

# **Minarik**

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## **Variable Speed AC Motor Drives**

**EPM Programmer**  
Operation Manual



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## **1.0 GENERAL**

### **1.1 PRODUCTS COVERED IN THIS MANUAL**

This instruction manual covers the Minarik EPM Programmer which is used with the Minarik AC100 and AC200 Series Variable Frequency Drive. The EPM Programmer can also interface with Minarik's TechLink serial communications software. Please refer to the instruction manuals provided with the AC100 and AC200 drives and TechLink software for more information.

### **1.2 PRODUCT CHANGES**

Minarik Corporation reserves the right to discontinue or make modifications to the design of its product without prior notice, and holds no obligation to make modifications to products sold previously. Minarik Corporation also holds no liability for losses of any kind which may result from this action.

### **1.3 WARRANTY**

Minarik Corporation warrants the EPM Programmer to be free of defects in material and workmanship for a period of twelve months from the date of sale. If an EPM Programmer, which under normal use, becomes defective within the state warranty time period, contact Minarik's Service Department for instructions on obtaining a warranty replacement unit. Minarik Corporation reserves the right to make the final determination as to the validity of a warranty claim and sole obligation is to repair or replace only the components which have been rendered defective due to faulty material or workmanship. No warranty claim will be accepted for components which have been damaged due to mishandling, unauthorized repair and/or alteration of the product, operation in excess of design specifications or other misuse, or improper maintenance. Minarik Corporation makes no warranty that its products are compatible with any other equipment (other than those stated herein), or any specific application to which they may be applied, and shall not be held liable for any other consequential damage or injury arising from the use of its products.

**This warranty is in lieu of all other warranties, expressed or implied. No other person, firm or corporation is authorized to assume, for Minarik Corporation, any other liability in connection with the demonstration or sale of its products.**

### **1.4 RECEIVING**

Inspect all cartons for damage which may have occurred during shipping. Carefully unpack equipment and inspect thoroughly for damage or shortage. Report any damage to carrier and/or shortages to supplier. All major components and connections should be examined for damage and tightness, with special attention given to PC boards, plugs, knobs and switches.

## **1.5 CUSTOMER MODIFICATION**

Minarik Corporation, its sales representatives and distributors, welcome the opportunity to assist our customers in applying our products. Many customizing options are available to aid in this function. Minarik Corporation cannot assume responsibility for any modifications not authorized by its engineering department.

## 2.0 OVERVIEW OF THE EPM PROGRAMMER

The EPM Programmer is used to configure the Electronic Programming Modules (EPMs) included with the AC100 and AC200 Series drives. The EPM stores the settings that determine how the drive will operate.

The EPM has two separate “storage areas” for parameter settings. One is the User Settings area, and the other is the OEM Defaults area. The parameters in the User Settings area can be accessed and changed using the drive’s buttons or Minarik’s TechLink software, but the OEM Defaults area cannot be accessed without the EPM Programmer. The settings in the OEM Defaults area can only be changed by copying new parameter settings into the EPM using the EPM Programmer.

The AC100 and AC200 drives can be programmed to operate according to either the User Settings or the OEM Defaults (refer to Parameter 48 in the AC100 or AC200 Series Installation and Operation Manual).

If the drive is programmed to operate according to the User Settings (also called User mode; done by setting Parameter 48 to “01”), the parameters can be changed by the user (using the buttons on the front of the drive or TechLink software). The new parameter values are then stored in the User Settings area of the EPM. In User mode, the user can program and reprogram the drive to suit any application.

If the drive is programmed to operate according to the OEM Defaults (also called OEM mode; done by setting Parameter 48 to “02”), however, the user cannot change the parameter settings stored in the OEM Defaults area of the EPM. In this mode, the parameter values have already been set to suit a particular application, and the end-user is prevented from changing them.

The EPM Programmer allows the User Settings and the OEM Defaults within the EPM to be programmed to the desired values. The EPM Programmer can create and store multiple parameter data files, and can also be interfaced with Minarik’s TechLink serial communications software in order to load data files stored in a computer or on diskette. Once a data file is selected, it can be copied to an EPM in about two seconds.

The OEM Defaults area of the EPM can also store a filename to identify the OEM data. This makes it easy to keep track of “master” EPMs and to verify that the EPM contains the correct data file to match the application.

