

AE-500

Telephone Entry & Access Control System



Facility Manager's Guide

Linear[®]
Building On Innovation.

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Introduction

The Model AE-500 Telephone Entry & Access Control System is designed for use as a primary access control device for gated communities, parking garages, office buildings, apartments, dormitories, hotels/motels, commercial buildings and recreational facilities with up to 250 residents or users.

Housed in a locked, rugged stainless steel faced enclosure, the AE-500 features a side-lit 12-key telephone style keypad with bright, easy-to-read graphics, a backlit two-line directory display with a programmable welcome message, a built-in microphone, and speaker.

The two relay output channels can be programmed to control electric door strikes, magnetic locks, door & gate operators, or barrier gates.

The system utilizes hands-free, full duplex telephone communications between visitors and residents for granting access.

The system can be programmed locally using the keypad, remotely with a touch tone telephone, or remotely using a computer equipped with a modem and a web browser.

Operation

In a typical installation, the unit's memory would be programmed with each resident's name and directory code number. Arriving visitors would use the keypad on the AE-500 to view the directory names and directory number for the desired resident. Upon entering the directory number, the AE-500 will automatically dial the resident's telephone number and establish two-way voice communication between the visitor and the resident. The resident will then have the option to grant or deny access to the visitor by pressing a digit on their telephone.

In addition to the telephone entry, the AE-500 can grant access using entry codes (up to 500 entry codes) at the local or remote keypad.

Block coded and single enrolled MegaCode® transmitters (up to a total of 1000 transmitters) can be used to gain access through the AE-500's built-in radio receiver. Each transmitter can be individually deactivated or reactivated. In addition, a single enrolled transmitter can be deleted.

Database Overview

Programming the AE-500 involves entering installation information into the system's memory. The system uses this information as a reference "database" to control the operation of the system.

Resident Data

Up to 250 resident names and telephone numbers can be set. Each resident entry is assigned a directory number. Directory numbers can be from two to four digits in length (all will be the same length). The directory number is the number a visitor would enter to have the system call the resident.

RESIDENT DATA (UP TO 250 RESIDENTS)

FOR EACH RESIDENT: DIRECTORY NUMBER (2 TO 4 DIGITS)
NAME (UP TO 16 CHARACTERS)
PHONE # (UP TO 12 DIGITS)

Entry Code Data

An entry code is a number entered at the AE-500 keypad or remote keypad to request access. Up to 500 entry codes can be set. Entry codes can be from two to six digits in length (all will be the same length).

Entry codes can be programmed for timed or toggle operation. Timed relays activate for a programmed length of time. Toggle relays latch on until the next time a toggle entry code is entered, then the relay unlatches. Each entry code can also be set for a limited or unlimited number of uses.

An entry code will activate Relay Channel "A" or "B" depending on how the entry code is programmed **and whether or not a remote keypad is attached**:

- When an entry code is programmed to activate a specific relay, the selected relay will activate when the code is entered on either the AE-500 keypad or the remote keypad.
- When an entry code is programmed to activate both relays, **and a remote keypad is attached**, Relay Channel "A" will activate if the entry code is entered on the AE-500 keypad; Relay Channel "B" will activate if the entry code is entered on the remote keypad.
- When an entry code is programmed to activate both relays, **and a remote keypad is not attached**, the entry code will activate both Relay Channels "A" and "B".

When an entry code is programmed to activate both relays, only timed relay mode is available for that code, toggle relay mode is unavailable.

ENTRY CODE DATA (UP TO 500 CODES)

FOR EACH CODE: ENTRY CODE (2 TO 6 DIGITS)
RELAY SELECTOR
TEMPORARY USAGE COUNT

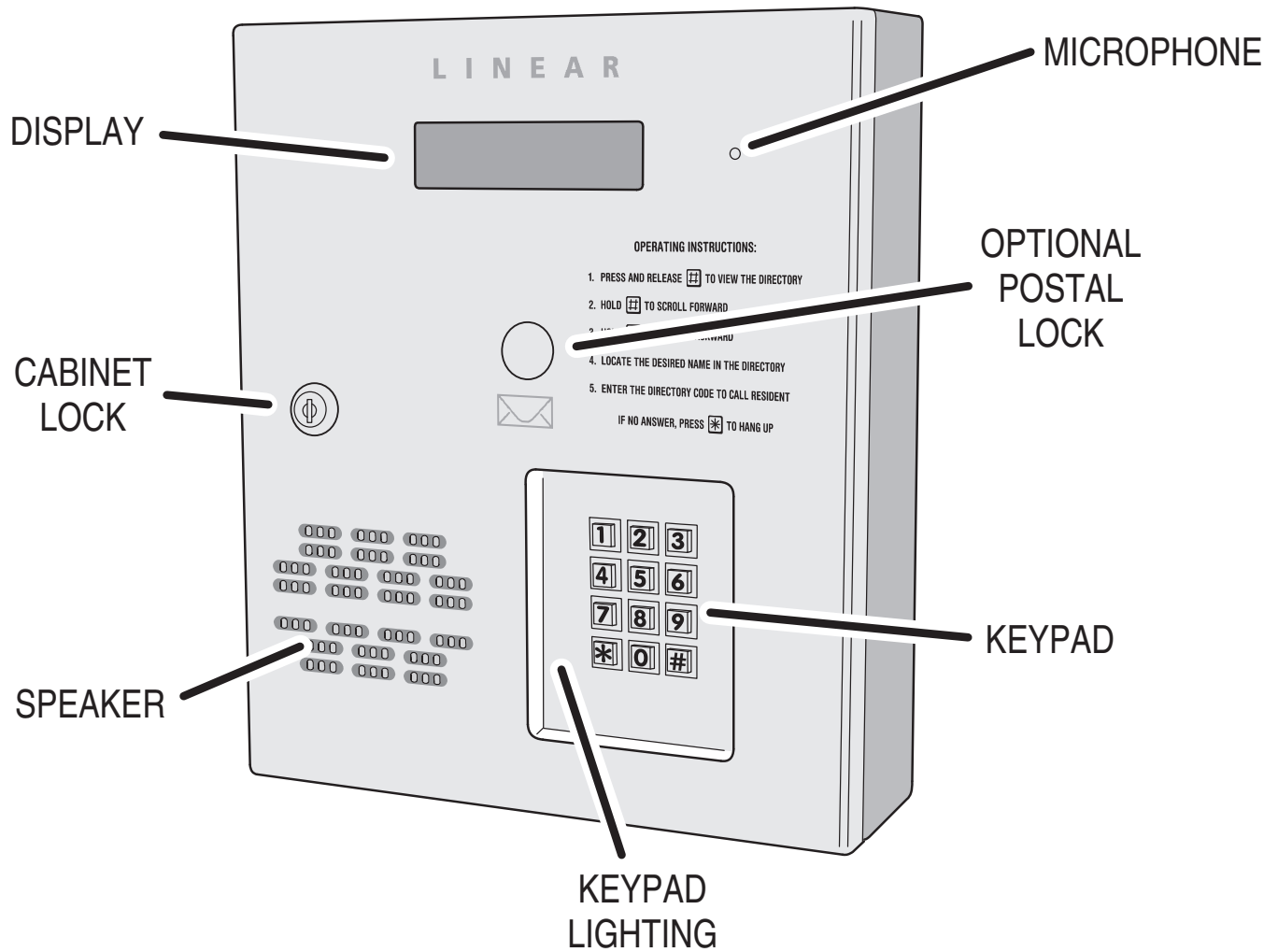
Transmitter Data

Up to 1000 wireless transmitters can be used with the system. Up to 500 transmitters can be ordered in pre-programmed blocks of sequential ID codes. Up to 16 blocks of transmitters can be used. Another option is to utilize up to 500 transmitters that are singly assigned. A transmitter will activate either relay output depending the button programming (same for all transmitters in the system). An individual transmitter can be deactivated in case it is lost or stolen. A single enrolled transmitter can also be deleted.

