Control Panel provides a minimum of 4* hours of emergency d.c. power whenever a.c. power to the transformer primary is interrupted. A stand-by 12 V/4 Ah battery will provide a minimum of 2.5* hours of emergency d.c. power. The battery connects to red (+) and black (-) leads coming from the control board.

*Assumes that maximum auxiliary power is being utilized.

1.8.3 Fuses

The following fuses protect the system from over-current demands:

Fuse	Rating	Protective Function	Location
Foil		+12 V power supply	Part of PCB
F1	1.5A	Keypad	Upper left corner of PCB
F2	2.5A	Auxiliary Power	Center bottom edge of PCB
F3	2.5A	Fire Power	Center bottom edge of PCB

The Auxiliary Power and Fire Power fuses are constantly monitored by the Control Panel. If F2 or F3 should blow, the Remote Keypad will beep. The beeping may be silenced by pressing the [*] key. After replacing the fuse, a battery test should be performed manually (command 7).

Replace the fuses only with fast-blow, type of the same amperage and voltage rating. A factory-replaceable foil fuse protects the +12 V and +5 V circuits on the Control Panel PCB.

1.9 Anti-Tamper Features

A type ST-120 tamper switch kit can be installed in the Control Panel to detect attempts to remove the cover and/ or to detect attempts to pry the unit off the wall. When these switches are installed and connected to a TAMPER zone, an alarm will be generated (or a supervisory signal, depending on programming) whenever the cover is removed or the unit is pried off the wall.

All zones are automatically and continuously protected against opens and shorts in the wiring, intentional or accidental, by means of the 3000 Ohm End-of-Line resistor.

In addition to protection against tampering, opens, and shorts, the Attender 100 system incorporates a proprietary, high-level security feature to protect against "bridging" — the replacement or removal of an installed Remote Keypad, for the purpose of gaining illegal entry. This unique feature continuously monitors the 4 wires to the Keypad, instantly detects any attempt to remove or connect a counterfeit unit to these wires, and causes an alarm to be generated in the event a Keypad is removed.

2.0 DIGITAL COMMUNICATOR

2.1 Overview

The Attender 100 contains a built-in digital communicator which can dial two (2) different 26 digit telephone numbers using either rotary or Touchtone® dialing. The reporting codes for all zones and transmitted conditions are programmable for each telephone number. Thus, each telephone number can back-up the other if unsuccessful, or the reporting of certain zones or conditions may be "split" between each telephone number. All communicator programming is done through the CS-101 Remote Keypad or with the optional RD-555 Programmer. The data is permanently stored in the EEPROM memory. The communicator is factory programmed with basic default features and formats. Section 5.0 provides a listing of these factory default settings.

2.2 Communicator Delay Before Dialing (Programming Function 78)

The delay before dialing feature sets the time between the actual alarm input and when the digital communciator starts the dialing sequence. This time can be set from 1 to 255 seconds. "0", which is the factory default value, disables the digital communciator. The delay before dialing gives the user a time period to reset the system and abort a report following an accidental alarm. If programming function 80 is set to "1", all alarms may be aborted when the system is disarmed. See Section 5.0 for programming information.

2.3 Telephone Line Seizure

When the communicator is triggered, the telephone line is seized, disconnecting the house telephones. Dial tone detection is then enabled. If detected, the dialing sequence immediately begins with either rotary or Touchtone® dialing, depending upon the programming of functions 93 or 128. If no dial tone is detected within 10 seconds, the communicator hangs up for the time set in programming function 159 (factory default 3 seconds). The telephone line is again picked up and dial tone detection is re-enabled. If no dial tone after 10 seconds, the dialing process will begin anyway.

2.4 Reporting Codes

The reporting codes for all zones and transmitted conditions are programmable for each telephone number. By programming both telephone numbers with identical codes, each telephone number will serve as a backup for the other if the other is unsuccessful.

When the digital communciator is triggered, telephone #1 attempts to dial and report first. If telephone #1 is not programmed or if the report code for telephone #1 equals "0", telephone #2 is attempted. A value of "0" disables a reporting code and may be used to prevent codes from reporting to specific telephone numbers. This feature is called "SPLIT REPORTING". If the report code for both telephone numbers equals "0", no report will be transmitted.

2.5 Split Reporting

Split reporting is enabled by programming different telephone numbers for telephone 1 and 2, then selectively programming only certain reporting codes for each telephone number. This feature is valuable for sending all reports requiring response to one central station receiver (tel. #1) and all routine maintenance codes to another central station receiver (tel. #2).

NOTE: The Attender 100 supports backup reporting and split reporting but cannot send the same report to both telephone numbers, i.e., dual reporting.

CAUTION: IF SPLIT REPORTING is enabled, with telephone #1 reporting code for a zone or transmitted condition programmed as "0" (reporting disabled), and telephone #2 reporting code for the same zone or condition programmed as "1 to 15" (reporting enabled), then the actual number of dial attempts for programming function 79 MUST be calculated and programmed according to the following formula.

Actual number of desired dial attempts	( )
Multiplied by	X 2
Plus	+ 2

Example:

Actual number of desired dial attempts	= 8
Multiplied by	X 2
Plus	+ 2
Calculated number of dial attempts	= 18
Program function 79 (dial attempts) with 18	

2.6 Communicator Transmission Format

The Attender 100 communicator is capable of transmitting 5 different formats. Each telephone number may be programmed with a different transmission format. The formats are:

Format

0 = Autobaud. Format 1 or 2 is automatically selected based upon the handshake tone from the receiver.

1 = 1400 Hz. handshake, 1900 Hz. data, 10 baud. (Ademco, Adcor, FBI, Osborne Hoffman, Radionics, Silent Knight, Varitech, and Vertex slow format.)

2 = 2300 Hz. handshake, 1800 Hz. data, 20 baud. (DCI, FBI, Franklin, Osborne Hoffman, Varitech, and Vertex fast format.)

3 = 1400 Hz. or 2300 Hz. handshake, 1800 Hz. data, 40 baud. (Radionics superfast no parity. For parity, program function 92 and/or 127.)

4 = 1400 Hz. handshake, 1900 Hz. data, 15 baud. (Silent Knight fast format.)

5 = Radionics BFSK® (1400 Hz. or 2300 Hz. handshake). (FBI, Radionics, and Varitech.)

6 = Sescoa 1400 Hz. Handshake, 1900 Hz. data, 10 Baud.

7 = Sescoa 2300 Hz. Handshake, 1800 Hz. data, 20 Baud.

NOTE: The Osborne Hoffman, Quick Alert Receiver is not compatible with Formats 3, 4, and 5.

Wiring knockouts and holes; Six knockouts accommodate a variety of wiring configurations. There are four small knockouts (two on top, two on bottom) and two larger knockouts on the back of the panel. Four cabinet mounting holes (two are keyhole shaped), and small holes for mounting a tamper device(s) (ST-120).

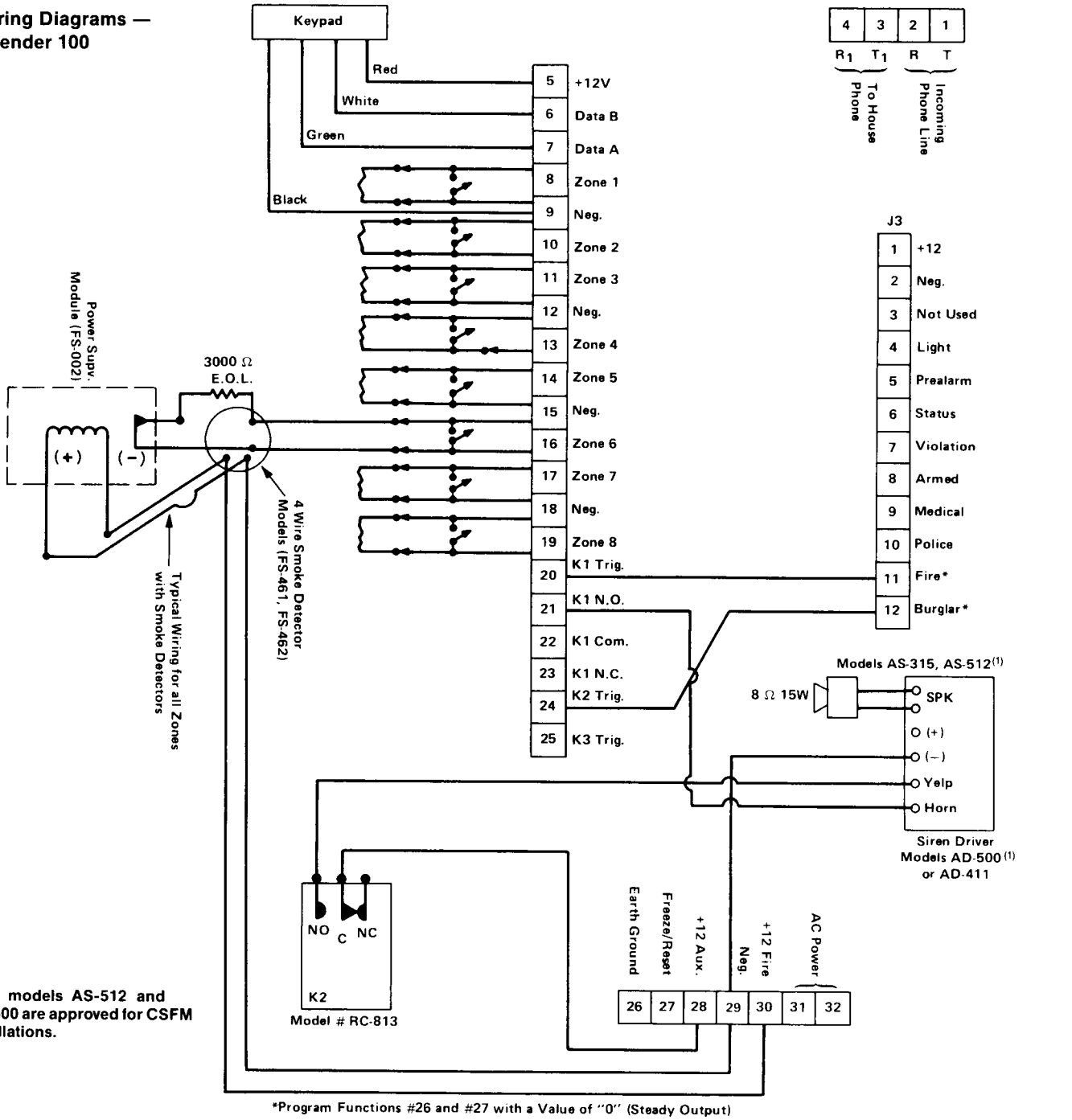
The CS-100 Control Panel should be installed in a protected area where it will be accessible for wiring and service. It is recommended that the unit be located within 50 feet of a 110 V a.c., 24-hour outlet.

CAUTION: A.C. power must not be applied to the system until all connections are made to Remote Keypads, detectors, annunciators, and arming switches, and you are ready to begin testing the system.