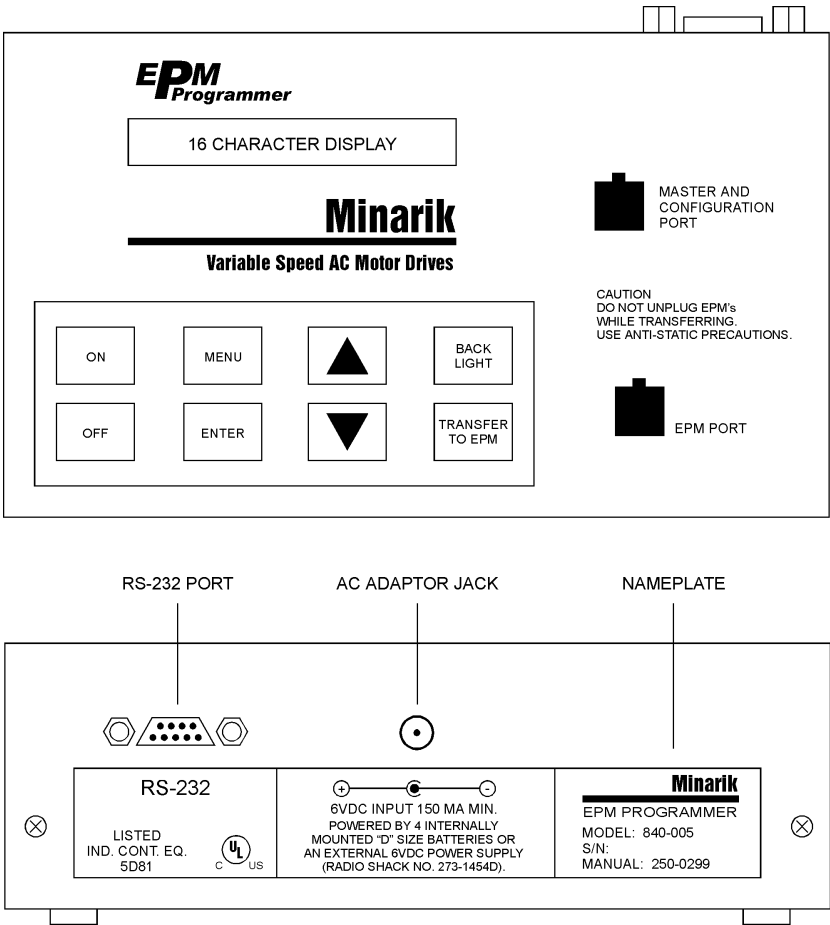
**NOTE:** Please refer to the AC100 or AC200 Series Installation and Operation Manual (Section 13.2 and Parameter 48 in Section 15.0) for more information on the Electronic Programming Module (EPM).

### 3.0 POWER REQUIREMENTS

The EPM Programmer will operate on four (4) D-size batteries, which are included and already installed in the unit. The unit also has a jack for use with an AC power adaptor (Radio Shack model 273-1454D or equivalent).

### 4.0 PHYSICAL LAYOUT

Below is a diagram of the EPM Programmer which identifies the different parts and features of the product.



# 5.0 USING THE EPM PROGRAMMER

## 5.1 TURNING THE EPM PROGRAMMER ON AND OFF



This display indicates what parameter version the EPM Programmer is configured for. The example version is “309”.



This display indicates the parameter version of the MASTER EPM (if installed). The example version is “309”.



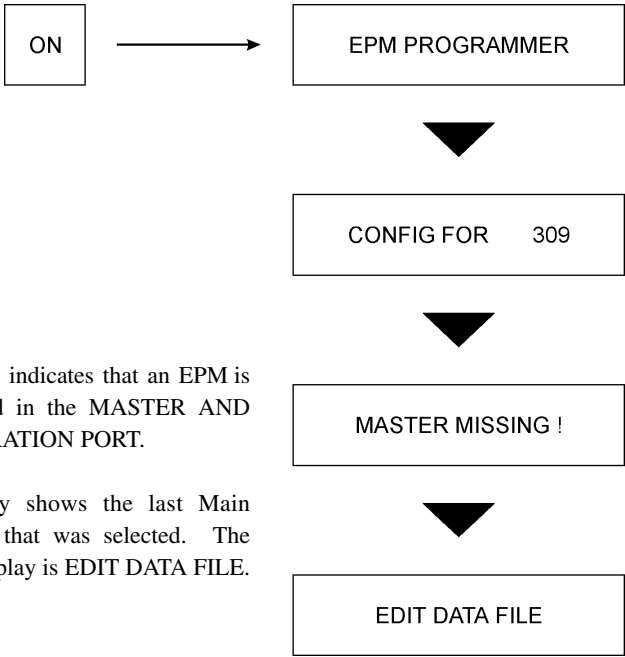
This display indicates the filename of the MASTER EPM (if installed). The example name is “MINARK1\_”.