TRANSMITTER DATA (UP TO 1000 TRANSMITTERS)

FOR EACH TRANSMITTER: TRANSMITTER ID # (1-65535)
OPTIONAL FACILITY CODE (0-15)

System Features



**Your access control installation company
has set this master password for this installation:**

Use this password to enter programming mode.

Programming with a Computer

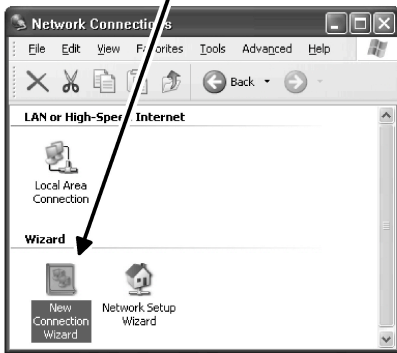
The AE-500's built-in programming interface can be accessed on-site (using a separate telephone line) or off-site using a computer with a modem and any Internet browser (if using Netscape, be sure Java is installed). The AE-500 can be programmed using the local keypad or with a telephone, but computer programming is the easiest method.

the Internet will find programming the AE-500 with a computer very easy. The AE-500's memory contains the "pages" that the computer will view. When selections and changes are made on the computer, the AE-500's memory is programmed to your custom settings.

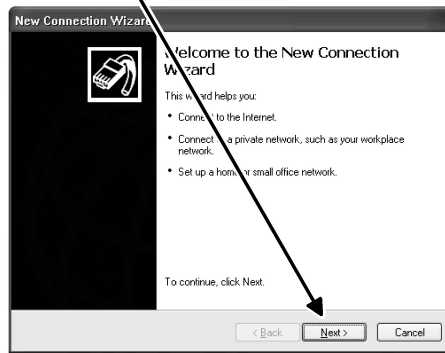
Navigating through the AE-500's programming "pages" is similar to browsing through your favorite web site's pages. Anyone familiar with

The following screen pictures show setting up a "Dial-up" connection in Windows™ XP and how to connect with a single AE-500. To create "Dial-up" connections for multi-unit installations, see the next page.

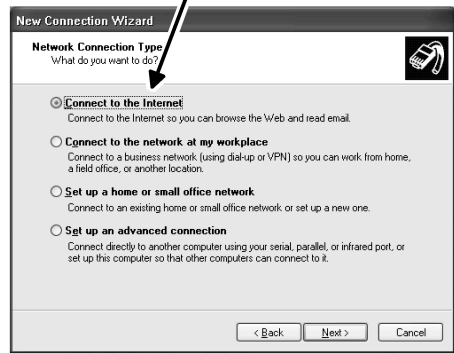
1. FROM CONTROL PANEL SELECT "NETWORK CONNECTIONS" THEN SELECT "NEW CONNECTION WIZARD"



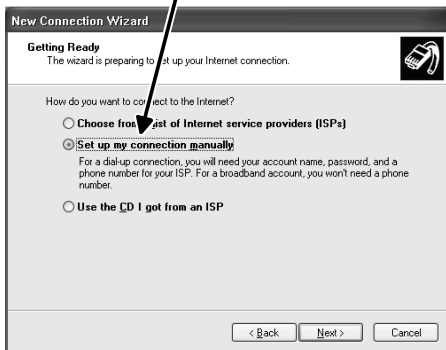
2. THE NEW CONNECTION WIZARD WILL START CLICK "NEXT"



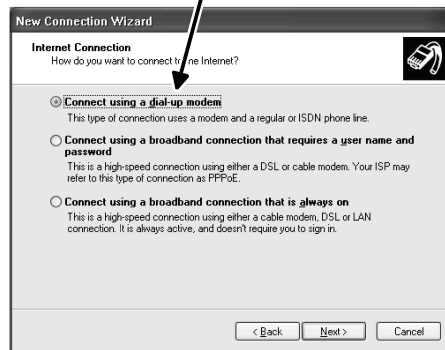
3. NEW CONNECTION WIZARD - "NETWORK CONNECTION TYPE" SELECT "CONNECT TO THE INTERNET" OPTION



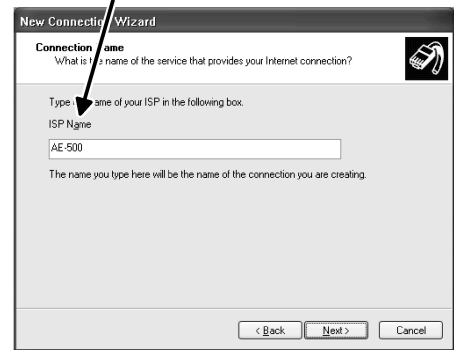
4. NEW CONNECTION WIZARD - "GETTING READY" SELECT "SET UP MY CONNECTION MANUALLY"



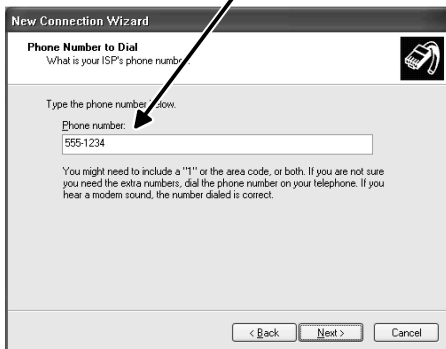
5. NEW CONNECTION WIZARD - "INTERNET CONNECTION" SELECT "CONNECT USING DIAL UP MODEM"



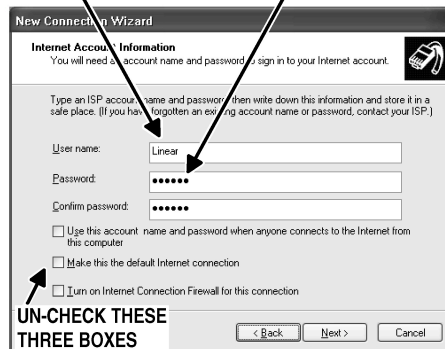
6. NEW CONNECTION WIZARD - "CONNECTION NAME" ENTER "AE-500" AS THE "ISP NAME"



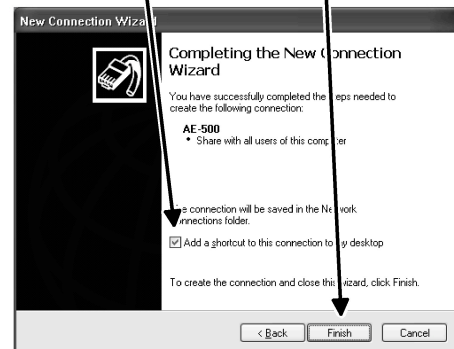
7. NEW CONNECTION WIZARD - "PHONE NUMBER TO DIAL" ENTER THE TELEPHONE NUMBER OF THE AE-500'S LINE



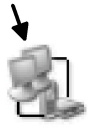
8. NEW CONNECTION WIZARD - "INTERNET ACCOUNT INFORMATION" ENTER "Linear" AS USER NAME AND "123456" AS PASSWORD