Mounting the Control Panel on the Wall:

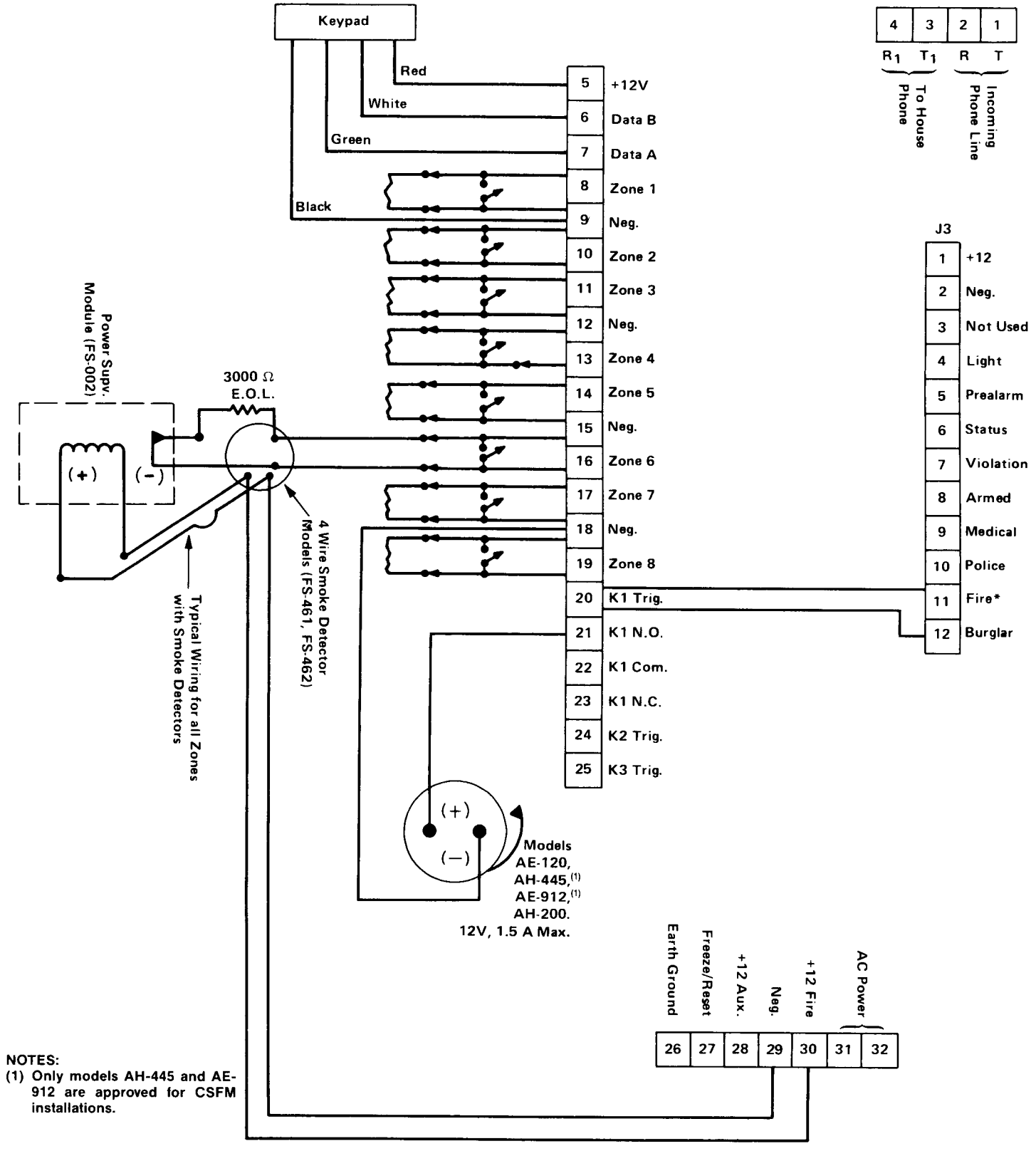
1. Unlock the control with the key provided.
2. Remove the electronics pack from the Control Panel. Set aside until all pre-wiring is completed.
3. Remove appropriate knockouts so that wires can be brought into the control.
4. Mark wire holes and mounting holes on the wall. The "keyhole" shape of the top holes enables the installer to put the first 2 mounting screws in the wall and then slip the control unit onto them simplifying accurate placement of the other mounting screws.
5. Secure the control unit to the mounting wall and bring wires into the control unit through knockouts or holes. Use toggles or anchors to mount the control unit to the wall if necessary.

3.5 Wiring Diagrams — Attender 100



NOTES:
(1) Only models AS-512 and AD-500 are approved for CSFM installations.

*Program Functions #26 and #27 with a Value of "0" (Steady Output)



NOTES:
(1) Only models AH-445 and AE-912 are approved for CSFM installations.

*Program fire as a steady pulse, so this signal has priority over the pulsing burglar alarm signal. Program burglar alarm as pulsating.

Combination Burglar and Fire Alarm System

3.6 Installing the Remote Keypad

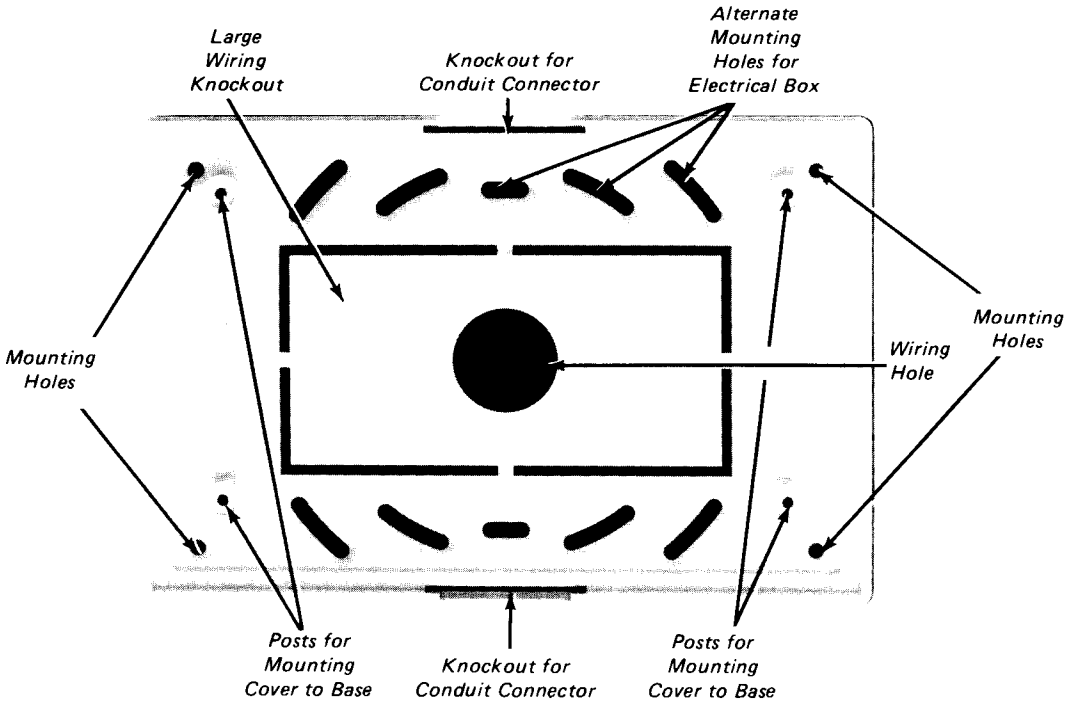
The Remote Keypad should be installed in a location agreed to by the customer.

The design of the unit makes it suitable for installation in the customer's living area where the status of the system can readily be seen and heard. The kitchen would be another suitable location.

In a commercial or an industrial installation, the remote Keypad is normally installed where it can be observed by those responsible for the security of the building. If there are no dedicated security personnel in the firm, a logical alternative would be to install the Keypad near the desk of the receptionist.

Mounting the Remote Keypad

Surface Mounting: The Remote Keypad surface mounts to an electrical box or directly to sheet rock or paneling. See figure below for mounting details.



Wiring the Remote Keypad

The CS-101 Remote Keypad connects with a 4 wire telephone type cable. Two wires are for power (+12 V and negative) and two wires are for data on a serial data bus. Standard 22 gauge wire is ideal for most cable runs up to 500 feet. Cable runs up to 3000 feet are possible using twisted pair or shielded cable. Long cable runs should only have one Remote Keypad back to the Control Panel.

All Remote Keypads are wired in parallel as follows:

Pin	Wire Color	Function	CS-100 Terminal
Pin 4	Red	Positive +12 V d.c.	5
Pin 2	White	Data B	6
Pin 3	Green	Data A	7
Pin 1	Black	Negative	9

A maximum of five (5) Remote Keypads may be connected to the Control Panel. Each Keypad draws 70 milliamps in normal operation.

3.7 Installing Sensors

A wide assortment of heat/smoke and motion detecting sensors are available for installation in the customer's premises/home. Power to operate these sensors is taken from:

Terminals 30 (+) and 29 (-) for smoke/heat detectors
Terminals 28 (+) and 29 (-) for all other sensors

Installing the Senors

1. Mount the fire and motion detectors/sensors in each zone. Follow the instructions contained in the Installation Manual accompanying each sensor.
2. Run wires (at least 22 gauge) from the sensors to the Control Panel. Connect cabling per the Installation Manual.
3. Connect the sensor wiring to terminals 8 through 19 on the PCB.

3.8 Installing Keyswitch

Keyswitch

The customer may choose to have a Keyswitch installed.

1. Consult with the customer concerning the location of the Keyswitch. It should normally be located near the exit/entry door, for AWAY mode arming, and wherever the customer wishes for HOME mode arming.
2. Mount the Keyswitch in the desired location.
3. Run a 4-wire cable from the Keyswitch to the Control Panel.
4. Connect the 4 leads as follows: 2 leads to the zone

designated as the Keyswitch zone for arming and disarming. The 2 leads (green and red LEDs) to connector J3 pins 6 and 8 respectively. (See Appendix 1.)

3.9 Installing Annunciators

A wide assortment of sirens, bells and lights may be connected to the Control Panel (see figures on pages 12 to 15). The annunciator device(s) chosen will depend on the specific application and the customer's wishes.

Power to operate these devices may be taken directly from the Control Panel (up to 1.5 A in alarm).

1. Mount the selected annunciator device(s) in a location agreed to by the customer. Follow the instructions contained in the Installation Manual accompanying each annunciator device.
2. Run interconnecting cabling (22 gauge or heavier) from the annunciator device(s) to the Control Panel. See Appendix 1 — Relays K1, K2 and K3.

3.10 Control Panel Power Connection

1. Run an "Earth Ground" lead from terminal 26 on the bottom terminal strip to the common earth ground stake. Use a wire of at least 14 gauge (see Section 3.2.2).
2. Connect the transformer secondary, to terminals 31 and 32 on the PCB.
3. Wire or plug the transformer into the nearest non-switched a.c. outlet (in conformance with local codes). **Do not connect a.c. power at this time.**
4. Place the 12 V battery inside the Control Panel. Connect the black lead from the PCB to the negative (black) terminal on the battery. **Do not connect the red lead at this time.**

The mechanical and electrical installation of the CS-100 is now complete, except for applying power. The next step is to perform a thorough operational test of the complete system.

4.0 TESTING THE SYSTEM

4.1 General

In order to make a complete functional test of the Attender 100 system, it is necessary to interconnect all components, and exercise the system in all its operational modes.

In an actual, just-completed installation, of course, all components have been installed and wired. If a bench-test is being performed, temporary connections to a.c. power, the Remote Keypad, and protection loops must be made. Ensure that E.O.L. resistors have been connected.

The following power-up and operation test paragraphs assume that the system has either been installed and wired per Section 3.0, or that it has been wired for bench-test. No a.c. or d.c. power should yet be applied to the system.

4.2 Factory Program at Initial Power-Up

The Attender 100 comes ready to use from the factory with basic system program settings. The Remote Keypad or optional hand-held RD-555 programmer may be used to customize or change the programmable functions (see Section 5.0 for programming procedures).

NOTE: The Attender 100 factory program may be restored at any time. See Section 5.5 for the procedure to return to the factory program.

4.3 CS-100 Power-Up

4.3.1 Applying D.C. Power — Standby Battery Connection

Verify that the black lead from the PCB is connected to the "—" (black) terminal of the battery. Connect the red lead to the "+" (red) terminal of the battery. As soon as the red lead is connected, the Remote Keypad sounder will emit a 2-second beep, and the [STATUS] LED will begin flashing (indicating no a.c. power is present). A reverse-current diode will provide some protection to the electronics if the battery leads are accidentally reversed. DO NOT LEAVE THE LEADS REVERSED. OVERHEATING OF THE CURRENT LIMITING RESISTOR WILL RESULT.

