P-4000

EEPROM PROGRAMMER

Programming Instructions

ARROWHEAD

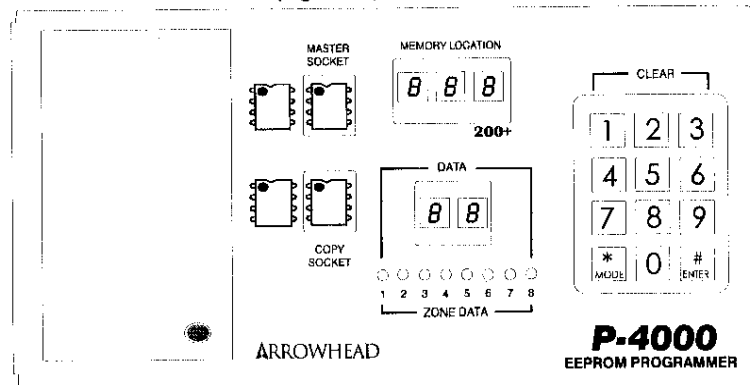A PRODUCT OF SENTROL, INC

1. **GENERAL**

   The EEPROM of the following Arrowhead products can be programmed using the P-4000 Programmer: AV9000, AV6500, SP850, AV8000, AV6000, AV4000, SPARTAN SERIES, DD1E, DD3E and OEM-E.

   When using the P-4000 to program the EEPROM for a specific product, use the product's associated programming worksheet since many of the memory location assignments vary from product. Example: Memory Location 80 on the AV4000 is used to select Keypad Emergency Zones. On the SPARTAN control panel, Memory Location 80 is used to select Follower Zones.

2. PHYSICAL LAYOUT (Figure #1)

2.1 GENERAL DIRECTIONS

   1) Make sure ON/OFF switch is OFF before installing EEPROM. NEVER INSTALL OR REMOVE EEPROMS FROM EITHER SOCKET WHEN POWER IS ON.

   2) Put EEPROM to be programmed in "COPY" socket. Observe Polarity. Orientation markings on EEPROM should align with orientation markings on socket.

   3) Plug in transformer. Put ON/OFF switch ON.

   4) Using the keypad as explained in the following paragraphs, program the EEPROM.

   5) Disconnect power from the programmer.

   6) Remove the finished EEPROM.

3. **DISPLAYS**

   There are two types of displays, the Memory Location Display which and the Data Display. (see Figure 1).

3.1 MEMORY LOCATION DISPLAY

   This is a 3 digit display that always shows the current memory location. Decimal points are located to the left and to the right of the display. A lit decimal point on the left of the display indicates that the EEPROM in the Master Socket is being programmed rather than the EEPROM in the Copy Socket.

A lit decimal on the right of the display indicates the programmer is in AV9000 programming mode and at a location higher than *200*.

3.2 DATA DISPLAY

The Data Display consists of a 2 digit numeric display and eight individual zone data LEDs. The Digit Display shows the decimal numbers 0 through 15, or a "U" if a Memory Location is unprogrammed or cleared. The Digit Display and the Zone LEDs are normally not lit at the same time.

The Digit Display and Zone LED Display will both be lit when in the AV9000 mode, and only in locations 138 through 140. The zone **1** LED will be lit indicating the first segment of each of these addresses. The zone **2** LED will be lit indicating the second segment of these addresses. When in these addresses, a blank or unprogrammed location will display the number "0".

The Digit Display is capable of showing hexadecimal numbers. When in the hexadecimal mode, the numbers 1 thru 9 are the same; the numbers 10 thru 15 are displayed with the lettering A thru F.
The number "0" always has a value of 10. This is similar to the "0" on a rotary telephone dial. Although the dial is marked with a "0" the actual number of pulses transmitted is 10.

$$\text{With "0" (actually 10)} = A$$
$$11 = B$$
$$12 = C$$
$$13 = D$$
$$14 = E$$
$$15 = F$$

3.3 NUMERIC DATA

The Digit Display shows numeric data such as telephone numbers, account numbers, alarm codes, entrance exit delays, etc.