9. NEW CONNECTION WIZARD - "COMPLETING THE WIZARD" SELECT "ADD SHORTCUT" AND CLICK "FINISH"

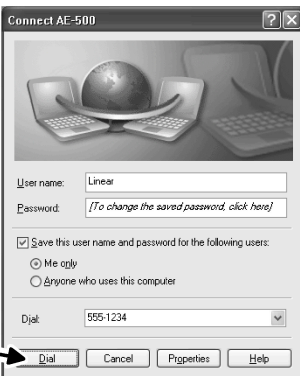


10. DOUBLE-CLICK ON DESKTOP ICON TO LAUNCH CONNECTION WINDOW

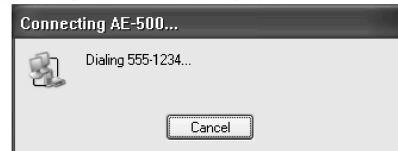


AE-500

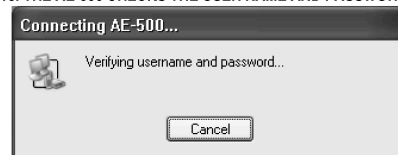
11. CLICK "DIAL" TO START CONNECTION



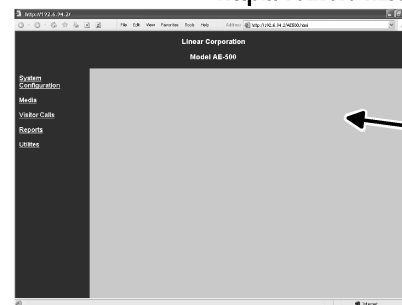
12. THE MODEM WILL DIAL THE NUMBER



13. THE AE-500 CHECKS THE USER NAME AND PASSWORD



14. AFTER CONNECTING, SWITCH TO YOUR BROWSER SOFTWARE (MICROSOFT INTERNET EXPLORER, NETSCAPE NAVIGATOR, ETC.) AND ENTER THIS ADDRESS: <http://192.6.94.2/ae500.html>



15. THE AE-500 "HOME PAGE" WILL DISPLAY ON YOUR BROWSER

Setting up Multiple Units

The system supports up to seven AE-500s connected to the same telephone line. Some telephone systems may only support up to four units on the same telephone line. In multiple-unit installations each AE-500 must be assigned a unique unit number before programming. The unit number allows connecting to a specific unit when calling for programming. One unit must be assigned as Unit #1.

◆ **NOTE:** If this is a multi-unit installation, the installation company most likely has already set the unit numbers. The following programming step is shown for reference.

To set a unit's number perform the following steps on each AE-500 unit **connected to the same telephone line.**

1. If not already in Programming Mode, use the local keypad to enter the master password and access programming.
2. Press: **7 1 #**
3. Enter the unit number (1-7).
4. Press **#**
5. Exit Programming Mode.

Multiple Unit Installation Programming Information

To computer program multi-unit installations that use the same telephone line, each unit will require a separate "Dial-up" connection.

Creating a Connection for Each Unit

1. Start creating a "Dial-up" connections for each unit as described on Page 13.
 2. When the "New Connection Wizard" asks for the "Connection Name" (Step #6 in the Page 13 figure) enter a unique name for the specific unit.
Example: "AE-500 Unit #2"
 3. When the "New Connection Wizard" asks for the "Phone Number to Dial" (Step # 7 in the Page 13 figure) enter the common telephone number for the multi-unit installation followed by four commas, the unit number, and a #.
Example: "555-1234,,,2#"
- ◆ **NOTE:** Each comma adds a 2-second delay to the dialing process. Depending on the time required by the telephone system to make a connection to the AE-500, more or less commas might be required.
4. When the "New Connection Wizard" is finished, a desktop icon named for each AE-500 unit will be created on the computer.

To connect to a specific unit for programming, double-click on the desktop icon named for the unit.

Copying Data from One Unit to Another

If multiple units will be sharing the same programming information, data from one unit can be copied to another. A backup file is created in this process to make copies. For security, backing up a unit's data is always a good idea.

1. After entering the Resident Data, Media Data, and programming options for the first unit, click "Utilities", then "Data Backup". Click "Save" at the XML warning window then select a file to save to.
 2. After the data backup is complete, disconnect from the first unit, then reconnect to the unit to copy the data to.
 3. From the home page, click "Utilities", then "Load Factory Defaults". When complete, click "Data Restore" and browse for the file to copy. Select the file and click "Upload" to send the file to the unit.
- ◆ **IMPORTANT NOTE:** Always load the factory defaults into a unit before performing data restore. Otherwise, the unit's data may become corrupted.
4. Make any other unit-specific programming changes before disconnecting.

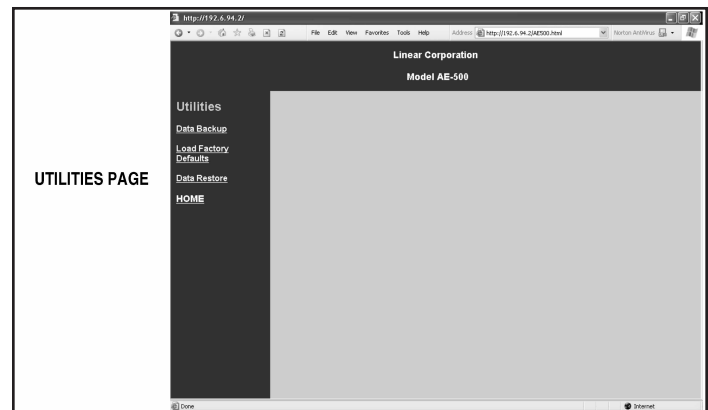
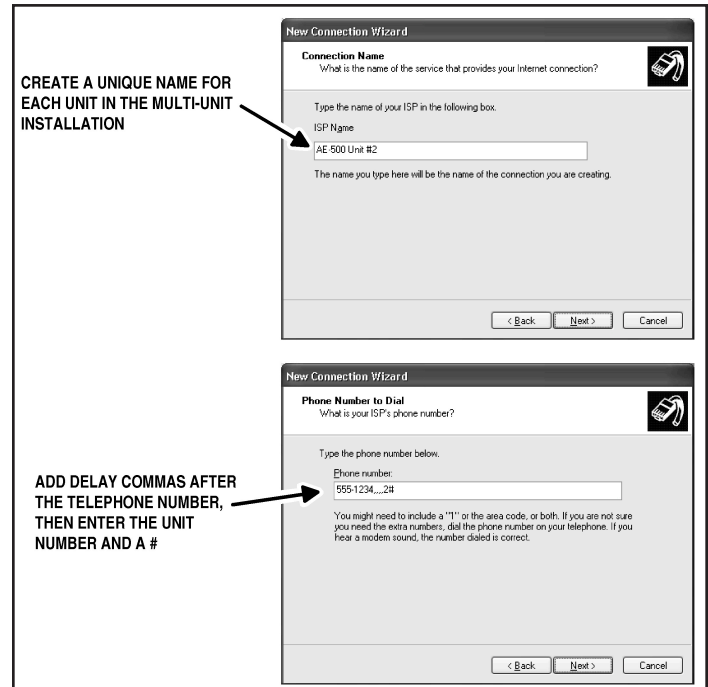
SETTING A UNIT NUMBER

PPN 71

71 #UNIT#

UNIT = UNIT NUMBER (1-7) FOR MULTI-UNIT INSTALLATION

FACTORY SETTING: UNIT NUMBER 1



Programming Over the Telephone

The system can be programmed using a TouchTone™ telephone. The telephone's keypad will act similar to the AE-500's local keypad.