4.3.2 Applying A.C. Power

Verify that the PCB terminals 31 and 32 are connected to the correct transformer terminals so that 18 V a.c. is applied to the terminals 31 and 32. If in doubt, disconnect one of the wires to the terminals 31 or 32 until the transformer voltage can be measured. Connect the transformer to a 110 V outlet. The [STATUS] LED should now come on steady, and all other LEDs should be off.

If the Control Panel does not power-up properly, the watchdog monitor system will automatically perform a new system power-up (reference Section 4.7). If a Remote Keypad does not power-up properly, pressing the [*] key will reset the Remote Keypad microprocessor and allow it to begin working properly.

4.3.3 Power-Up Diagnostics

Each time power is applied to the CS-100, the power-up diagnostics check the Read Only Memory (ROM) and the Electronically-Erasable Programmable Read Only Memory (EEPROM).

NOTE: Upon initial system power-up the last alarm event(s) is (are) stored in memory. This alarm memory will be displayed upon the first system alarm after power-up. To prevent this, go to function 13 in the installer's program mode. This will automatically clear the alarm memory (see Section 5.6.3).

The ROM check consists of compiling a checksum of all the ROM bits and comparing the result with the checksum produced when the ROM was manufactured. A difference in the checksum will lockup the microprocessor and cause the Control Panel LEDs to blink in a rotating bottom-to-top fashion. It is common for this to occur on power up until all the diagnostics are complete.

The EEPROM check consists of compiling a checksum of all the bits in the EEPROM and comparing this with the checksum generated when the EEPROM was programmed. A difference in the checksums will result in an audible beep

of the Control Panel sounder. If this should occur, the beeping may be silenced by pressing the [*] key (reference Section 4.7.1 for further details).

NOTE: In addition to power-up, EEPROM test is also performed during arming/disarming and during the automatic/manual battery test.

4.4 Testing Burglar Zones

1. Enter a User Access Code.
2. Press key [8] the system will beep three times (this puts you in TEST mode). The ARMED light will be off and the STATUS light will be on steady. (The beeper will sound every 60 seconds to remind you that the system is in the TEST mode.)
3. Go to ZONE 1 and violate that zone (by opening protected door or window).
4. The Remote Keypad beeper will begin beeping, and the ZONE 1 light will be on steady. (You should be able to hear the beeper if ZONE 1 is not too far from the Remote Keypad.)
5. Close window/door. Beeper will stop sounding. The ZONE 1 light will flash.
6. Repeat for all zones with protected windows/doors.
7. If motion detectors are installed, go into the area(s) protected by motion detector(s). Whenever you **move** the Keypad will begin beeping tone. When you **stop moving** the beeper will stop.
8. Return to the Remote Keypad. The red ZONE light should still be flashing for each zone you have violated.
9. If you do not wish to test installed annunciators (sirens, bells, or lights) your test of Burglar zones is now complete. If you wish to test installed local annunciators go directly to Section 4.5 (skip step 10).
10. Press [*] key to leave the TEST mode. ZONE light(s) will go out (conditions normal again).

4.5 Testing Emergency Alarms

1. **Fire Alarm**

   Push keys [1] and [3] simultaneously, and hold closed for more than two seconds. Any installed annunciators (sirens, bells, lights) should activate. Release keys to de-activate.

2. **Police Alarm**

   Push keys [*] and [#] simultaneously, and hold closed for more than 2 seconds. Any installed annunciators should activate. Release keys to de-activate.

3. **Medical Alarm**

   Push keys [3] and [9] simultaneously, and hold closed for more than 2 seconds. Any installed annunciators should activate. Release keys to de-activate.

4. Push the [*] keys to exit the TEST mode.

4.6 Testing Fire Zones

It is advisable to check all installed smoke/heat detectors for proper operation once the system has been installed.

4.7 Fault Diagnostics

4.7.1 EEPROM Memory Error

The EEPROM memory check is performed each time the Control Panel is powered-up, reset, armed, disarmed, and when the battery is manually or automatically load tested. The EEPROM check consists of compiling a checksum of all bits in the EEPROM and comparing this with the checksum generated when the EEPROM was last programmed. A difference in the checksums will result in a memory error. If an EEPROM memory error is detected, the Control Panel beeping may be silenced by pressing the [*] key. All EEPROM functions should be reviewed to determine the location of the function where data has been changed. Upon reviewing the EEPROM data and exiting from the program mode, the EEPROM checksum will be re-calculated and the blinking MEMORY ERROR LED will be reset. If power to the Control Panel is switched off while programming, a memory error will occur upon power-up and it will be necessary to re-enter, then properly exit the programming mode to clear the error.

4.7.2 Watchdog Reset

The purpose of the watchdog circuit is to keep the microprocessor operating. It accomplishes this by continuously monitoring an output from the microprocessor which resets a timer. If the output from the microprocessor ceases, then upon time out, the watchdog removes the +5 volts from the microprocessor and effectively goes through a power-up sequence or "resets" the microprocessor. Following reset, a ROM and EEPROM check is made (Paragraph 4.3.3) and the system is restored to the same operating condition as was previously set. There are a few exceptions to system restoration which are as follows:

1. If the entry or exit alert is sounding and the entry zone is still violated, the system will shunt the violated zone and re-arm. Entry and exit time are lost.
2. If the system is in alarm and resets, the alarm ceases. All violated zones are auto-shunted upon system re-arm.
3. If the system is making a report through the Digital Communicator, the report is lost.
4. The normal communicator/battery test time is reset to zero. If test reporting is programmed, the test report will be sent when the system is reset; thus notifying the Central Monitoring Station of an out of sequence test. An option allows disabling this function (programming function 81).

5.0 PROGRAMMING THE SYSTEM

5.1 Overview

Programming is the principle means used to configure and tell a computer based system what to do and how to do it. The Attender 100 system stores all programming options in a non-volatile EEPROM device. This allows complete reprogramming when necessary and retains complete memory even during extended power outages. All programmable options are referred to as "functions". There are more than 200 programmable functions available in the Attender 100 system. All programming operations can be done from either the Remote Keypad or the hand-held RD-555 Programmer.

There are two separate programming levels. The **user level** allows the user to program only functions 1-11. These functions include the User Access Codes, the User Program Code, and the code 9 usage counter. The **Installer level** of programming allows the Installer to program all functions. The end-user is locked out of programming functions 12 and above.

5.2 User Programming Simplified

The User Manual has a complete set of user programming instructions.

The ACCESS LEVELS cannot be changed by the USER. The installer changes them as necessary and notifies the USER what they are.

Assume you want to change Access Code number 1 to 12345.

Enter the USER PROGRAMMERS CODE	[9]	[8]	[8]	[8]	[8]
Go to Function Number 1	[1]	[#]			
Put in the new code	[1]	[2]	[3]	[4]	[5]

You have a short and a long beep.
The code has been changed.
Repeat as necessary for the other codes.

You must always enter 5 digits for each code. However trailing zeroes are not seen by the system. For example, user code 1 is programmed as 77770. When using this code the user enters 7777, the final 0 is not needed to gain access.

The MEMORY MAP shown in the right hand column is the way the Attender 100 was programmed at the factory. There is a blank MEMORY MAP at the end of this manual for your use.

It is normally easier to fill in the MEMORY MAP prior to programming.

Memory Map

Function Number	Name	Value	Access Level*
1	User Access Code 1	7 7 7 7 0	1
2	User Access Code 2		1
3	User Access Code 3		1
4	User Access Code 4		1
5	User Access Code 5		1
6	User Access Code 6		1
7	User Access Code 7		1
8	User Access Code 8		1
9	User Access Code 9		1
10	User Program Code	9 8 8 8 8	
11	Code 9 Usage Counter	2 5 5	

***NOTES:**

(1) There are several User Access Levels, each represented by a digit as follows:

[0] No arm, disarm, or access to the system allowed. This User Access Code will allow access to secondary key functions only.

[1] Allows arm, disarm, and normal system operation.

[8] Allows the code to disarm/re-arm individual zones as opposed to the entire system.

[9] Allows normal system operation, but also sends a silent alarm if the Communicator is enabled.

[10-15] Allows the code to disarm/re-arm a group of zones as opposed to the entire system (see Section 1.4.1).

5.2.1 User Programming — Detailed Descriptions

Entering the Programming Mode

a) To enter the user programming level, push keys 9-8-8-8-8 in sequence. This is the User Program Code set at the factory when your system was manufactured. (You may change this code by means of function 10.)

b) When the 9-8-8-8-8 digits are entered all 8 zone lights on the Remote Keypad will begin flashing. This confirms that you are now in the User Programming Mode.

C) The lights will continue to flash until you enter the function number you want to program, or until the [*] key is pushed. (The [*] key allows you to exit the programming mode.)

d) A 3-minute timer is started with each keystroke whenever you are in the programming mode. If more than 3 minutes elapse between keystrokes, the system automatically returns to the normal running mode of operation. This is to prevent the system from remaining in the programming mode in the event you are distracted in the midst of a programming action.

e) You may exit the programming mode at any time by pushing [*] key.

Finding a Function

After entering the programming mode, finding a particular function is accomplished by first entering the number of the desired function and then pushing the "find" key [#].

Example: You want to find function 10 (User Program Code). Enter the program mode as follows:

[9] [8] [8] [8] [8]
[1] [0] [#]

You are now at function 10.

Reading the Value of a Function

ZONE lights 1-8 have a **dual** function in the system:

In the **normal protective mode** a ZONE light comes on to indicate a violation in that zone.

In the **programming mode** ZONE lights indicate the value of the number(s) stored in each function. A numerical value is assigned to each ZONE light in accordance with the table below.

Zone Light On		Numerical Value
None	=	0
1	=	1
2	=	2
3	=	4
4	=	8
5	=	16
6	=	32
7	=	64
8	=	128

As you enter each function, one or more ZONE lights will come on to indicate the value of the number in that function. If more than one ZONE light comes on the numerical value is equal to the **sum of the numbers** represented by the ZONE lights.

Example: You enter function 11 and ZONE light 3 comes on. The number stored in function 11 is therefore 4. If, instead, ZONE lights 3 and 2 come on, the number stored in function 11 is 6 (4+2 = 6).

For those **functions pertaining to code numbers** (i.e. 1 through 10), the value of each digit in the code is read sequentially. For **function 11** the ZONE lights indicate the absolute value of the numbers stored in this location.

Example: You want to read the 5-digit code stored in function 1. Enter the PROGRAM mode (Section 5.2.1), then:

(1) Push key 1.

(2) Push the [#] key. ZONE lights 1, 2, and 3 come on. Therefore, the first digit of the code is "7" (1+2+4 = 7).

(3) Push the [#] key again. ZONE lights 1 and 4 come on. The second digit is "9" (1+8 = 9).

(4) Push the [#] key again. ZONE lights 1 and 2 come on. The third digit is "3" (1+2 = 3).

(5) Push the [#] key again. No ZONE lights come on. The fourth digit is "0".

(6) Push the [#] key again. ZONE light 4 comes on. The fifth digit is "8".

Therefore, the User Access Code stored in function 1 is 7-9-3-0-8.

Example: You want to read the value of the number stored in function 11 (Code 9 usage counter). Enter the PROGRAM mode, then:

(1) Enter 1-1.

(2) Push the [#] key. ZONE lights 3 and 2 come on. The value of the number stored in function 11 is "6" (4+2 = 6).

Therefore, User Access Code 9 can only be used 6 times. (If the owner of code 9 tries to use it a seventh time, the system will not respond).

Changing the Value of a Function

The value (or digits) in a particular function can be changed by first finding the function, then entering the new value (or digits).

Example 1: You want to change the present User Access Code stored in function 3 to 486. Enter the PROGRAM Mode, then:

(1) Enter digit 3.