This display shows the last Main Menu item that was selected. The example display is MASTER TO EPM.



If a MASTER EPM is not installed in the MASTER AND CONFIGURATION PORT when the unit is turned on, the display cannot show the parameter version and file name of the MASTER EPM, so MASTER MISSING! is displayed.

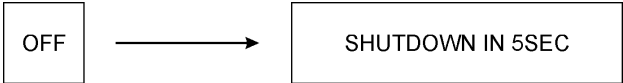


This display indicates that an EPM is not installed in the MASTER AND CONFIGURATION PORT.

This display shows the last Main Menu item that was selected. The example display is EDIT DATA FILE.

Press the OFF key to turn off the EPM Programmer. The LCD display will read SHUTDOWN IN 5SEC and the seconds will countdown to 0, at which time the display will go black, indicating that the unit is off.

**NOTE:** If any keys (except the OFF key) is pressed during SHUTDOWN, the countdown will stop and the EPM Programmer will be activated again.



## 5.2 THE MAIN MENU

Use the MENU key to scroll through the Main Menu items described in the table below. Following the table is a description and step-by-step procedure for performing each function.

<b>MAIN MENU</b>	
<b>FUNCTION</b>	<b>DESCRIPTION</b>
MASTER TO EPM	Copies the data from a MASTER EPM to a target EPM.
COMPUTER TO EPM	Copies a data file downloaded from a computer to a target EPM.
FILE TO EPM	Copies a data file stored in the EPM Programmer to a target EPM.
EDIT DATA FILE	Edit a data file that is stored in the EPM Programmer. In order to edit a stored data file, the configuration version of the EPM Programmer must match the parameter version of the data file.
CREATE NEW FILE	Create a new data file to be stored in the EPM Programmer.
DELETE DATA FILE	Erase a data file that is stored in the EPM Programmer.
LOAD CNFG EEPROM	Load Configuration Version: Configures the EPM Programmer to allow editing of data files with different parameter versions. Requires special Configuration EPMs. Consult the factory.
LCD CONTRAST	Changes the contrast of the LCD display to optimize viewing angle.
MISC INFORMATION	Displays the Software Version, Configuration Version, Number of stored Data Files, Battery Voltage, and Password.

### 5.2.1 MASTER TO EPM

This function copies the data from the User Settings area of the MASTER EPM to the User Settings and OEM Defaults areas of the target EPM in the EPM PORT. The OEM Defaults (if any) in the MASTER EPM are not copied to the target EPM. Therefore, in order to program OEM Defaults into target EPMS, the parameter values in the User Settings area of the MASTER EPM must be set to match the desired OEM values.

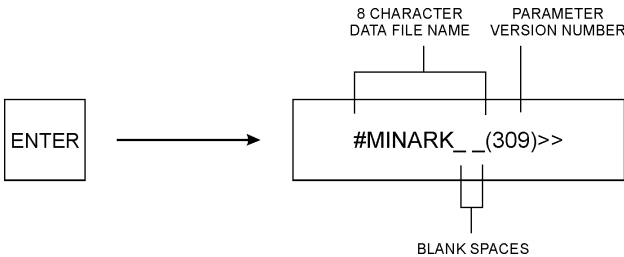
**NOTE:** Please refer to Section 2.0 in this manual, and the AC100 or AC200 Series Installation and Operation Manual (Section 13.2 and Parameter 48 in Section 15.0) for more information on the Electronic Programming Module (EPM).