Connecting with a Telephone

1. Place a call to the telephone number of the line that AE-500 is connected to.
2. The AE-500 will answer and sound a tone for about ½ second.
3. After the tone, enter the master password, then press # (factory setting is 123456, your installer may have set a new password). If the password is correct, the system will sound two short beeps.
For multi-unit installations, enter the unit number then # before entering the password.
4. Programming commands can now be entered from the telephone's keypad. Refer to the following sections of this manual for programming step details.

When programming over the telephone, each programming step consists of entering programming data using the keypad. The system will sound beeps over the telephone to indicate correct or incorrect entries.

- After a correct entry, two short beeps will sound.
- After an incorrect entry, a long beep will sound.
- After the complete programming step has been entered correctly, three short beeps will sound.

Re-entering a Command After a Mistake

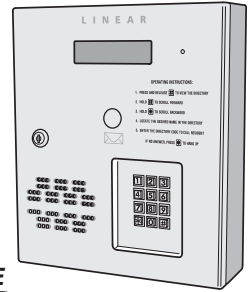
If an incorrect entry, or an incorrect key is pressed during programming, press * and start the programming step over again.

Exiting Programming Mode

1. Press: 9 9 #
- ◆ **NOTE:** The AE-500 will automatically exit Programming Mode after five minutes of programming inactivity.

1. CALL THE SYSTEM
2. WAIT FOR THE TONE TO FINISH
3. ENTER THE MASTER PASSWORD THEN PRESS # (TWO BEEPS SOUND WITH THE CORRECT PASSWORD)

NOTE: FOR MULTI-UNIT INSTALLATIONS, ENTER THE UNIT NUMBER THEN # BEFORE ENTERING THE PASSWORD THEN #



WHEN ENTERING COMMANDS:

CORRECT ENTRY = TWO SHORT BEEPS

INCORRECT ENTRY = ONE LONG BEEP

AFTER A COMPLETE STEP = THREE SHORT BEEPS

Programming from the Local Keypad

The system can be programmed using the local keypad on the faceplate of the AE-500. The display will show the programming information.

- ◆ **NOTE:** When entering text, programming the AE-500 from a computer is the preferred method.

Accessing Programming from the Local Keypad

1. Press 0 & 2 keys at the same time, then release.
2. The display will show [PASSWORD:].
3. Enter the master password (factory setting is 123456, your installer may have set a new password).
4. Press: #
5. If the password is correct, the display will show [ENTER FUNCTION:].
6. Programming commands can now be entered on the local keypad. Refer to the following sections of this manual for programming step details.

Re-entering a Command After a Mistake

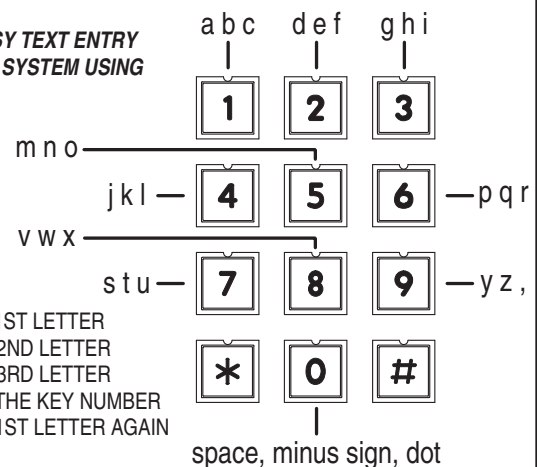
If an incorrect entry, or an incorrect key is pressed during programming, to clear the keypad press * and start the programming step over again.

Exiting Programming Mode

1. Press: 9 9 #
- ◆ **NOTE:** The AE-500 will automatically exit Programming Mode after five minutes of programming inactivity.

LOCAL KEYPAD ALPHANUMERIC ENTRY (FOR PROGRAMMING STEPS REQUIRING TEXT)

NOTE: FOR EASY TEXT ENTRY PROGRAM THE SYSTEM USING A COMPUTER



- 1ST PRESS IS 1ST LETTER
- 2ND PRESS IS 2ND LETTER
- 3RD PRESS IS 3RD LETTER
- 4TH PRESS IS THE KEY NUMBER
- 5TH PRESS IS 1ST LETTER AGAIN

• WAIT 3 SECONDS FOR THE NEXT CHARACTER (A BEEP WILL SOUND AFTER THE 3 SECOND DELAY TIME) OR PRESS ANOTHER KEY

• THE FIRST LETTER OF EACH WORD WILL BE UPPER CASE, TO MAKE AN ENTIRE WORD UPPER CASE TEXT, ENTER # FIRST

• FINISH ENTRY BY ENTERING #

• PRESS STAR KEY TO BACKSPACE, PRESS STAR AGAIN TO ERASE LINE

Programming Reference

PROGRAMMING CONTROL

USAGE	KEYSTROKES
ENTER PROGRAMMING FROM LOCAL KEYPAD	Press 0 and 2 then MASTER PASSWORD
ENTER PROGRAMMING FROM TELEPHONE	Call, wait for tone then enter MASTER PASSWORD
ESCAPE/CANCEL	*
EXIT PROGRAMMING	99#

SYSTEM OPTIONS

USAGE	PROGRAM POSITION NUMBER
DIRECTORY NUMBER LENGTH	PPN 02
ENTRY CODE LENGTH	PPN 03
KEYPAD LOCKOUT COUNT	PPN 51
WELCOME DISPLAY TEXT	PPN 57
TELEPHONE KEY ASSIGNMENTS FOR RESIDENTS	PPN 58
SPEAKER CHIRP ON KEYSTROKES	PPN 62
SPEAKER TONE ON RELAY CHANNEL "A" ACTIVATION	PPN 63
SET MAXIMUM VISITOR TALK TIME	PPN 64
SET UNIT NUMBER	PPN 71

ACCESS MEDIA CONTROL

USAGE	PROGRAM POSITION NUMBER
ADDING A RESIDENT	PPN 21
MODIFY A RESIDENT	PPN 22
DELETING A RESIDENT	PPN 23
ADDING AN ENTRY CODE	PPN 31
MODIFYING AN ENTRY CODE	PPN 32
DELETING AN ENTRY CODE	PPN 33
ASSIGN BLOCK TRANSMITTER	PPN 41
SUSPEND A TRANSMITTER	PPN 43
ACTIVATE A TRANSMITTER	PPN 42
ASSIGN A SINGLE ENROLLED TRANSMITTER	PPN 45
DELETE A SINGLE ENROLLED TRANSMITTER	PPN 47

SYSTEM UTILITIES

USAGE	KEYSTROKES
DISPLAY UNIT NUMBER	72#
LATCH RELAY CHANNEL "A"	81#
LATCH RELAY CHANNEL "B"	82#
RELEASE RELAY CHANNEL "A"	83#
RELEASE RELAY CHANNEL "B"	84#
DELETE ALL RESIDENT DATA	92#000000#000000#
DELETE ALL ENTRY CODES	93#000000#000000#
DELETE ALL WIRELESS TRANSMITTERS	94#000000#000000#