(2) Push the [#] key. (Ignore the ZONE lights unless you want to read the present code before changing it).

(3) Enter the new code number: press keys 4-8-6-0-0. (If a code number is less than 5 digits trailing zeroes must be added).

(4) After the fifth digit has been entered the system will automatically return to the normal run mode. The new User Access Code 3 is now memorized by the computer.

The holder of Code 3 must now use 486 to gain access to the system.

NOTE: After programming **any** user code (function 1-10) the system automatically returns you to the normal operating mode. To then go to another function, re-enter the PROGRAM mode (see page 19 **"Entering the Programming Mode"**, enter the number of the desired new function and push the [#] key.

Example 2: You want to change the Code 9 usage counter (stored in function 11) to 15 uses.

[9] [8] [8] [8] [8]
[1] [1] [#]
[1] [5] [*]

The new number of Code 9 usages (15) is now stored in function 11, and you are out of the programming mode.

If you wish to confirm that the new number is 15, re-enter the programming mode and follow the procedure of the paragraph, "Reading the Value of a Function" (page 20, left column).

5.3 Installer Programming Simplified

The system must be disarmed before entering the Installer programming level. The **Installer level** of programming may be entered in one of three ways:

a) If the Installer Code is known: depress and release the PROGRAM switch (SW1) on the Control Panel PCB. Then enter the Installer Program Code (factory default value = 0852).

b) If the Installer Code is unknown:

(1) Remove all a.c. and d.c. power from the system.

(2) Push and hold down the PROGRAM switch on the PCB.

(3) Restore a.c. and d.c. power.

(4) Release PROGRAM switch. All zone LEDs will now be flashing (indicating entry into program mode).

c) Use an ARITECH RD-555.

Assume you want to change the exit delay from 40 seconds to 48 seconds using the CS-101 Keypad.

Press PROGRAM switch (SW1) in Control Unit.

Enter Installers Code	[0]	[8]	[5]	[2]
Go to function 17	[1]	[7]	[#]	
Enter the new time	[4]	[8]	[*]	

LED 6 and 5 are on (32+16 = 48).

You may now go to a new function or press [*] to exit programming mode.

5.4 Installer Programming — Detailed Descriptions

5.4.1 Finding a Function

Finding a particular function may be accomplished by entering the programming mode, followed by entering the desired function number and pressing the FIND key [#]. The FIND key may be pressed again to step forward to the next consecutive function. To skip to a non-consecutive or previous function, enter the new function number then press [#]. Once function 12 or highter is entered, it is not possible to skip back to functions 1 through 11 without exiting the programming mode.

5.4.2 Reading the Value of a Function

The ZONE LEDs will display the contents of the EEPROM memory in binary format for most functions. The number stored in each function can be calculated by adding up the binary value of all illuminated LEDs (see table below):

Zone LED On		Binary Value
None	=	0
1	=	1
2	=	2
3	=	4
4	=	8
5	=	16
6	=	32
7	=	64
8	=	128

Example: LEDs 3, 4, 5, and 6 are lit after accessing function 17 (exit time). The values for each LED are 4, 8, 16, and 32 respectively. Adding these values together gives a total of "60". The value stored for function 17 is 60. Exit time is, therefore, 60 seconds.

5.4.3 Changing the Value of a Function

The value stored in memory for a particular function is changed by finding the function, as described above, then entering the new value and pressing the STORE key [*]. The new value will then be displayed on the LEDs. The range of possible entries for each function varies with the function. Some functions require only a value of "0" or "1" be programmed, others may be programmed with values of up to "255" and the access code functions must be programmed with 5 digits (see examples in Section 5.2.1). It is important to observe this range of values for each function. (See Section 5.7 for the range of values for each function.) To change the value of a function and then go to the next consecutive function:

a) Enter the new value in the first function.

b) Press store [*]; the LEDs will indicate the new value.

c) Press find [#] to go to next consecutive function.

d) Repeat steps (a) and (b) for the new function.

5.4.4 Exiting from the Program Mode

Pressing the [*] key, without having previously entered any digits, will result in the system returning to the normal run mode. Pressing the [*] key twice will exit the program mode at any time. The [*] key need not be pressed again after entering new values for function 1-10, and 16, because the system automatically returns to the normal run mode of operation when all five digits have been entered. However, for all 3-digit and YES/NO (1,0) functions it is necessary to press the [*] key a second time, to exit the programming mode, after changing a value in one of these functions.

5.5 Returning to the Factory Default Program

The Attender 100 may be returned to the factory default program at any time. This action may be desirable during training on the system or when the program values are unknown. Returning to the factory defaults will erase both telephone numbers associated with the Communicator. Use the following procedure to restore the factory default program settings:

NOTE: When this procedure is followed all previous programming will be lost.

1. Remove all a.c. and d.c. power from the system.
2. Push and hold down the PROGRAM switch on the PCB.
3. Restore a.c. and d.c. power.
4. Release PROGRAM switch. All ZONE LEDs will now be flashing (indicating entry into program mode).
5. Access function 156 (Return to Factory Default) [1] [5] [6] [#]
6. Store "1" digit (= Yes) in function 156 [1] [*]
7. Push the reset key [*] to exit programming mode [*]
8. Remove all power again for 5 seconds.
9. Restore power.

The system is now reset to factory default values.

5.6 How to Use the Attender 100 System Function Map (Appendix 3)

The function map makes programming of the Attender 100 system simpler. Write the information to be programmed on the function map, and use it while programming.

Look at the programming function map. The numbers to the left of each column are the programmable function numbers of the Attender 100 system. A brief description of each function is listed beside each function number. For a more detailed description of each function, refer to Section 5.7 "Program Function Descriptions". Write the programming information in the boxes immediately to the right of the descriptions on the function map. When entering the information, note the range of each entry listed to the right of the boxes for each function.

Note the differences between the different functions on the map (e.g. functions 1, 11, 13, 26, 83, and 168). The following paragraphs explain the different types of function programming:

5.6.1 Functions 1-10 and 16

Functions 1-10 and 16 require five digits for each code. Each digit may have a value of between "0" and "9". Decide on the codes to be used, and write them into the appropriate blocks on the map. If a code is less than five digits long, trailing zeroes must be added.

Example: To program User Access Code 1 as "3-2-1", write a "3" in the first block of the code followed by "2", "1", "0", and "0":

001 User Access Code 1 [3] [2] [1] [0] [0]

5.6.2 Function 11

This type of function requires that a value of "0" to "255" be entered. Preceding zeroes are not required when entering a value into the Keypad.

Example: To program function 11 with a value of "12", write "12" in the blocks beside that function:

011 Code 9 Usage Counter [1] [2]

5.6.3 Function 13

This type of function cannot be programmed with a value. These functions are shaded to show that no value may be entered. These functions perform a specific duty when accessed. **For example:** when function 13 is accessed, all alarm memory zones are cleared.

5.6.4 Function 26

This type of function should be programmed with only one of two values: "0" or "1". Both values are shown on the memory map. Circle the desired value.

Example: If the audible Burglar alarm output should be pulsed (one second on, one second off), circle answer "YES" for function 26:

026 Pulsing Burglar [0] NO [1] YES

5.6.5 Functions 83-86 and 118-121

These functions program the **Account Code(s).** The Account Code is a number with 3 or 4 digits. Two Account Codes may be used if each code is 4 digits or less; one code is programmed in functions 83-86, the other in 118-121.

Example: If a three digit account code of "709" is to be programmed, enter "0" for function 83, "7" for function 84, "10" for function 85, and "9" for function 86:

Account Code:

[0]	[7]	[0]	[9]
083	084	085	086
Digit 1	Digit 2	Digit 3	Digit 4

NOTE: If a three digit account code is used a "0" must be programmed in the first location (083 or 118). However, if a "0" is used within the account code it must be programmed as a "10".

5.6.6 Functions 168-220

Functions 168-193 and 195-220 are programmed with the telephone numbers to dial. Each digit of the telephone number is programmed as an individual function. Enter a value from "0" to "9" for each digit of the telephone number. The function following the last digit of the telephone number must be programmed with the value "15". Write in "15" following the last digit.

10 is the same as 0
11 = wait for another dial tone
12 = not used
13 = 3 second pause
14 = not used
15 = end of telephone number

5.6.7 Zone Options

The occasion may arise where the type and configuration of certain zones are unknown. **For example:** in troubleshooting an installation for which there is no Function Map, or where programmed values were not recorded. In such cases it is useful to be able to quickly determine the type and configuration of unknown zones from the values displayed on the LEDs (functions 38-45).

Example 1: Following the procedure of Sections 5.3 and 5.4, the LEDs indicated that function 38 (zone 1) has a programmed value of 128. From the Zone Option Table (Appendix 4) we see that 128 indicates a BA zone. Therefore, zone 1 is a perimeter, supervised, shuntable BA zone with a fast response time.

Example 2: The LEDs show a value of 133 for function 45 (zone 8). Zone 8 is therefore a non-shuntable, supervised Key Loop.

5.7 Program Function Descriptions

The following section gives a detailed explanation for each of the programming functions. The range of values and factory default settings for each function are also included.

Function	Description	Range	Factory Default Settings
1-9	User Acess Codes Up to nine independent codes may be programmed in these functions. Codes 1-8 may be used an unlimited number of times. The number of usages of Code 9 is controlled by function 11. Each code may consist of one to five digits. For codes of less than five digits trailing zeroes must be added. An Access Level is associated with each of the nine (9) user codes. (See Functions 54-62.) A code can be deleted by the user by changing it to 00000.	0-9 (each digit)	1:7-7-7-7-0 2:15-15-15-15-15 3:15-15-15-15-15 4:15-15-15-15-15 5:15-15-15-15-15 6:15-15-15-15-15 7:15-15-15-15-15 8:15-15-15-15-15 9:15-15-15-15-15
10	User Program Code This code is used to enter the user programming mode. One should always use five (5) digits in program code for better security although shorter codes may actually be entered by the use of trailing 0's.	0-9 (each digit)	9-8-8-8-8
11	Code 9 Usage Counter This function may be programmed to assign a specific number of times that user code 9 may be used for purposes such as temporary help (maid, babysitter, etc.). User Access Code 9 is not erased after the specific number of uses; however, function 11 must be programmed with a new value greater than zero before code 9 may be used again. If a value of 255 is programmed, the code may be used indefinitely. The user cannot program beyond line 11.	0-254 uses	255 (unlimited)
12	Time Till Next Communicator/Battery Test This feature may be used to reset the time of day that the next battery test, and a test report to the Central Monitoring Station (if so programmed), is performed. The test is then performed routinely according to the interval programmed for function 35. Programming function 12 in no way affects the value programmed for function 35. When accessed, this function does not display the value stored in memory on the LEDs.	0-24 hrs.	0 hr.
13	Clear Alarm Memory Accessing this function clears the alarm memory of previously-violated zones.	N/A	N/A
14	Delete User Access Code Disable User Access Codes by finding function 14, then entering the function number of the code to be deleted (1-9). Entering a "0" will delete the Installer Program Code.	0-9	N/A
15	Not Programmed.	N/A	N/A