Follow the procedure below to copy data from the MASTER EPM to the target EPM:

1. Install the EPM to be copied in the MASTER AND CONFIGURATION PORT.
2. Install the EPM that will receive the data into the EPM PORT.
3. Use the MENU key to scroll to MASTER TO EPM.



Press ENTER. The display will show the file name (if any) and the parameter version number of the MASTER EPM. The example file below is named MINARK, and the parameter version is 309.



4. Press TRANSFER TO EPM to copy the data from the MASTER EPM to the target EPM (refer to NOTE 1 below).

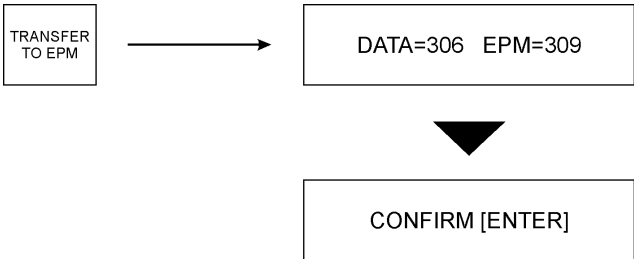


- 5. Remove the target EPM from the EPM PORT. The EPM is now fully programmed and ready to be installed in a drive.
- 6. To program another EPM using the same MASTER EPM, simply install another target EPM in the EPM PORT and repeat step 4.

**NOTE 1:** Before the EPM Programmer transfers the data to the target EPM, it will compare the parameter version of the data file to the parameter version of the target EPM. If they are different, the version numbers will be displayed as a warning that they are not the same. The display will then indicate that the command to transfer the data can be confirmed by pressing the ENTER key. If the data transfer is performed, the target EPM will be converted to the same parameter version as the transferred data file, which may result in improper drive operation. If the parameter version of an EPM does not match the parameter version of the drive it is installed in, the drive will display a “cF” fault and the drive will not operate. Refer to the AC100 or AC200 Series Installation and Operation Manual for more information on the “cF” fault.

To cancel the transfer command, press any key other than ENTER. To confirm that the data transfer is the desired action, press the ENTER key. Once the data has been transferred, the target EPM will have the same parameter version as the transferred data file.

In the example below, the parameter version of the data file to be transferred is 306, but the target EPM came from a version 309 drive. Therefore, the EPM Programmer will not transfer the data unless the ENTER key is pressed to confirm that transferring the data is the desired action.



To cancel the transfer command, press any key other than the ENTER key. To transfer the data, and change the parameter version of the target EPM, press the ENTER key.



In this example, if the ENTER key is pressed to confirm the transfer, the target EPM will become version 306. If EPM is installed back into the drive with parameter version 309, the drive will display a “cF” fault and will not operate.

**NOTE 2:** If the User Settings and OEM Defaults in the MASTER EPM are different, or if the MASTER EPM does not contain OEM Defaults, the data file name will appear as shown below:

```
# * * * * * (309)>>
```

This display does not indicate a problem with the EPM. It simply indicates that there are no OEM Defaults present, or the file name is no longer valid because one or more of the User Settings is different than the OEM Defaults. If a MASTER EPM like this is copied to a target EPM, the User Settings are copied to both the User Settings and OEM Defaults area of the target EPM, but the data file name is not copied. Therefore, the file name of the target EPM will appear as follows:

```
# ????????(309)>>
```

This display does not indicate a problem with the EPM. It simply indicates that the User Settings and OEM Defaults are the same, but a data file name is not contained on the EPM.

**Example:** An EPM with identical User Settings and OEM Defaults has a data file name of MINARK. The EPM is placed in an AC200 drive, and one of the User Settings is changed. If that EPM is then placed in the MASTER AND CONFIGURATION PORT of the EPM Programmer, the file name will no longer appear as MINARK. It will appear as “\*\*\*\*\*”, because the User Settings and OEM Defaults do not match. If that EPM is then copied to a target EPM, the MINARK file name will not be copied, and the filename of the target EPM would appear as “????????”.

**NOTE 3:** If this procedure is attempted without an EPM installed in the MASTER AND CONFIGURATION PORT, the display will flash MASTER MISSING! If a target EPM is not installed in the EPM PORT when a transfer is attempted, the display will flash EPM MISSING! Press the MENU key to reset the display.