**CUSTOM
MASTER PASSWORD**

_ _ _ _ _

Factory Settings

FACTORY SETTING

MASTER PASSWORD	123456	
TRANSMITTER BUTTON SETUP		
SINGLE BUTTON, LEFT (OR TOP LEFT) BUTTON ACTIVATES	RELAY CHANNEL "A"	
RIGHT (OR TOP RIGHT) BUTTON ACTIVATES	RELAY CHANNEL "B"	
TOP BUTTON ACTIVATES	NO RELAY	
LOWER LEFT BUTTON ACTIVATES	NO RELAY	
LOWER RIGHT BUTTON ACTIVATES	NO RELAY	
PPN 02	DIRECTORY NUMBER LENGTH	3 DIGITS
PPN 03	ENTRY CODE LENGTH	4 DIGITS
PPN 31	ENTRY CODE RELAY SELECTION	RELAY CHANNELS "A" & "B"
PPN 31	ENTRY CODE USAGE LIMIT	UNLIMITED
PPN 51	KEYPAD LOCKOUT COUNT	5 TRIES BEFORE LOCKOUT
PPN 57	WELCOME DISPLAY TEXT	LINEAR ACCESS TELEPHONE ENTRY
PPN 58	TELEPHONE KEY ASSIGNMENTS FOR RESIDENTS	
	TELEPHONE KEY 9	RELAY CHANNEL "A"
	TELEPHONE KEY 5	RELAY CHANNEL "B"
	TELEPHONE KEY *	DISCONNECT VISITOR
PPN 62	SPEAKER CHIRP ON KEYSTROKES	ON
PPN 63	SPEAKER TONE ON RELAY CHANNEL "A" ACTIVATION	OFF
PPN 64	MAXIMUM VISITOR TALK TIME	1 MINUTE
PPN 71	UNIT NUMBER	UNIT 1

Programming Notes

For security, backing up a unit's data is always a good idea. When making programming changes, backups should be done frequently.

The following steps detail data backup and restore techniques used while programming with the AE-500's built-in programming interface and a personal computer.

Data Backup

To copy data from a unit to a backup file, follow these steps:

1. From the home page, click "Utilities".
2. Select "Data Backup".
3. Click "Save" at the XML warning window.
4. Select a file to save to and click "Save".

Data Restore

To copy data from a backup file to a unit, follow these steps:

1. From the home page, click "Utilities".
2. Select "Load Factory Defaults".
- ◆ **IMPORTANT NOTE:** *Always load the factory defaults into a unit before performing data restore. Otherwise, the unit's data may become corrupted.*
3. Click "Yes", then "Save".
4. When complete, click "Data Restore".
5. Browse for the file to copy.
6. Select the file and click "Upload" to send the file to the unit.

Resident Data Programming

Up to 250 resident names and telephone numbers can be set. Each resident entry is assigned a directory number. The directory numbers are the numbers visitors enter to have the system call the residents.

- ◆ **NOTE:** When entering resident names, programming the AE-500 from a computer is the preferred method. Refer to the "Programming from the Local Keypad" section of these instructions for details on alphanumeric entry from the keypad.

Changing the Directory Number Length

The factory setting for the directory number length is 3 digits. It can be set to 2, 3, or 4 digits.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **0 2** **⏏**
3. Enter the directory number length (2, 3, or 4).
4. Press **⏏**
5. Exit Programming Mode if all programming is complete.

DIRECTORY NUMBER LENGTH

PPN 02

02#LENGTH#

LENGTH = NUMBER (2-4) OF DIRECTORY NUMBER DIGITS

FACTORY SETTING: 3 DIGITS

Adding a Resident

1. If not already in Programming Mode use the local keypad to enter the master password and access programming.
2. Press **2 1** **⏏**
3. Enter the directory number that will be displayed for the resident.
4. Press **⏏**
- ◆ **NOTE:** To add the name using all capital letters, press **⏏** before entering the name.
5. Enter the name of the resident to be displayed (up to 16 characters).
6. Press **⏏**
7. Enter the resident's telephone number (up to 12 digits).
8. Press **⏏**
9. Exit Programming Mode if all programming is complete.

ADDING A RESIDENT

PPN 21

21#DIR#NAME#PHONE#

DIR = DIRECTORY NUMBER FOR THE RESIDENT

NAME = THE RESIDENT'S NAME (UP TO 16 CHARACTERS)

PHONE = THE RESIDENT'S TELEPHONE NUMBER (UP TO 12 DIGITS)

Modifying a Resident

Once resident data has been set, it can be modified to change a resident's name or telephone number.

1. If not already in Programming Mode, use the local keypad to enter the master password and access programming.
2. Press **2 2** **⏏**
3. Enter the resident's directory number.
4. Press **⏏**
- ◆ **NOTE:** To modify the name using all capital letters, press **⏏** before entering the name.
5. Modify the name of the resident to be displayed (up to 16 characters), or to keep the name press **⏏** and skip to Step 6.
6. Press **⏏**
7. Modify the resident's telephone number (up to 12 digits) or skip to Step 8.
8. Press **⏏**
9. Exit Programming Mode if all programming is complete.

MODIFYING A RESIDENT

PPN 22

22#DIR#NAME#PHONE#

DIR = DIRECTORY NUMBER FOR THE RESIDENT

NAME = THE RESIDENT'S NAME (UP TO 16 CHARACTERS)

PHONE = THE RESIDENT'S TELEPHONE NUMBER (UP TO 12 DIGITS)

Deleting a Resident

Residents can be deleted individually.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **2 3** **⏏**
3. Enter the resident's directory number.
4. Press **⏏**
5. Enter the resident's directory number again.
6. Press **⏏**
7. Exit Programming Mode if all programming is complete.

DELETING A RESIDENT

PPN 23

23#DIR#DIR#

DIR = DIRECTORY NUMBER FOR THE RESIDENT

Entry Code Programming

An entry code is a number entered at the AE-500 keypad or remote keypad to request access. Up to 500 entry codes can be set. Entry codes can be from two to six digits in length (all will be the same length).

Entry codes can be programmed for timed or toggle operation. Timed relays activate for a programmed length of time. Toggle relays latch on until the next time a toggle entry code is entered, then the relay unlatches. Each entry code can also be set for a limited or unlimited number of uses.

An entry code will activate Relay Channel "A" or "B" depending on how the entry code is programmed **and whether or not a remote keypad is attached**:

- When an entry code is programmed to activate a specific relay, the selected relay will activate when the code is entered on either the AE-500 keypad or the remote keypad.
- When an entry code is programmed to activate both relays, **and a remote keypad is attached**, Relay Channel "A" will activate if the entry code is entered on the AE-500 keypad; Relay Channel "B" will activate if the entry code is entered on the remote keypad.
- When an entry code is programmed to activate both relays, **and a remote keypad is not attached**, the entry code will activate both Relay Channels "A" and "B".

When an entry code is programmed to activate both relays, only timed relay mode is available for that code, toggle relay mode is unavailable.

Changing the Entry Code Length

The factory setting for the entry code length is 4 digits. It can be set to 2-6 digits.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **0 3 #**
3. Enter the entry code length (2, 3, 4, 5, or 6).
4. Press **#**
5. Exit Programming Mode if all programming is complete.

ENTRY CODE LENGTH

PPN 03

03#LENGTH#

LENGTH = NUMBER (2-6) OF ENTRY CODE DIGITS

Adding an Entry Code

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **3 1 #**
3. Enter the entry code.
4. Press **#**
5. Enter the entry code again.
6. Press **#**
7. If access to both relays is OK for this code, and the number of uses is unlimited, skip to Step 12.
8. Enter the number for the relay output(s) that this entry code will be allowed to activate or for toggle operation:
 - Enter 1 for Relay "A" • Enter 2 for Relay "B" • Enter 3 for Relays "A" & "B"
 - Enter 4 to toggle Relay "A" • Enter 5 for to toggle Relay "B"
9. Press **#**
10. If the number of uses is unlimited, skip to Step 12.
11. Enter the number of uses allowed (1-250).
12. Press **#**
13. Exit Programming Mode if all programming is complete.