Function	Description	Range	Factory Default Settings
16	Installer Program Code The Installer Program Code allows the Installer to enter the Installer programming level after pressing the program switch (SW1).	0-9 (each digit)	0-8-5-2-0
17	Exit Delay Allowable time in seconds for the user to exit through delay and interior zone(s). An even number (i.e. 20,40) will cause the Remote Keypad to beep each second during exit time. An odd number (i.e. 19,39) will eliminate the exit beep.	1-255 secs.	40 secs.
18	Entry 1 Delay Allowable time in seconds for the user to enter zones defined as "entry delay 1" and disarm the system before an alarm. Entrance delay 1 is assigned when programming the zone definition (functions 38-45).	1-255 secs.	40 secs.
19	Entry 2 Delay Allowable time in seconds for the user to enter zones defined as "entry delay 2" and disarm the system before an alarm. Entrance delay 2 is assigned when programming the zone definition (functions 38-45).	1-255 secs.	40 secs.
20	Not programmed.	N/A	N/A
21	Delay Before Burglar Alarm Time in minutes after a burglar zone violation before the burglar output (J3, pin 12) is turned on.	0-255 mins.	0 mins.
22	Burglar Alarm Cutoff Time Time in minutes that burglar output (J3, pin 12) will be active before automatic cutoff. A value of "0" or "255" eliminates automatic cutoff.	0-255 mins.	3 mins.
23	Fire Alarm Cutoff Time Time in minutes that fire output (J3, Pin 11) will be active before automatic cutoff. A value of "0" or "255" eliminates automatic cutoff.	0-255 mins.	Latched ON
24	Police Alarm Cutoff Time Time in minutes that police output (J3, pin 10) will be active before automatic cutoff. A value of "0" or "255" eliminates automatic cutoff.	0-255 mins.	3 mins.
25	Medical Alarm Cutoff Time Time in minutes that medical output (J3, pin 9) will be active before automatic cutoff. A value of "0" or "255" eliminates automatic cutoff.	0-255 mins.	3 mins.
26	Pulsing Burglar Alarm A value of "1" causes burglar alarm output (J3, pin 12) to pulse one second on, one second off. A value of "0" causes steady burglar alarm output.	0/1	0 (no pulsing alarm)
27	Pulsing Fire Alarm A value of "1", causes fire output (J3, pin 11) to pulse one second on, one second off. A value of "0" causes steady fire alarm output.	0/1	0 (no pulsing alarm)
28	Single or Multiple BA Selector A value of "1", allows only one burglar alarm output (J3, pin 12) during an arm/disarm cycle. The digital communicator will continue to send reports as each zone is violated.	0/1	0 (multiple alarms permitted)
29	Keyswitch Mode Change A value of "1" enables a KEY defined zone to change the interior On/Off and Delay/Instant modes.	0/1	0 (Key zone cannot change modes)
30	Day Supervisory Latch A value of "1" allows a day supervisory condition to latch (remain on) until cleared by the RESET ("*") key or the arm/disarm code.	0/1	0 (Day Supervisory will not latch)

Function	Description	Range	Factory Default Settings
31	3 Minute Delay on Armed Power-Up A value of "1" will enable a 3 minute delay of all burglar zones on power-up if system is armed.	0/1	0 (No delay on armed power-up)
32	Not programmed.	N/A	N/A
33	No Interior Follower A value of "1" disables the "interior follower" and allows all interior zones to remain instant during the entrance delay time. (See Section 1.4.2)	0/1	0 (Interior follower enabled)
34	Siren Test on Arming A value of "1" enables a one second burglar alarm output (J3, pin 12) whenever the control is armed.	0/1	0 (No siren on arming)
35	Time Between Battery/Communicator Tests This function specifies the amount of time between consecutive, automatic Communicator and battery load tests. Value = Time: 0 = 12 hrs.; 1 = 1 day; 2 = 2 days; 3 = 3 days; 4 = 4 days; 5 = 5 days; 6 = 6 days; 7 = 7 days Value = Time: 8 = 16 days; 9 = 18 days; 10 = 20 days; 11 = 22 days; 12 = 24 days; 13 = 26 days; 14 = 28 days; 15 = 30 days		1 day
36	Fast Loop Response Loop response time is the time a zone must remain violated before the control sees the violation. Longer loop response time helps to eliminate false alarms caused by window foil and loose fitting doors. The time is measured in 40 millisecond (0.04 second) increments. A loop response value of 2 should be the minimum value programmed. Fast-acting devices such as vibration contacts and some glass break detectors may require pulse extenders for proper operation. Value = Time: 2 = .08 secs.; 3 = .12 secs. thru 255 = 10.2 secs.		2 = .08 secs.
37	Slow Loop Response (See function 36.)	(same as above)	8 = .32 secs.
38	Zone 1 Definition Each zone may be individually defined for use as a burglar, fire, police, medical, communicator trip or key zone. Enter the value calculated for zone 1 in function 38, the value for zone 2 in function 39, etc. (See "Zone Planning Guide", Appendix 2.)	0-255	64 (Burglar/Delay 1/ Permimeter/ Shuntable/ Slow Loop/ Non-Supervisory)
39	Zone 2 Definition (See function 38)	0-255	65 (Burglar/Instant/ Perimeter/ Shuntable/ Slow Loop/ Non-Supervisory)
40	Zone 3 Definition (See function 38)	0-255	65 (same as above)
41	Zone 4 Definition (See function 38)	0-255	81 (Burglar/Instant/ Interior/Shuntable/ Slow Loop/ Non-Supervisory)
42	Zone 5 Definition (See function 38)	0-255	81 (same as above)
43	Zone 6 Definition (See function 38)	0-255	66 (Fire/ Non-Shuntable/ Slow Loop/ Standard)

Function	Description	Range	Factory Default Settings
44	Zone 7 Definition (See function 38)	0-255	67 (Police/Slow Loop/ Non-Supervisory/ Audible)
45	Zone 8 Definition (See function 38)	0-255	68 (Medical/ Slow Loop/ Non-Supervisory)
46	Zone 1 Supervisory A value of "0" configures the zone for a supervisory signal upon loop open. A value of "1" configures the zone for a supervisory signal upon loop short. (See Section 1.4.3.)	0/1	0 (Open = Supervisory)
47	Zone 2 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
48	Zone 3 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
49	Zone 4 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
50	Zone 5 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
51	Zone 6 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
52	Zone 7 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
53	Zone 8 Supervisory (See function 46)	0/1	0 (Open = Supervisory)
54	Access Level: Code 1 This digit allows the Installer to assign a different level of security for each User Access Code:	0, 1, 8, 9, 10, 11, 12, 13, 14, 15	1 (Normal arm/disarm)
	0 = Code cannot be used to access the system or arm/disarm it. A User Access Code with a configuration digit of "O" assigned only allows the holder to exercise the secondary functions of keys 2, 3, 6, 7 and 8. (See Section 1.3.1)		
	1 = Code may be used to arm/disarm normally, and to exercise the system in all its modes.		
	8 = Code may be used only for single zone disarming/arming. (See Section 1.4.1.)		
	9 = This is the "duress" code. It may be used to arm/disarm normally, plus transmit a silent duress alarm via the Communicator. (See Section 1.3.4.)		
	10-15 = Codes may be used for disarming/re-arming of a group of zones. (See Section 1.4.1.)		
55	Configuration Digit: Code 2 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
56	Configuration Digit: Code 3 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
57	Configuration Digit: Code 4 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
58	Configuration Digit: Code 5 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
59	Configuration Digit: Code 6 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
60	Configuration Digit: Code 7 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
61	Configuration Digit: Code 8 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)

Function	Description	Range	Factory Default Settings
62	Configuration Digit: Code 9 (See function 54)	0, 1, 8, 9, 10-15	1 (Normal arm/disarm)
63	Single Digit Arm Programming a value of "1" allows the system to be operated in all modes, including user programming, using only the first digit of the User Access Code. The entire code must be used to disarm. A value of "0" requires the entire code for both arming and disarming the system.	0/1	0 (Complete User Access Code required)
64	Not programmed.	N/A	N/A
65	Not programmed.	N/A	N/A
66	Disable Keypad FIRE A "1" disables keypad FIRE alarm activation (keys "1" and "3").	0/1	1 (Disabled)
67	Disable Keypad POLICE A "1" disables keypad POLICE alarm activation (keys "*" and "#").	0/1	1 (Disabled)
68	Disable Keypad MEDICAL A "1" disables keypad MEDICAL alarm activation (keys "3" and "9").	0/1	1 (Disabled)
69	Disable Keypad BYPASS A "1" disables keypad BYPASS key.	0/1	0 (Enabled)
70	Silent Keypad on Burglar A "1" silences the Remote Keypad beep on Burglar Alarm activation.	0/1	0 (Not silent)
71	Silent Keypad on Police Program this function with a "1" for a silent Police Alarm. The police output (J3, pin 10) must not be connected to an audible device.	0/1	1 (Silent)
72	Start Entrance Delay 1 from Keypad A value of "1" causes an armed control to start entry delay 1 any time a keypad digit is pressed. The control will alarm if not disarmed before the entrance delay 1 time has expired. This feature can be used in high security areas to detect keypad tampering.	0/1	0 (Diabled)
73	Disable HOME Arming Programming this function with a "1" disables the HOME Key. The system then cannot be armed in the HOME mode (with interior zones automatically bypassed).	0/1	0 (Enabled)
74	Disable INSTANT Arming Programming this function with a "1" disables the INSTANT Key. The system then cannot be armed in the HOME/INSTANT mode (immediate alarm when exterior zone is violated).	0/1	0 (Enabled)
75	Disable Keypad CHIME Key 6 allows the user to put the system in the chime mode when the system is disarmed. When a perimeter or exit/entry zone is violated the Keypad will beep twice (instead of causing an alarm). A "1" disables key 6.	0/1	0 (Enabled)
76	Disable Keypad Battery Test/Fire Reset Key 7 causes the system to do a manual test of the battery (places 5 Ohm load across of the battery terminals). A "1" disables key 7.	0/1	0 (Enabled)
77	Disable Keypad Test Mode Key 8 puts the system in TEST mode (after an access code has first been entered). A "1" disables key 8.	0/1	0 (Enabled)
78	Communicator Disable/Delay A value of "0" disables the communicator. A value of 1 to 255 is the time in seconds the communicator will wait after activation, and before dialing, to allow aborting of alarms. If an off-premise dialing sequence has been started it will always complete the sequence.	0-255 secs.	0 (Disabled)

Function	Description	Range	Factory Default Settings
79	Communicator Attempts A value of 1 to 255 sets the number of attempts before the communicator shuts down. The attempts counter is reduced by 1 each time the communicator switches telephone numbers even when only one of the two telephone numbers is programmed.	1-255 (Do not program a value of "0")	8 (Attempts)
80	Abort Communicator if Disarmed A value of "1" allows the communicator to abort any alarm reports when the system is disabled. Upon abort, a cancel report may be sent by programming function 109 and 144.	0/1	0 (No communicator abort)
81	Disable Communicator Test on Power-Up If a test reporting code (function 117) is programmed, a value of "0" allows the Communicator to dial the Central Station with a test report code whenever the system is powered-up or reset by the watchdog timer. A value of "1" disables this feature preventing a communicator test on power-up.	0/1	0 (Test enabled)
82	Exception Opening Reports A value of "1" causes the Communicator to report the opening code (function 106) ONLY when the system has been disarmed (reset) after an alarm. A value of "0" causes the Communicator to report an opening each time the panel is disarmed, after having reported a closing.	0/1	0 (All openings reported)
Tel. 1			
83-86	Account Code 1 A 3 or 4 digit code to identify the location reporting in to the Central Monitoring Station. (Ref. Section 5.6.5.) For 3-digit codes program a zero in location 83. If a "0" is used within the account code, program it as a "10".	0-9	0 x 4
87	Transmission Format — Telephone #1 A value of 0 to 5 may be entered to select the transmission format (see Section 2.6). If a "0" is programmed format 1 or 2 will be automatically selected based upon the handshake tone from the receiver.	0-7	0 (Automatically selects format 1 or 2)
88	Single Round Report A value of "1" instructs the communicator to hang-up after each single report and redial additional reports.	0/1	0 (Disabled)
89	4/2 Reporting Format A value of "1" enables 4/2 transmission format. This format sends a 4-digit account code and a 2-digit report code. (See Section 2.8.3.)	0/1	0 (Disabled)
90	Standard Extended Format A value of "1" enables the communicator to transmit all reports in extended two line format. (See Section 2.8.1.)	0/1	0 (Disabled)
91	Extended Single Line Format A value of "1" enables single line extended format. (See Section 2.8.2.)	0/1	0 (Disabled)
92	Radionics Parity Checksum Format A value of "1" enables the communicator to transmit a parity checksum digit. (See Section 2.9.)	0/1	0 (Disabled)
93	Touchtone® Dialing A value of "1" enables the communicator to dial the telephone number using touchtone. A value of "0" enables rotary (pulse) dialing.	0/1	0 (Rotary dialing)
94	Zone 1 Reporting Code This is the code reported by the Communicator when zone 1 is activated. A zero (0) is entered to disable Communicator reporting of the zone. A true reporting code of "0" (corresponding to "operator" on a telephone) is actually a "10" and must be entered as a 10. Some systems report a 10 as a hexidecimal A.	0-15	3