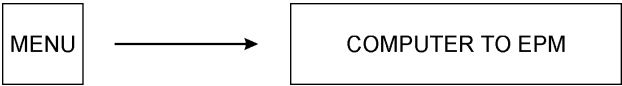
### 5.2.2 COMPUTER TO EPM

This function allows data files created using TechLink software (requires version 1.12 or newer) to be downloaded into a buffer in the EPM Programmer. The downloaded data files can then be copied to the target EPM. Refer to the TechLink software instructions for information on creating data files.

This function requires the EPM Programmer to be connected to the computer's serial port using a standard RS-232 serial cable (not supplied by Minarik Corporation). The TechLink program must be running in EPM MODE, and the PROGRAM option must be selected from the PARAMETER drop down menu.

Follow the procedure below to copy a data file to the TARGET EPM:

1. Install the target EPM that will receive the data into the EPM PORT.
2. Use the MENU key to scroll to COMPUTER TO EPM.



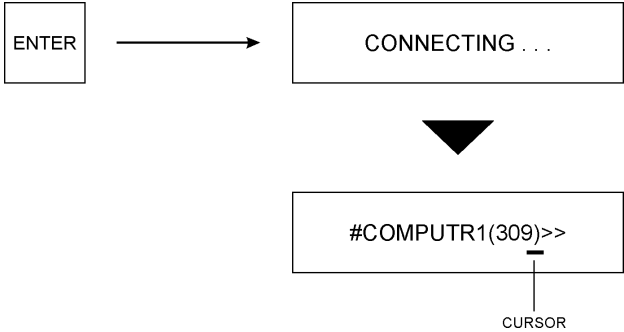
Press ENTER. The display will show the file name and parameter version number of the last data file that was downloaded into the buffer (if any). The example file name below is COMPUTR1, and the parameter version is 309.

If the file that appears is the desired one, go to Step 6.

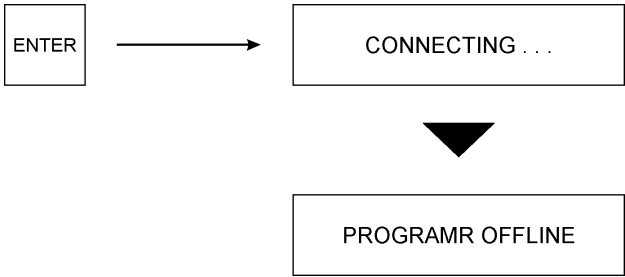


**NOTE:** If a computer file has not been previously downloaded into the buffer, the display will indicate NO COMPUTER FILE.

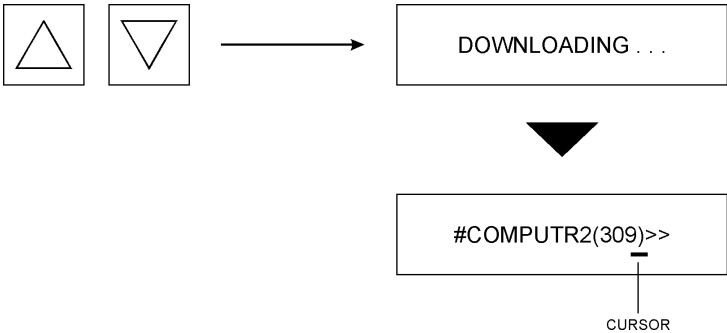
3. Press ENTER again. Depending on the speed of the computer, the display may not read CONNECTING as the EPM Programmer establishes a connection with the computer. Once a connection is established, a blinking cursor will appear on the left side of the display.



If a connection cannot be established, the display will read PROGRAMR OFFLINE. Check the configuration of the computer and verify proper connections between the EPM Programmer and the computer.

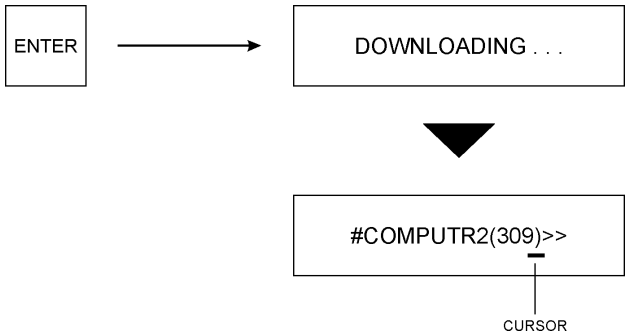


4. Use the ▲ and ▼ keys to view the names of the available data files stored in the TechLink folder on the computer. Depending on the speed of the computer, the display may not read DOWNLOADING between file names.