3.4 SELECTION (ZONE/MODE) DATA

Selection Data Displays specific data selected for special functions (Burglary Zones or Fire Zones, for example).

Display of Selection Data uses the 8 individual zone LEDs. For example, programming Zones 2, 4, 5 and 6 for burglary would light zone LEDs 2, 4, 5 and 6. The Digit Display would be blank.

4. CHANGING MEMORY LOCATIONS

The keypad is used to enter data into the displayed Memory Location data entry/data view mode or to change the displayed Memory Location select mode. Pressing the $\boxed{\underset{\text{MODE}}{*}}$ key alternates between these two modes.

When the data display is blank (both numeric data and zone data) you are in the Memory Location select mode. When the data display is lit (either numeric data or zone data) you are in the data entry/data view mode.

THE NUMERIC KEYS enter numbers into the display the same way as a standard calculator; each entry shifts the contents of the units digit into the tens digit and then places the new entry in the unit digit. For example: to go to Memory Location 76 (make sure you are in the Memory Location mode), enter 076; to go to Memory Location 1 enter 001.

NOTE: To avoid confusion, each entry should be 3 digits long.

4.1 PROGRAMMING NUMERIC DATA

The following example shows how to program the telephone number 3647200. If the Data Display is not blank, press the $\boxed{*}_{\text{MODE}}$ key to put the programmer in the Memory Location select Mode. The product programming worksheet shows the 1st dialing digit resides in Memory Location 1. Press 0 0 1 on the keypad. 1 should be displayed in the Memory Location Display. Next press the $\boxed{*}_{\text{MODE}}$ to put the P-4000 into the Data Entry/ Data View Mode. Press the following key sequence;

$$\boxed{3}\ \boxed{\#\atop\text{ENTER}}\ \boxed{6}\ \boxed{\#\atop\text{ENTER}}\ \boxed{4}\ \boxed{\#\atop\text{ENTER}}\ \boxed{7}\ \boxed{\#\atop\text{ENTER}}$$

$$\boxed{2}\ \boxed{\#\atop\text{ENTER}}\ \boxed{0}\ \boxed{\#\atop\text{ENTER}}\ \boxed{0}\ \boxed{\#\atop\text{ENTER}}\ \boxed{1}+\boxed{3}\ \boxed{\#\atop\text{ENTER}}$$

Pressing the [l&3] keys simultaneously clears the next Memory Location. This will inform the product that the dialing sequence is complete. Hexadecimal account numbers and alarm codes may be entered by using their decimal equivalent (see section 3.2). Notice the above key sequence. After each digit is entered into the display the $\boxed{\#\atop\text{ENTER}}$ key is pressed. This enters the displayed information into the EEPROM and *ADVANCES TO THE NEXT MEMORY LOCATION.*

NOTE: Make sure that the $\boxed{\#\atop\text{ENTER}}$ **key is pressed before removing finished EEPROM.**

4.2 REVIEWING THE DATA

In order to review the telephone number or any other data, the following procedure is used. This example reviews the above telephone number. Go to Memory Location "1" (start of the first telephone number). Switch the display to view data, 3 will be displayed (first dialed

digit); press $\boxed{\substack{\# \\ \text{ENTER}}}$ again, 6 will be displayed; press $\boxed{\substack{\# \\ \text{ENTER}}}$, 4 will be displayed. Every time the $\boxed{\substack{\# \\ \text{ENTER}}}$ key is pressed, the Memory Location is advanced and the associated data is displayed.

4.3 REPROGRAMMING NUMERIC DATA

It is necessary to "clear" a digit "1 " in the old data when reprogramming numeric data. Other digits may be overwritten without first being "cleared". This is not true for Zone Selection Data, as is explained in Section 4.5.