Function	Description	Range	Factory Default Settings
95	Zone 2 Reporting Code (See function 94)	0-15	3
96	Zone 3 Reporting Code (See function 94)	0-15	3
97	Zone 4 Reporting Code (See function 94)	0-15	3
98	Zone 5 Reporting Code (See function 94)	0-15	3
99	Zone 6 Reporting Code (See function 94)	0-15	1
100	Zone 7 Reporting Code (See function 94)	0-15	2
101	Zone 8 Reporting Code (See function 94)	0-15	4
102	Keypad FIRE Reporting Code Code reported when keypad FIRE is activated. 0 = Disabled.	0-15	1
103	Keypad POLICE Reporting Code Code reported when keypad POLICE is activated. 0 = Disabled.	0-15	2
104	Keypad MEDICAL Reporting Code Code reported when keypad MEDICAL is activated. 0 = Disabled.	0-15	4
105	Duress Reporting Code Code reported when a duress arm/disarm code is entered. 0 = Disabled.	0-15	0 (Disabled)
106	Opening Reporting Code Code reported when disarming the control. (For exception opening report see function 82.) 0 = Disabled.	0-15	0 (Disabled)
107	Closing Reporting Code Code reported when arming the control. 0 = Disabled.	0-15	0 (Disabled)
108	Shunted Reporting Code Code reported when the control is armed with a zone shunted. This code will be transmitted for each shunted zone. 0 = Disabled.	0-15	0 (Disabled)
109	Cancel Reporting Code Code reported when an alarm transmission is aborted. The extended reporting code is the zone number. (Function 80 must be programmed for the cancel code to function.)	0-15	0 (Disabled)
110	Restore Reporting Code Code reported when a zone which caused an alarm is restored to normal operation. 0 = Disabled.	0-15	1 (Restore enabled)
111	Supervisory Reporting Code Code reported when a zone programmed for supervisory is activated. 0 = Disabled.	0-15	0 (Disabled)
112	Battery/Fuse Trouble Reporting Code Code reported when a low battery voltage or blown fuse is detected. 0 = Disabled.	0-15	0 (Disabled)
113	Battery/Fuse Restore Reporting Code Code reported after the restoral of a low battery or blown fuse. 0 = Disabled.	0-15	0 (Disabled)
114	AC Failure Reporting Code Code reported when AC power is interrupted for more than 20 seconds. 0 = Disabled.	0-15	0 (Disabled)

Function	Description	Range	Factory Default Settings
115	AC Restored Reporting Code Code reported when AC power is restored to the control. 0 = Disabled.	0-15	0 (Disabled)
116	Memory Error Reporting Code Code reported when an error is detected in the EEPROM (memory). 0 = Disabled.	0-15	7
117	Communicator Test Code Code reported for a Communicator test. (See function 35.) 0 = Disabled.	0-15	0 (Disabled)
Tel. 2			
118-121	Account Code 2 A 3 or 4-digit code to identify the location reporting in to the Central Monitoring Station. Functions 118-121 can be used for a second account (different from the one programmed in 83-86).	0-9	0 x 4
122-152	These functions correspond to functions 87-117 but are programmed for telephone number 2.	N/A	N/A
153	Return to Run Mode This function is placed here as safety stop. If this function is accessed, the system returns to the normal running mode.	N/A	N/A
154	Not Programmed.	N/A	N/A
155	Not Programmed.	N/A	N/A
156	Return to Factory Default Programming this function with a "1" causes the system to reload factory default values into the EEPROM (see Section 5.5.).	0/1	0 (Return to factory default disabled)
157	Listen-In Telephone #1 A value of "1" enables a listen-in module connected to the communicator to be activated for 60 seconds after kissoff.	0/1	0 (Listen-In disabled)
158	Listen-In Telephone #2 (See function 157)	0/1	0 (Listen-In disabled)
159	Line Seize Hangup Time Time in seconds communicator will hang up if no dial tone is detected.	0-255 secs.	3 secs.
160	Time Between Dial Attempts Time in seconds between dial attempts if previous attempt was not successful.	0-255 secs.	2 secs.
161	Extended AC Code AC code used for extended reporting.	1-15	10
162	Extended Battery/Fuse Code Low battery/blown fuse code used for extended reporting.	1-15	9
163	Extended Memory Error Code Memory error code used is extended reporting.	1-15	15
164	Extended Test Code Communicator test code used in extended reporting.	1-15	9
165	Extended Keypad Police Code Keypad police code used in extended reporting.	1-15	9
166	Parity Checksum (Radionics) for Formats 0, 1 or 2 A value of "1" allows transmission of parity checksum for transmission formats 0, 1 or 2. Normally parity checksum works only with format 3.	0/1	0 (No parity checksum)
167	Not programmed.	N/A	N/A

PROGRAMMING TELEPHONE NUMBERS — (Functions 168 and 195)
A digit may be any value from 1 to 9 or 0. Entering a "13" instructs the Communicator to wait three seconds before dialing the next digit. Entering an "11" causes the Communicator to wait up to 10 seconds for another dial tone. The digit following the last digit of the telephone number must be programmed with a value of "15" signifying end-of-dial. The table below lists the telephone number programming values.

Value Programming	Function
0	0
1 thru 9	1 thru 9
10	same as "0"
11	wait for another dial tone
12	(not used)
13	3 second wait
14	(not used)
15	End of telephone number (must follow the last digit of the telephone number)

Function		Description	Range	Factory Default Settings
Tel. 1	Tel. 2			
168	195	Digit 1 First digit of telephone number.	0-15	15
169	196	Digit 2 Second digit of telephone number.	0-15	15
170-193	197-220	Digits 3-26 of telephone numbers.	0-15	15
194		Return to Run Mode (See function 153)	N/A	N/A
221		Missing Keypad Code — Telephone #1 Values of 1-15 determine the code for a missing keypad. Typically this would be the same code used for reporting a tamper condition. A value of 0 means that a missing keypad will not be reported.	0-15	0 (Missing Keypad not reported)
222		Missing Keypad Code — Telephone #2 (See function 221)	0-15	0 (Missing Keypad not reported)
223		Extended Missing Keypad Code Missing keypad code used for extended reporting.	1-15	14
224		Communicator Test Timer Initialization A value of 1 starts the test timer interval after every kissoff from the receiver. A value of "0" means that the test timer will not be re-started by successful transmission.	0-1	0 (No Test Timer Re-initialization)
225		Inhibit Test Transmissions A value of "1" inhibits test transmission when the system is armed in the HOME mode or the system is disarmed (i.e. test transmissions allowed only when armed in the AWAY mode). A value of "0" causes test transmissions to occur irrespective of the arm status of the panel (normal function of the test timer).	0-1	0 (Test Transmissions made regardless of panel status)
226		Burglar Dialer Lockout A value of "1" will limit the Communicator to one burglary alarm report per zone, per arming period or per 24-hours. 0 = Disabled.	0/1	0 (Dialer Lockout disabled)

APPENDIX 1: OUTPUT SIGNALS

J3 — PLUG-IN CONNECTOR WITH FLYING LEADS

Output +12 VDC at 40 mA for wires 4 through 11. Use for operating relays, LEDs, etc.

Wire	Function	Description
1. Red (+)	+12 Volt DC	For powering accessories, this output is fused at 2.5 Amps.
2. Black (-)	Negative	Common power supply.
3. White	Not Used	N/A
4. Green	Courtesy Light Output	Provides a 2 minute output when any keypad key is pressed, entry or exit delay begins or when any type of alarm occurs.
5. Brown	Pre-Alarm (Keypad Sounder)	Output for a remote or auxiliary pre-alarm. This output is also active for all Remote Keypad beeps.
6. Blue	Status (Green LED)	ON = all zones secure. OFF = one or more zones violated. FLASHING = system trouble or test mode
7. Orange	Violation	Latching Output upon activation of burglar, fire, police or medical alarm. May be used for a strobe or auxiliary indicator. This output stays active until the system is reset or disarmed.
8. Yellow	Armed (Red LED)	Output for remote indicator. ON = system Armed. OFF = system Disarmed. FLASHING FAST = EXIT or ENTRY delay ON. FLASHING SLOW = Alarm in memory.
9. Purple	Medical	Alarm output upon activation of either a keypad or hardwired medical alarm.
10. Gray	Police	Alarm output upon activation of either a keypad or hardwired police alarm.
11. Pink	Fire	Alarm output upon activation of either a keypad or hardwired fire alarm.
12. Tan	Burglar	Alarm output upon activation of any burglar defined zone.

GROUND START OUTPUT (Post Adjacent to J2)
Post provides a low current output going from +12V to ground (0 volts) when the pulse dial relay is active.

LISTEN-IN INPUT
(Post in Upper Right Corner of Control Board)
It is an input to inject the audio signal from a listen-in microphone and amplifier onto the telephone line.

RELAY K1
Relay K1 is a general purpose 5 Amp contact which may be triggered by 12 Volt DC applied to terminal 20. This relay allows the low current outputs of connector J3 to activate high current loads such as sirens, bells, strobe, door strikes, etc.

RELAYS K2 and K3 (Optional) — RC-813
These plug-in relays may be triggered by 12 Volt d.c. applied to terminals 24 and 25 respectively. Low current outputs of connector J3 will activate these relays.

AUXILIARY POWER
(Terminal 5 and 28 are positive and 9 and 29 are negative)
12 Volts DC for powering motion detectors, relays, and other accessories.

F1 protects terminal 5 at 1.5 Amps.
F2 protects terminal 28 at 2.5 Amps.

If F2 should blow, the status LED will blink and the Remote Keypad will beep. If the communicator is programmed for low battery/fuse reporting, a signal will be transmitted to the Central Station.

SMOKE POWER (Terminal 30 is positive and 29 is negative)
12 Volts DC for powering smoke detectors. Smoke detectors can be reset (unlatched) from the keypad with command 7. Each time the control does an automatic load test on the battery, smoke power will be removed for 5 seconds. Fuse F3 protects this output at 2.5 Amps. If F2 should blow, the status LED will blink and the Remote Keypad will beep. If the communicator is programmed for low battery/fuse reporting, a signal will be transmitted to the Central Station.

NOTE: Maximum continuous combined current drain from terminals 5, 28, 30, and connector J3-1 should not exceed 900 mA. Alarm condition current drain should not exceed 1.5 Amps. When replacing fuses, always use the same type with the proper current and voltage rating. A blinking power LED may be reset by performing a manual battery test (command 7) if the battery is recharged.

FREEZE/RESET (Terminal 27)
Used to provide single wire Freeze and Reset signals to compatible sensors.

CS-122
Optional card that plugs into the PROGRAM CONNECTOR via a 9 wire cable. This card provides outputs as follows:

Alarm Output by Zone (Zones 1 through 8)
If an alarm is triggered by a zone, a separate 12 VDC @ 40 mA steady signal will be present until the alarm cutoff time is reached, or the system is disarmed.