ADDING AN ENTRY CODE

PPN 31

31#CODE#CODE#RELAY#TEMP#

CODE = THE NEW ENTRY CODE

RELAY = 1 FOR RELAY "A"

RELAY = 2 FOR RELAY "B"

RELAY = 3 FOR RELAYS "A" AND "B"

RELAY = 4 TO TOGGLE RELAY "A" (ALTERNATES ON OR OFF)

RELAY = 5 TO TOGGLE RELAY "B" (ALTERNATES ON OR OFF)

TEMP = NUMBER OF USES ALLOWED (1-250)

Modifying an Entry Code

Once entry codes have been set, they can be modified to change the relay(s) to activate or the number of uses permitted.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **3 2 #**
3. Enter the entry code.
4. Press **#**
5. Enter the number for the relay output(s) that this entry code will be allowed to activate or for toggle operation:
 - Enter 1 for Relay "A" • Enter 2 for Relay "B" • Enter 3 for Relays "A" & "B"
 - Enter 4 to toggle Relay "A" • Enter 5 for to toggle Relay "B"
6. Press **#**
7. If the number of uses is unlimited, skip to Step 9.
8. Enter the number of uses allowed (1-250).
9. Press **#**
10. Exit Programming Mode if all programming is complete.

MODIFYING AN ENTRY CODE

PPN 32

32#CODE#RELAY#TEMP#

CODE = ENTRY CODE TO MODIFY

RELAY = 1 FOR RELAY "A"

RELAY = 2 FOR RELAY "B"

RELAY = 3 FOR RELAYS "A" AND "B"

RELAY = 4 TO TOGGLE RELAY "A" (ALTERNATES ON OR OFF)

RELAY = 5 TO TOGGLE RELAY "B" (ALTERNATES ON OR OFF)

TEMP = NUMBER OF USES ALLOWED (1-250)

Deleting an Entry Code

Entry codes can be deleted individually.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **3 3 #**
3. Enter the entry code to delete.
4. Press **#**
5. Enter the entry code to delete again.
6. Press **#**
7. Exit Programming Mode if all programming is complete.

DELETING AN ENTRY CODE

PPN 33

33#CODE#CODE#

CODE = THE ENTRY CODE TO DELETE

Wireless Transmitter Programming

Up to 500 wireless transmitters can be used with the system. Transmitters can be ordered in pre-programmed blocks of sequential ID codes. Up to 16 blocks of transmitters can be used. Transmitter blocks can be ordered with a Facility Code of 1-15 for block identification if desired. Using Facility Codes is optional. For security, an individual transmitter can be deactivated in case it is lost or stolen.

- ◆ **NOTE:** Transmitters will activate Relay Channels "A" or "B" depending on the setting of the transmitter button options. See the table below for the factory preset button options. Your installer may have modified these options. Check boxes are provided to log any modified button options.

TRANSMITTER BUTTON OPTIONS					
SINGLE BUTTON, LEFT BUTTON, OR TOP LEFT BUTTON	RIGHT BUTTON OR TOP RIGHT BUTTON	TOP BUTTON (AVAILABLE ON SOME MODELS ONLY)	BOTTOM LEFT BUTTON	BOTTOM RIGHT BUTTON	TYPE OF TRANSMITTER
					SINGLE BUTTON
					TWO BUTTON
<input type="checkbox"/> NO RELAY <input type="checkbox"/> RELAY "A" (PRESET) <input type="checkbox"/> RELAY "B" <input type="checkbox"/> RELAYS "A" & "B"	<input type="checkbox"/> NO RELAY <input type="checkbox"/> RELAY "A" <input type="checkbox"/> RELAY "B" (PRESET) <input type="checkbox"/> RELAYS "A" & "B"	<input type="checkbox"/> NO RELAY (PRESET) <input type="checkbox"/> RELAY "A" <input type="checkbox"/> RELAY "B" <input type="checkbox"/> RELAYS "A" & "B"	<input type="checkbox"/> NO RELAY (PRESET) <input type="checkbox"/> RELAY "A" <input type="checkbox"/> RELAY "B" <input type="checkbox"/> RELAYS "A" & "B"	<input type="checkbox"/> NO RELAY (PRESET) <input type="checkbox"/> RELAY "A" <input type="checkbox"/> RELAY "B" <input type="checkbox"/> RELAYS "A" & "B"	FOUR BUTTON

Assign Block Transmitter

Assigning a transmitter block assigns memory space for each block of transmitters used with the AE-500.

- ◆ **NOTE:** When a block of transmitters is assigned, all transmitters in the block will become active and ready to use.
1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
 2. Press **4 1** **⏏**
 3. Enter the number of transmitters in the block.
 4. Press **⏏**
 5. Enter the transmitter block's facility code.
 - ◆ **NOTE:** Facility codes are optional. Enter 0 to have the system ignore the transmitter block's facility code.
 6. Press **⏏**
 7. Enter the first (lowest) transmitter ID number for the block of transmitters.
 8. Press **⏏**
 9. Exit Programming Mode if all programming is complete.

ASSIGN BLOCK TRANSMITTER

PPN 41

41 #NUMBER#FC#ID#

NUMBER = NUMBER OF TRANSMITTERS IN THE BLOCK
 FC = FACILITY CODE 0-15 (0 IF UNUSED)
 ID = LOWEST TRANSMITTER ID NUMBER IN THE BLOCK

Assign Single Enrolled Transmitter

Assigning a transmitter allocates memory space for the transmitter

- ◆ **NOTE:** When a transmitter is assigned, it will become active and ready to use.
1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
 2. Press **4 5** **⏏**
 3. Enter the transmitter facility code (enter 0 if not used).
 4. Press **⏏**
 5. Enter the transmitter ID number of the transmitter.
 6. Press **⏏**
 7. Exit Programming Mode if all programming is complete.

ASSIGN SINGLE ENROLLED TRANSMITTER

PPN 45

45#FC#ID#

FC = FACILITY CODE (0 IF UNUSED)
 ID = TRANSMITTER ID NUMBER

Suspend a Transmitter

Transmitters may be suspended if necessary (such as when a transmitter is lost or stolen).

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **4 3** **⏏**
3. Enter the transmitter's facility code (enter 0 if not used).
4. Press **⏏**
5. Enter the transmitter's ID number.
6. Press **⏏**
7. Exit Programming Mode if all programming is complete.

SUSPEND A TRANSMITTER

PPN 43

43#FC#ID#

FC = FACILITY CODE 0-15 (0 IF UNUSED)
 ID = TRANSMITTER ID NUMBER

Wireless Transmitter Programming (Continued)

Activate a Transmitter

If a transmitter has been suspended, it can be activated again with these programming steps.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **4 2 #**
3. Enter the transmitter's facility code (enter 0 if not used).
4. Press **#**
5. Enter the transmitter's ID number.
6. Press **#**
7. Exit Programming Mode if all programming is complete.

ACTIVATE A TRANSMITTER

PPN 42

42#FC#ID#

FC = FACILITY CODE 0-15 (0 IF UNUSED)
ID = TRANSMITTER ID NUMBER

Delete single Enrolled Transmitter

Delete a single enrolled transmitter from the system.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **4 7 #**
3. Enter the transmitter facility code.
4. Press **#**
5. Enter the transmitter ID number of the transmitter.
6. Press **#**
7. Exit Programming Mode if all programming is complete.

DELETE SINGLE ENROLLED TRANSMITTER

PPN 47

47#FC#ID#

FC = FACILITY CODE (0 IF UNUSED)
ID = TRANSMITTER ID NUMBER

System Options

For most installations the factory settings for the system will be appropriate. Your installer may have already customized some of the system settings. To change selected system settings, use the following programming steps.