4.4 PROGRAMMING SELECTION DATA

The following example shows how to select Zones 2,4,5 and 6 for Burglary. A review of the Programming worksheet shows Burglary Functions are assigned to Memory Location 84.

Set the display to Memory Location 84. Change display to show data. If random data appears, press clear key combination [1&3]. The display will indicate no zones selected (all Zone Data LEDs are out). Enter the following key sequence 2 4 5 6. As you press each key, its associated zone LED lights up indicating you have selected that zone.

If the information is correct press $\boxed{\substack{\# \\ \text{ENTER}}}$ key. The displayed information is now programmed into the EEPROM. Unlike numeric data the enter key is not pressed until the display accumulates all zone data. If incorrect, press the clear keys again and reselect zones.

PROGRAMMING SELECTION DATA other than Zone data is the same as Programming Zone Data. Example is for AV4000. (Examples for other products would be different). Select Touch Tone Dialing and Dial No Dial Tone. The Memory Assignment Chart shows Location 53 contains the numbers to be entered. A "1" for Touch Tone Dialing and a "2" for Dial No Dial Tone.

Set the display to show the data in Memory Location 53. If clearing is required, do so. If not, press the 1 key followed by the 2 key. Display will now show the "1" and "2" zone LEDs lit. Press the $\boxed{\substack{\# \\ \text{ENTER}}}$ key. This location is now programmed.

4.5 SIMULTANEOUS TWO KEY COMBINATIONS

4.5.1 CLEAR

Pressing [1&3] keys simultaneously clears information currently displayed. If required, new data can be entered to the display. The $\boxed{\substack{\# \\ \text{ENTER}}}$ key is pressed to copy the displayed information into the EEPROM at this Memory Location. If no new data is required for that location you must press the $\boxed{\substack{\# \\ \text{ENTER}}}$ to leave that location blank.

4.5.2. COPY

Press the [4&6] keys simultaneously to copy the contents from the Master Socket EEPROM to the Copy Socket EEPROM. This is useful when most installations have the same format i.e. same phone number, same number and type of burglary zones etc. When the copy process is completed the memory display will be at memory location number 43. This is the location for most older control panel account numbers. Just add or change the account number and install.

The copy command will also copy EEPROMs of higher memory such as 93C66, 93C86, and 35C116. Although these EEPROMs cannot be programmed with the P-4000 they can be copied.

4.5.3. HEXADECIMAL DISPLAYS

Press $\boxed{\underset{\text{MODE}}{*}}$ and $\boxed{\underset{\text{ENTER}}{\#}}$ followed by a 1 to alternate between decimal and hexadecimal display. Some digital receivers print in hexadecimal. The hexadecimal mode will show how this data is displayed at the receiver. If a master EEPROM is installed, the decimal/hexadecimal mode will be remembered on power up.

4.5.4 SOCKET EXCHANGE

Press $\boxed{\underset{\text{MODE}}{*}}$ and $\boxed{\underset{\text{ENTER}}{\#}}$ followed by a 2 to swap the master and copy sockets for programming. When a decimal point is displayed at the left side of the Memory Location display, the master and copy sockets are exchanged. This means that programmed information from the keypad is entered into the EEPROM that resides in the master socket.

The [4&6] keypair will always copy the information from the Master Socket EEPROM to the Copy Socket EEPROM regardless of the mode. On power up the sockets are not exchanged and are assigned as in Figure 1.

4.5.5 AV9000, AV6500, SP850 MODE

Press $\boxed{\underset{\text{MODE}}{*}}$ and $\boxed{\underset{\text{ENTER}}{\#}}$ followed by a 3 to place the programmer in the AV9000 mode. This mode allows for programming the AV9000, AV6500 and SP850 controls using their respective programming worksheets. The programmer will remain in this mode until the unit has been powered down by the on/off switch or by removing power.

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