Supervisory Trouble
There will be a steady 12 VDC @ 40 mA signal whenever there is a Supervisory trouble present. It will remain until reset by entering the Access Code or pressing the RESET key.

Listen-In Output
Provides an output to an external audio listen-in amplifier for 60 seconds after kissoff.

APPENDIX 2: ATTENDER 100 SYSTEM ZONE PLANNING GUIDE

PROCEDURE FOR ZONE PLANNING:

1. Plan each ZONE individually
2. Select the ZONE TYPE from left column. Using the DEFINITION COLUMN, select characteristics for each ZONE TYPE and enter appropriate VALUE in the block under the ZONE number for which you are programming.
3. Add vertically the values selected for each ZONE and place the total value in the ZONE VALUE TOTAL block.
4. When programming the control, enter the ZONE VALUE TOTAL of each zone into the FUNCTION number designated under each ZONE number column.

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Burglar Loops	Entry Delay 1	= 0								
	Instant	= 1								
	Silent Instant	= 7								
	Entry Delay 2	= 8								
	Perimeter	= 0								
	Interior	= 16								
	Shuntable	= 0								
	Non Shuntable	= 32								
	Fast Loop	= 0								
	Slow Loop	= 64								
	Supervisory	= 128								
Total Value for a Burglar Zone										

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Fire	Standard	= 2								
	Shuntable	= 8								
	Fast Loop	= 0								
	Slow Loop	= 64								
Total Value for a Fire Zone										

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Police/Aux 1	Audible	= 3								
	Silent Keypad Sounder	= 11								
	Fast Loop	= 0								
	Slow Loop	= 64								
	Supervisory	= 128								
Total for a Police/Aux 1 Zone										

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Medical/Aux 2		= 4								
	Fast Loop	= 0								
	Slow Loop	= 64								
	Supervisory	= 128								
Total for a Medical/Aux 2 Zone										

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Keyswitch (Only 1 Key Zone per system)		= 5								
	Shuntable	= 8								
	Supervisory	= 128								
Total for a Keyswitch Zone										

Zone Type	Definition	Value	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Communicator		= 6								
	Fast Loop	= 0								
	Slow Loop	= 64								
	Supervisory	= 128								
Total for a Communicator Zone										
Function # for Entering Totals			038	039	040	041	042	043	044	045

APPENDIX 3: FUNCTION MAP

Function	Name	Value
001	USER ACCESS CODE 1	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
002	USER ACCESS CODE 2	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
003	USER ACCESS CODE 3	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
004	USER ACCESS CODE 4	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
005	USER ACCESS CODE 5	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
006	USER ACCESS CODE 6	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
007	USER ACCESS CODE 7	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
008	USER ACCESS CODE 8	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
009	USER ACCESS CODE 9	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
010	USER PROGRAM CODE	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
011	CODE 9 USAGE COUNTER	[ ][ ][ ] 0 - 255 USES 255 = UNLIMITED

SYSTEM MUST BE IN INSTALLERS PROGRAM MODE TO PROCEED

012	TIME UNTIL NEXT COMM/BATT TEST	[ ][ ] 0-24 HOURS
013	CLEAR ALARM MEMORY ZONES	[▨]
014	DELETE A CODE	[ ] 0 - 9
016	INSTALLER ACCESS CODE	[ ][ ][ ][ ][ ] FIVE DIGITS 0 - 9
017	EXIT DELAY TIME	[ ][ ][ ] 0 - 255 SECONDS
018	ENTRY DELAY TIME 1	[ ][ ][ ] 0 - 255 SECONDS
019	ENTRY DELAY TIME 2	[ ][ ][ ] 0 - 255 SECONDS
021	DELAY BEFORE BURGLAR ALARM	[ ][ ][ ] 0 - 255 MINUTES
022	BURGLAR ALARM CUTOFF TIME	[ ][ ][ ] 0 - 255 MINUTES 0 = NO CUTOFF
023	FIRE ALARM CUTOFF TIME	[ ][ ][ ] 0 - 255 MINUTES 0 = NO CUTOFF
024	POLICE ALARM CUTOFF TIME	[ ][ ][ ] 0 - 255 MINUTES 0 = NO CUTOFF
025	MEDICAL ALARM CUTOFF TIME	[ ][ ][ ] 0 - 255 MINUTES 0 = NO CUTOFF
026	PULSING BURGLAR ALARM	[0] NO [1] YES
027	PULSING FIRE ALARM	[0] NO [1] YES
028	SINGLE OR MULTIPLE BURGLAR ALARMS	[0] MULTI-PLE [1] SINGLE
029	KEYSWITCH MODE CHANGE	[0] NO [1] YES
030	SUPERVISORY LATCHES	[0] NO [1] YES
031	3 MINUTE DELAY ON ARMED POWER-UP	[0] NO [1] YES
033	INTERIOR FOLLOWER DISABLED	[0] NO [1] YES
034	SIREN TEST ON ARMING	[0] NO [1] YES

Function	Name	Value
035	TIME BETWEEN COMM/BATT TESTS	[ ][ ] **0** = 12 HOURS, 1 = 1 DAY, 2 - 2 DAYS, 3 - 3 DAYS, 4 = 4 DAYS, 5 = 5 DAYS, 6 = 6 DAYS, 7 = 7 DAYS, 8 16 DAYS, 9 18 DAYS, 10 - 20 DAYS, 11 = 22 DAYS, 12 - 24 DAYS, 13 - 26 DAYS, 14 = 28 DAYS, 15 - 30 DAYS
036	FAST LOOP RESPONSE TIME	[ ][ ][ ] 2 - 255 x 40 MILLISECONDS
037	SLOW LOOP RESPONSE TIME	[ ][ ][ ] 2 - 255 x 40 MILLISECONDS
038	ZONE 1 DEFINITION	[ ][ ][ ] 0 - 255
039	ZONE 2 DEFINITION	[ ][ ][ ] 0 - 255
040	ZONE 3 DEFINITION	[ ][ ][ ] 0 - 255
041	ZONE 4 DEFINITION	[ ][ ][ ] 0 - 255
042	ZONE 5 DEFINITION	[ ][ ][ ] 0 - 255
043	ZONE 6 DEFINITION	[ ][ ][ ] 0 - 255
044	ZONE 7 DEFINITION	[ ][ ][ ] 0 - 255
045	ZONE 8 DEFINITION	[ ][ ][ ] 0 - 255
046	ZONE 1 SUPERVISORY	[0] OPEN [1] SHORT
047	ZONE 2 SUPERVISORY	[0] OPEN [1] SHORT
048	ZONE 3 SUPERVISORY	[0] OPEN [1] SHORT
049	ZONE 4 SUPERVISORY	[0] OPEN [1] SHORT
050	ZONE 5 SUPERVISORY	[0] OPEN [1] SHORT
051	ZONE 6 SUPERVISORY	[0] OPEN [1] SHORT
052	ZONE 7 SUPERVISORY	[0] OPEN [1] SHORT
053	ZONE 8 SUPERVISORY	[0] OPEN [1] SHORT
054	ACCESS LEVEL FOR CODE 1	[ ][ ] 0, 1, 8, 9, 10-15
055	ACCESS LEVEL FOR CODE 2	[ ][ ] 0, 1, 8, 9, 10-15
056	ACCESS LEVEL FOR CODE 3	[ ][ ] 0, 1, 8, 9, 10-15
057	ACCESS LEVEL FOR CODE 4	[ ][ ] 0, 1, 8, 9, 10-15
058	ACCESS LEVEL FOR CODE 5	[ ][ ] 0, 1, 8, 9, 10-15
059	ACCESS LEVEL FOR CODE 6	[ ][ ] 0, 1, 8, 9, 10-15
060	ACCESS LEVEL FOR CODE 7	[ ][ ] 0, 1, 8, 9, 10-15
061	ACCESS LEVEL FOR CODE 8	[ ][ ] 0, 1, 8, 9, 10-15
062	ACCESS LEVEL FOR CODE 9	[ ][ ] 0, 1, 8, 9, 10-15
063	ONE DIGIT ARMING	[0] NO [1] YES
066	DISABLE KEYPAD FIRE ALARM	[0] NO [1] YES
067	DISABLE KEYPAD POLICE ALARM	[0] NO [1] YES
068	DISABLE KEYPAD MEDICAL ALARM	[0] NO [1] YES
069	DISABLE KEYPAD BYPASS	[0] NO [1] YES

Function	Name	Value			
070	SILENT KEYPAD ON BURGLAR ALARM	[0] NO		[1] YES	
071	SILENT KEYPAD ON POLICE ALARM	[0] NO		[1] YES	
072	START ENTRY DELAY ONE	[0] NO		[1] YES	
073	DISABLED KEYPAD "HOME" ARMING	[0] NO		[1] YES	
074	DISABLE KEYPAD "INSTANT" ARMING	[0] NO		[1] YES	
075	DISABLE KEYPAD "CHIME" MODE	[0] NO		[1] YES	
076	DISABLE KEYPAD "BATTERY" TEST	[0] NO		[1] YES	
077	DISABLE KEYPAD "TEST" MODE	[0] NO		[1] YES	
078	DISABLE OR DELAY COMMUNICATOR	[ ][ ][ ]			0 - 255 SECONDS 0 = DISABLED
079	COMMUNICATOR ATTEMPTS	[ ][ ][ ]			1 - 255
080	COMMUNICATOR ABORT	[0] NO		[1] YES	
081	DISABLE COMMUNICATOR TEST ON POWER-UP	[0] NO		[1] YES	
082	EXCEPTION OPENING REPORT ONLY	[0] NO		[1] YES	

TELEPHONE #1 INFORMATION

ACCOUNT CODE

[ ] 083	[ ] 084	[ ] 085	[ ] 086	0 - 9 FOUR DIGITS

087	TRANSMISSION FORMAT	[ ][ ][ ]		0 - 7
088	SINGLE ROUND REPORT	[0] NO	[1] YES	
089	4/2 REPORTING FORMAT	[0] NO	[1] YES	
090	STANDARD EXTENDED FORMAT	[0] NO	[1] YES	
091	EXTENDED SINGLE LINE FORMAT	[0] NO	[1] YES	
092	RADIONICS PARITY CHECKSUM FORMAT	[0] NO	[1] YES	
093	TOUCHTONE® DIALING	[0] NO	[1] YES	
094	ZONE 1 REPORTING CODE	[ ][ ]		0 - 15
095	ZONE 2 REPORTING CODE	[ ][ ]		0 - 15
096	ZONE 3 REPORTING CODE	[ ][ ]		0 - 15
097	ZONE 4 REPORTING CODE	[ ][ ]		0 - 15
098	ZONE 5 REPORTING CODE	[ ][ ]		0 - 15
099	ZONE 6 REPORTING CODE	[ ][ ]		0 - 15
100	ZONE 7 REPORTING CODE	[ ][ ]		0 - 15
101	ZONE 8 REPORTING CODE	[ ][ ]		0 - 15
102	KEYPAD FIRE ALARM REPORTING CODE	[ ][ ]		0 - 15
103	KEYPAD POLICE ALARM REPORTING CODE	[ ][ ]		0 - 15
104	KEYPAD MEDICAL ALARM REPORTING CODE	[ ][ ]		0 - 15
105	DURESS ALARM REPORTING CODE	[ ][ ]		0 - 15
106	OPENING REPORTING CODE	[ ][ ]		0 - 15
107	CLOSING REPORTING CODE	[ ][ ]		0 - 15
108	CLOSING WITH A BYPASS REPORTING CODE	[ ][ ]		0 - 15
109	CANCEL REPORTING CODE	[ ][ ]		0 - 15
110	RESTORE REPORTING CODE	[ ][ ]		0 - 15
111	SUPERVISORY TROUBLE REPORTING CODE	[ ][ ]		0 - 15
112	LOW BATTERY REPORTING CODE	[ ][ ]		0 - 15
113	BATTERY RESTORED REPORTING CODE	[ ][ ]		0 - 15
114	AC FAILURE REPORTING CODE	[ ][ ]		0 - 15
115	AC RESTORED REPORTING CODE	[ ][ ]		0 - 15
116	MEMORY ERROR REPORTING CODE	[ ][ ]		0 - 15
117	COMMUNICATOR TEST REPORTING CODE	[ ][ ]		0 - 15