Keypad Lockout Count

The system counts the number of invalid entry codes are entered at the local or remote keypad. The factory setting for the lockout count is five. The lockout value can be from two to seven.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **5 1** **⏏**
3. Enter the number for the lockout count (2-7).
4. Press **⏏**
5. Exit Programming Mode if all programming is complete.

KEYPAD LOCKOUT COUNT

PPN 51

51 #COUNT

COUNT = NUMBER (2-7) OF INCORRECT ENTRIES REQUIRED FOR LOCKOUT

FACTORY SETTING: 5 TRIES

Telephone Key Assignments for Residents

Residents use their telephone keys to grant access to visitors.

The factory settings are:

- Key 9 assigned to Relay Channel "A"
- Key 5 assigned to Relay Channel "B"
- Key ***** disconnects the visitor's call.

The resident's telephone key numbers can be changed if desired.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **5 8** **⏏**
3. Enter the telephone key number (0-9).
4. Press **⏏**
5. Enter a number to assign the key's function:
 - Enter 1 to assign the key to Relay Channel "A".
 - Enter 2 to assign the key to Relay Channel "B".
 - Enter 3 to assign the key to disconnect the visitor's call.
 - Enter 4 to disable the key.
6. Press **⏏**
7. Exit Programming Mode if all programming is complete.

TELEPHONE KEY ASSIGNMENTS FOR RESIDENTS

PPN 58

58 #KEY #ACTION

KEY = RESIDENT'S TELEPHONE KEY NUMBER
ACTION = 1 FOR RELAY CHANNEL "A"
ACTION = 2 FOR RELAY CHANNEL "B"
ACTION = 3 FOR VISITOR DISCONNECT
ACTION = 4 TO DISABLE THE KEY

FACTORY SETTING:
KEY 9 RELAY CHANNEL "A"
KEY 5 RELAY CHANNEL "B"
KEY * DISCONNECT

Welcome Display Text

The AE-500 display will show a visitor a welcome message alternating with instructions on how to call a resident. The welcome message can be customized to suit the installation.

- ◆ *NOTE: When changing the welcome display, programming the AE-500 from a computer is the preferred method. Refer to the "Programming from the Local Keypad" section of these instructions for details on alphanumeric entry from the keypad.*

1. If not already in Programming Mode use the local keypad to enter the master password and access programming.
2. Press **5 7** **⏏**
3. Enter the new text for the top line of the display (up to 16 characters).
4. Press **⏏**
5. Enter the new text for the bottom line of the display (up to 16 characters).
6. Press **⏏**
7. Exit Programming Mode if all programming is complete.

WELCOME DISPLAY TEXT

PPN 57

57 #LINE 1 #LINE 2

LINE 1 = UP TO 16 CHARACTERS TEXT
LINE 2 = UP TO 16 CHARACTERS TEXT

FACTORY SETTING: LINEAR ACCESS TELEPHONE ENTRY

Speaker Chirp on Keystrokes

The factory setting will cause the speaker to chirp when each key on the local keypad is pressed. The speaker chirp can be turned off.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **6 2** **⏏**
3. Select the option for keystroke speaker chirps:
 - Enter 0 to turn OFF the keystroke speaker chirps.
 - Enter 1 to turn ON the keystroke speaker chirps.
4. Press **⏏**
5. Exit Programming Mode if all programming is complete.

SPEAKER CHIRP ON KEYSTROKE

PPN 62

62 #CHIRP

CHIRP = 0 FOR KEYSTROKE CHIRP OFF
CHIRP = 1 FOR KEYSTROKE CHIRP ON

FACTORY SETTING: KEYSTROKE CHIRP ON

System Options (Continued)

Speaker Tone on Relay Channel "A" Activation

The factory setting will not cause the speaker to sound a tone when access is granted with Relay Channel "A". The tone can be turned on if desired.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **6 3 #**
3. Select the option for relay activation tone:
 - Enter 0 to turn OFF the relay activation tone.
 - Enter 1 to turn ON the relay activation tone.
4. Press **#**
5. Exit Programming Mode if all programming is complete.

SPEAKER TONE ON RELAY "A"

PPN 63

63#TONE#

TONE = 0 FOR RELAY TONE OFF
TONE = 1 FOR RELAY TONE ON

FACTORY SETTING: RELAY TONE OFF

Maximum Visitor Talk Time

Visitors will converse with residents over the telephone until the resident grants or denies access. If the resident responds to the visitor's request by pressing their telephone keys the system will hang up and release the telephone line. If for some reason the resident does not press the telephone keys or does not hang up, the system will automatically disconnect the visitor after 60 seconds. The disconnect time can be adjusted from 15-255 seconds.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **6 4 #**
3. Enter the disconnect time in seconds (15-255):
4. Press **#**
5. Exit Programming Mode if all programming is complete.

MAXIMUM VISITOR TALK TIME

PPN 64

64#TIME#

TIME = TIME UNTIL AUTO-DISCONNECT
(15-255 SECONDS)

FACTORY SETTING: 60 SECONDS

Directory List Start Position

Although the directory is always sorted and displayed to visitors alphabetically, the initial directory entry displayed when # is pressed can be set to either the first directory entry or the directory entry in the middle of all directory entries, alphabetically.

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Press **6 5 #**
3. Select the option for the directory list start position.
 - Enter 0 to start at the first directory list
 - Enter 1 to start in the middle of the directory list
4. Press **#**
5. Exit Programming Mode if all programming is complete.

DIRECTORY LIST START POSITION

PPN 65

65#POS#

POS = 0 to show first directory entry
POS = 1 to show the middle directory entry

FACTORY SETTING: 1 (SHOW MIDDLE DIRECTORY ENTRY)

System Utilities

Several utility commands are available for the system. Utilities can be used to clear memory, display system information, and control the relays.

Display Unit Number

In multi-unit installations the unit number of each AE-500 can be displayed.

1. If not already in Programming Mode, use the local keypad to enter the master password and access programming.
2. Press **7 2 #**
3. The display will show the unit number for three seconds.
4. Exit Programming Mode if all programming is complete.

Display System Firmware Version

The version of the firmware installed in the system can be displayed.

1. If not already in Programming Mode, use the local keypad to enter the master password and access programming.
2. Press **7 3 #**
3. The display will show the firmware version.
4. Exit Programming Mode if all programming is complete.

Manual Control of the Relays

For servicing or testing, each relay output can be controlled manually from the local keypad while in Programming Mode.

1. If not already in Programming Mode, use the local keypad to enter the master password and access programming.
2. Enter a command to control a relay:
 - Press **8 1 #** to latch Relay Channel "A".
 - Press **8 2 #** to latch Relay Channel "B".
 - Press **8 3 #** to release Relay Channel "A".
 - Press **8 4 #** to release Relay Channel "B".
3. The display will show the unit number for three seconds.
4. Exit Programming Mode if all programming is complete.