TELEPHONE #2 INFORMATION

ACCOUNT CODE

[ ] 118	[ ] 119	[ ] 120	[ ] 121	0 - 9 FOUR DIGITS

122	TRANSMISSION FORMAT	[ ][ ][ ]		0 - 7
123	SINGLE ROUND REPORT	[0] NO	[1] YES	
124	4/2 REPORTING FORMAT	[0] NO	[1] YES	
125	STANDARD EXTENDED FORMAT	[0] NO	[1] YES	
126	EXTENDED SINGLE LINE FORMAT	[0] NO	[1] YES	
127	RADIONICS PARITY CHECKSUM FORMAT	[0] NO	[1] YES	
128	TOUCHTONE® DIALING	[0] NO	[1] YES	
129	ZONE 1 REPORTING CODE	[ ][ ]		0 - 15
130	ZONE 2 REPORTING CODE	[ ][ ]		0 - 15
131	ZONE 3 REPORTING CODE	[ ][ ]		0 - 15
132	ZONE 4 REPORTING CODE	[ ][ ]		0 - 15
133	ZONE 5 REPORTING CODE	[ ][ ]		0 - 15

continued

Function	Name	Value	
134	ZONE 6 REPORTING CODE	☐☐	0 - 15
135	ZONE 7 REPORTING CODE	☐☐	0 - 15
136	ZONE 8 REPORTING CODE	☐☐	0 - 15
137	KEYPAD FIRE ALARM REPORTING CODE	☐☐	0 - 15
138	KEYPAD POLICE ALARM REPORTING CODE	☐☐	0 - 15
139	KEYPAD MEDICAL ALARM REPORTING CODE	☐☐	0 - 15
140	DURESS ALARM REPORTING CODE	☐☐	0 - 15
141	OPENING REPORTING CODE	☐☐	0 - 15
142	CLOSING REPORTING CODE	☐☐	0 - 15
143	CLOSING WITH A BYPASS REPORTING CODE	☐☐	0 - 15
144	CANCEL REPORTING CODE	☐☐	0 - 15
145	RESTORE REPORTING CODE	☐☐	0 - 15
146	SUPERVISORY TROUBLE REPORTING CODE	☐☐	0 - 15
147	LOW BATTERY REPORTING CODE	☐☐	0 - 15
148	BATTERY RESTORED REPORTING CODE	☐☐	0 - 15

Function	Name	Value	
149	AC FAILURE REPORTING CODE	☐☐	0 - 15
150	AC RESTORED REPORTING CODE	☐☐	0 - 15
151	MEMORY ERROR REPORTING CODE	☐☐	0 - 15
152	COMMUNICATOR TEST REPORTING CODE	☐☐	0 - 15
153	RETURN TO RUN MODE	▨	
156	RETURN TO FACTORY DEFAULT PROGRAM	[0] NO	[1] YES
157	LISTEN-IN TELEPHONE #1	[0] NO	[1] YES
158	LISTEN-IN TELEPHONE #2	[0] NO	[1] YES
159	LINE SEIZE HANG-UP TIME	☐☐☐	0 - 255 SECONDS
160	TIME BETWEEN DIAL ATTEMPTS	☐☐☐	0 - 255 SECONDS
161	EXTENDED AC CODE	☐☐	1 - 15
162	EXTENDED BATTERY/FUSE CODE	☐☐	1 - 15
163	EXTENDED MEMORY ERROR CODE	☐☐	1 - 15
164	EXTENDED TEST CODE	☐☐	1 - 15
165	EXTENDED KEYPAD POLICE CODE	☐☐	1 - 15
166	PARITY CHECKSUM (RADIONICS)	[0] NO	[1] YES

TELEPHONE NUMBERS RANGE = 0 - 15

10 = SAME AS 0
11 = WAIT FOR ANOTHER DIAL TONE
13 = WAIT FOR 3 SECONDS
15 = END OF TELEPHONE NUMBER

PHONE NUMBER ONE

☐☐ 168 DIGIT 1	☐☐ 169 DIGIT 2	☐☐ 170 DIGIT 3	☐☐ 171 DIGIT 4	☐☐ 172 DIGIT 5	☐☐ 173 DIGIT 6	☐☐ 174 DIGIT 7	☐☐ 175 DIGIT 8
☐☐ 176 DIGIT 9	☐☐ 177 DIGIT 10	☐☐ 178 DIGIT 11	☐☐ 179 DIGIT 12	☐☐ 180 DIGIT 13	☐☐ 181 DIGIT 14	☐☐ 182 DIGIT 15	☐☐ 183 DIGIT 16
☐☐ 184 DIGIT 17	☐☐ 185 DIGIT 18	☐☐ 186 DIGIT 19	☐☐ 187 DIGIT 20	☐☐ 188 DIGIT 21	☐☐ 189 DIGIT 22	☐☐ 190 DIGIT 23	☐☐ 191 DIGIT 24
☐☐ 192 DIGIT 25	☐☐ 193 DIGIT 26						

194 RETURN TO RUN MODE ▨

PHONE NUMBER TWO

195 DIGIT 1	196 DIGIT 2	197 DIGIT 3	198 DIGIT 4	199 DIGIT 5	200 DIGIT 6	201 DIGIT 7	202 DIGIT 8
203 DIGIT 9	204 DIGIT 10	205 DIGIT 11	206 DIGIT 12	207 DIGIT 13	208 DIGIT 14	209 DIGIT 15	210 DIGIT 16
211 DIGIT 17	212 DIGIT 18	213 DIGIT 19	214 DIGIT 20	215 DIGIT 21	216 DIGIT 22	217 DIGIT 23	218 DIGIT 24
219 DIGIT 25	220 DIGIT 26						

Function	Name	Value	
221	MISSING KEYPAD REPORTING CODE TELEPHONE #1	☐☐	0 - 15
222	MISSING KEYPAD REPORTING CODE TELEPHONE #2	☐☐	0 - 15
223	EXTENDED MISSING KEYPAD CODE	☐☐	1 - 15

Function	Name	Value			
224	TEST TIMER INITIALIZATION	☐	NO	☐	YES
225	INHIBIT COMMUNICATOR TEST IF IN "HOME" MODE	☐	NO	☐	YES
226	BURGLAR DIALER LOCKOUT	☐	NO	☐	YES

APPENDIX 4: ZONE OPTION TABLE

Value in Functions 038-045	Type Zone	OPTIONS						SUB-OPTIONS											
		Entry Delay 1	Instant	Silent Instant	Entry Delay 2	Perimeter	Interior	Shuntable	Non-Shuntable	Fast Loop	Slow Loop	Non-Supervisory	Supervisory	Standard	Audible	Silent Control Station	Medical	Keyswitch	Communicator
0	Burglar	X				X		X		X		X							
1	Burglar		X			X		X		X		X							
2	Fire								X	X				X					
3	Police									X		X			X				
4	Medical									X		X					X		
5	Key								X			X						X	
6	Communicator									X		X							X
7	Burglar			X		X		X		X		X							
8	Burglar				X	X		X		X		X							
10	Fire							X		X				X					
11	Police									X		X				X			
13	Key							X				X						X	
16	Burglar	X					X	X		X		X							
17	Burglar		X				X	X		X		X							
23	Burglar			X			X	X		X		X							
24	Burglar				X		X	X		X		X							
32	Burglar	X				X			X	X		X							
33	Burglar		X			X			X	X		X							
39	Burglar			X		X			X	X		X							
40	Burglar				X	X			X	X		X							
48	Burglar	X					X		X	X		X							
49	Burglar		X				X		X	X		X							
55	Burglar			X			X		X	X		X							
56	Burglar				X		X		X	X		X							
64	Burglar	X				X		X			X	X							

Value in Functions 038-045	Type Zone	OPTIONS						SUB-OPTIONS											
		Entry Delay 1	Instant	Silent Instant	Entry Delay 2	Perimeter	Interior	Shuntable	Non-Shuntable	Fast Loop	Slow Loop	Non-Supervisory	Supervisory	Standard	Audible	Silent Control Station	Medical	Keyswitch	Communicator
65	Burglar		X			X		X			X	X							
66	Fire								X		X			X					
67	Police										X	X			X				
68	Medical										X	X					X		
70	Communicator										X	X							X
71	Burglar			X		X		X			X	X							
72	Burglar				X	X		X			X	X							
74	Fire							X			X			X					
75	Police										X	X				X			
80	Burglar	X					X	X			X	X							
81	Burglar		X				X	X			X	X							
87	Burglar			X			X	X			X	X							
88	Burglar				X		X	X			X	X							
112	Burglar	X					X		X		X	X							
113	Burglar		X				X		X		X	X							
119	Burglar			X			X		X		X	X							
120	Burglar				X		X		X		X	X							
128	Burglar	X				X		X		X			X						
129	Burglar		X			X		X		X			X						
132	Medical									X			X				X		
133	Key								X				X					X	
134	Communicator									X			X						X
135	Burglar			X		X		X		X			X						
136	Burglar				X	X		X		X			X						
139	Police									X			X			X			

continued

Value in Functions 038-045	Type Zone	OPTIONS						SUB-OPTIONS											
		Entry Delay 1	Instant	Silent Instant	Entry Delay 2	Perimeter	Interior	Shuntable	Non-Shuntable	Fast Loop	Slow Loop	Non-Supervisory	Supervisory	Standard	Audible	Silent Control Station	Medical	Keyswitch	Communicator
141	Key							X					X					X	
144	Burglar	X					X	X		X			X						
145	Burglar		X				X	X		X			X						
151	Burglar			X			X	X		X			X						
152	Burglar				X		X	X		X			X						
176	Burglar	X					X		X	X			X						
177	Burglar		X				X		X	X			X						
183	Burglar			X			X		X	X			X						
184	Burglar				X		X		X	X			X						
195	Police										X		X		X				
196	Medical										X		X				X		
198	Communicator										X		X						X
203	Police										X		X			X			
240	Burglar	X					X												
241	Burglar		X				X		X		X		X						
247	Burglar			X					X		X		X						
248	Burglar				X		X		X		X		X						

LIMITED WARRANTY

If this sale is made for commercial purposes, your LIMITED WARRANTY is as follows:

Aritech and Advisor security system products are warranted solely to the purchaser of the product to be free from defects in material and workmanship for a period of twenty-four (24) months from the date of sale. Defective units returned by the buyer at his own expense during this 24-month period will be repaired or replaced, at the option of the manufacturer. The repaired or replaced equipment will then be warranted for the balance of the initial 24-month warranty period or for ninety (90) days, whichever is longer. Repair or replacement will be without charge provided that the equipment has not been misused, repaired or modified without authorization of the manufacturer. Repair or replacement that does not qualify for free warranty service will be charged to the purchaser at the manufacturer's service rates then in effect ($10 minimum). THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER'S EXCLUSIVE REMEDY WITH RESPECT TO ANY AND ALL LOSSES OR DAMAGES RESULTING FROM ANY CAUSE WHATSOEVER SHALL BE REPAIR OR REPLACEMENT AS SPECIFIED ABOVE. MANUFACTURER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES, HOWEVER OCCASIONED, AND IN NO EVENT SHALL MANUFACTURER'S LIABILITY EXCEED THE PURCHASE PRICE OF THE PRODUCT. NO SUIT OR ACTION SHALL BE BROUGHT AGAINST MANUFACTURER MORE THAN ONE (1) YEAR AFTER THE ACCRUAL OF THE CAUSE OF ACTION THEREFOR.

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