Deleting Database Entries

Sections of the database can be deleted individually. **Exercise care when using these commands, their effect cannot be reversed.**

1. If not already in Programming Mode, connect by telephone or use the local keypad. Enter the master password and access programming.
2. Enter a command to delete database sections:
 - To delete **all** resident data:

9 2 # 0 0 0 0 0 0 # 0 0 0 0 0 0 #

- To delete **all** entry codes press:

9 3 # 0 0 0 0 0 0 # 0 0 0 0 0 0 #

- To delete **all** wireless transmitters press:

9 4 # 0 0 0 0 0 0 # 0 0 0 0 0 0 #

3. Exit Programming Mode if all programming is complete.

DISPLAY UNIT NUMBER

PPN 72

72#

DISPLAY SYSTEM FIRMWARE VERSION

PPN 73

73#

LATCH RELAY CHANNEL "A"

PPN 81

81#

LATCH RELAY CHANNEL "B"

PPN 82

82#

RELEASE RELAY CHANNEL "A"

PPN 83

83#

RELEASE RELAY CHANNEL "B"

PPN 84

84#

DELETE ALL RESIDENT DATA

PPN 92

92#000000#000000#

DELETE ALL ENTRY CODES

PPN 93

93#000000#000000#


DELETE ALL WIRELESS TRANSMITTERS

PPN 94

94#000000#000000#

AE-500 Operation




Requesting Access with an Entry Code

- Residents have up to 40 seconds to key in their entry code.
- Up to eight seconds are allowed between each keystroke.
- All digits of the entry code must be entered. Example: If the entry code length is set for four digits, and the code is 0042, the user must enter "0 0 4 2".
- If the wrong key is pressed, pressing the  key will reset the keypad. The correct code can then be re-entered.
- After a correct code is entered, and if the conditions for granting access are fulfilled, the programmed relay channel will activate for the programmed time.
- If the number of incorrect codes entered exceeds the keypad lockout count, the keypad will be locked and not accept any entries for one minute.




Requesting Access with a Wireless Transmitter

- Activate a wireless transmitter within radio range of the AE-500's antenna.
- After a valid transmitter is decoded, and if the conditions for granting access are fulfilled, the programmed relay channel will activate for the programmed time.


Requesting Access with a Visitor Call

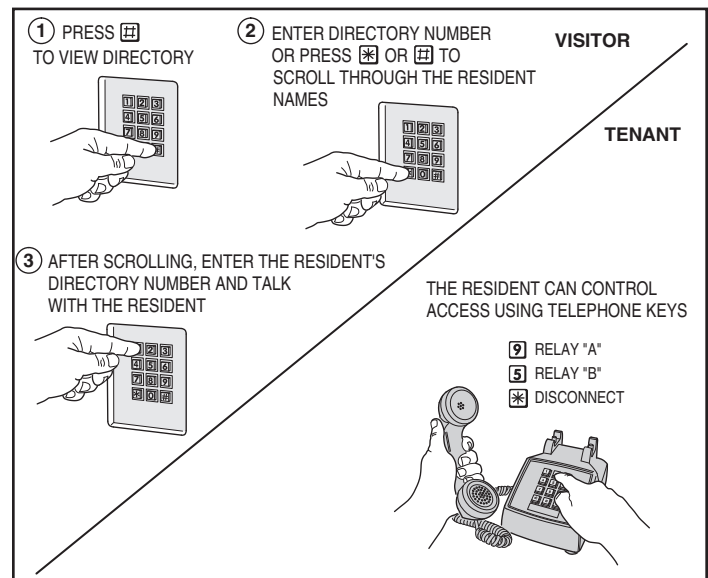
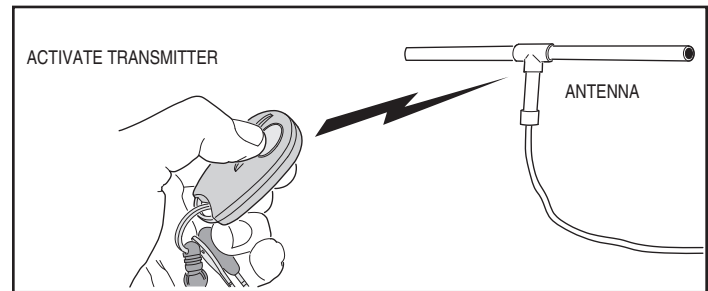
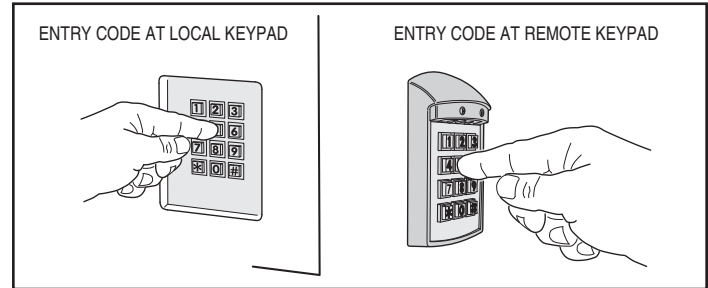
- Press  to view the directory.
- If the visitor already knows the resident's directory number, they can enter the directory number to call the resident.
- If the visitor doesn't know the residents directory number, they can scroll through the alphabetical directory entries by pressing  or  (holding down the keys will scroll the display faster). To facilitate a faster search, the directory search will begin in the middle. The visitor can search forward or backward from there.
- When the visitor finds the resident's directory number, they enter it on the keypad to call the resident.
- The system dials the resident's telephone number to establish 2-way communications.

◆ **NOTE:** The resident's telephone number will never be displayed to the visitor.

- The resident answers the call and converses with the visitor to determine if access will be granted.
- The resident can use their telephone's keypad to grant access activating Relay Channel "A" by pressing , or activating Relay Channel "B" by pressing . After access is granted, the system will disconnect the visitor and resident call.
- The resident can disconnect the visitor without granting access by pressing  or by hanging up.

◆ **NOTE:** The telephone keys that the resident presses can be customized for the installation. See Telephone Key Assignments for Residents (PPN #58) in the System Options section of these instructions.

- The length of time the visitor is allowed to talk can be programmed from 15-255 seconds. The resident will hear a series of beeps during the last 10 seconds of talk time. To restart the talk timer, the resident can press  on their telephone.



Troubleshooting

System completely dead

1. Call installation company for service.

Buzz on speaker

1. Call installation company for service.

Buzz on telephone line

1. Call installation company for service.

System will not answer an incoming call

1. AE-500 telephone line trouble.
2. Call installation company for service.

Entry code will not activate relay

1. Entry code not set up for proper relay.

Remote keypad does not work

1. Check remote keypad indicator for power.
2. Call installation company for service.

Main or remote keypad will not activate a relay

1. Entry code is not assigned.
2. Keypad may be in lockout from too many incorrect attempts. Wait one minute for lockout to clear and try again.
3. Call installation company for service.

Resident's Telephone does not ring when a visitor calls

1. Resident's telephone number programmed incorrectly.
2. Check AE-500 telephone line.
3. Call resident from another line or cell phone to determine if the resident's telephone is working.
4. Call installation company for service.

Transmitter does not activate relay

1. Transmitter button setting programmed to "no relay" (would effect all transmitters).
2. Transmitter block not enrolled.
3. Specific transmitter is deactivated in the system.
4. Call installation company for service.

Linear Limited Warranty

This Linear product is warranted against defects in material and workmanship for twenty-four (24) months. The Warranty Expiration Date is labeled on the product. This warranty extends only to wholesale customers who buy direct from Linear or through Linear's normal distribution channels. Linear does not warrant this product to consumers. Consumers should inquire from their selling dealer as to the nature of the dealer's warranty, if any. **There are no obligations or liabilities on the part of Linear LLC for consequential damages arising out of or in connection with use or performance of this product or other indirect damages with respect to loss of property, revenue, or profit, or cost of removal, installation, or reinstallation.** All implied warranties, including implied warranties for merchantability and implied warranties for fitness, are valid only until Warranty Expiration Date as labeled on the product. **This Linear LLC Warranty is in lieu of all other warranties express or implied.**

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FCC Notice

Changes or modifications not expressly described in this manual or approved by the manufacturer could void the user's authority to operate the equipment.

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

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

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