**NOTE:** If the computer does not respond to the request for the next file name within five seconds, the display will read SERIAL TIMEOUT!, which could indicate that the computer is busy or there is a problem in the serial link.

- 5. Once the desired file is found, press ENTER. The display will read DOWNLOADING as the EMP Programmer downloads the selected data file from the computer into the buffer.



- 6. Press TRANSFER TO EPM to copy the data file to the target EPM (refer to NOTE 1 in Section 5.2.1 on page 8).



- 7. Remove the target EPM from the EPM PORT. The EPM is now fully programmed and ready to be installed in a drive.
- 8. To program another EPM using the same data file, simply install another target EPM in the EPM PORT and repeat step 6.

**NOTE:** If this procedure is attempted without a target EPM installed in the EPM PORT, the display will flash EPM MISSING!. Press the MENU key to reset the display.

### 5.2.3 FILE TO EPM

This function copies the data from a data file stored in the EPM Programmer to the User Settings and OEM Defaults area of the target EPM. The EPM Programmer can typically store up to thirty data files (depending on the configuration version), which are created using the CREATE NEW FILE option on the Main Menu (refer to Section 5.2.5).

**NOTE:** The parameter version of the data file must match the parameter version of the drive that the EPM is to be installed into. If not, the drive will display a “cF” fault and will not operate. For example, if an EPM with a parameter version “309” data file is installed in a version “306” drive, the drive will display a “cF” fault. Refer to the AC100 or AC200 Series Installation and Operation Manual for more information on the “cF” fault.

Follow the procedure below to copy a data file to the target EPM:

1. Install the target EPM that will receive the data into the EPM PORT.
2. Use the MENU key to scroll to FILE TO EPM.



3. Press ENTER. The display will show the file name and parameter version number of the last data file that was selected.

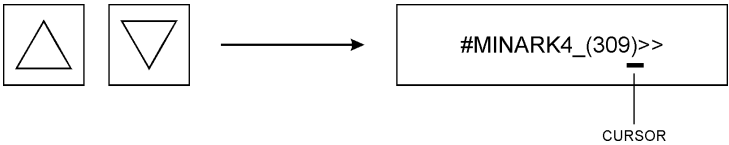
If the file that appears is the desired one, go to Step 5.



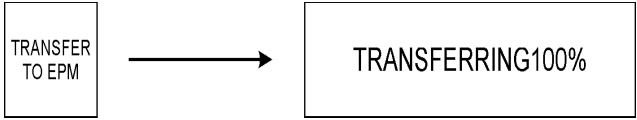
4. Press ENTER. A blinking cursor will appear on the right side of the display.



Use the ▲ and ▼ keys to scroll through the data file.



5. Once the desired data file is found, press TRANSFER TO EPM to copy the data file to the target EPM (refer to NOTE 1 in Section 5.2.1 on page 8).



- 6. Remove the target EPM from the EPM PORT. The EPM is now fully programmed and ready to be installed in a drive.
- 7. To program another EPM using the same data file, simply install another target EPM in the EPM PORT and repeat Step 5.

**NOTE:** If this procedure is attempted without a target EPM installed in the EPM PORT, the display will flash EPM MISSING!. Press the MENU key to reset the display.

### 5.2.4 EDIT DATA FILE

This function is used to make changes to data files that are stored in the EPM Programmer. In addition to the parameter settings, the following items can also be changed: the data file name, initial keypad speed, and initial rotation direction.

**NOTE 1:** This function requires that the EPM Programmer to be configured for the same parameter version number as the file being edited. For example if the EPM Programmer is configured for version “309”, it can only edit version “309” data files. To edit data files with different parameter versions, the EPM Programmer must be configured for the same parameter version using the LOAD CNFG EEPROM function (refer to Section 5.2.7).

**NOTE 2:** If an attempt is made to edit the DEFAULTS data file, the display will flash READ ONLY FILE!. The DEFAULTS data file cannot be edited or deleted.

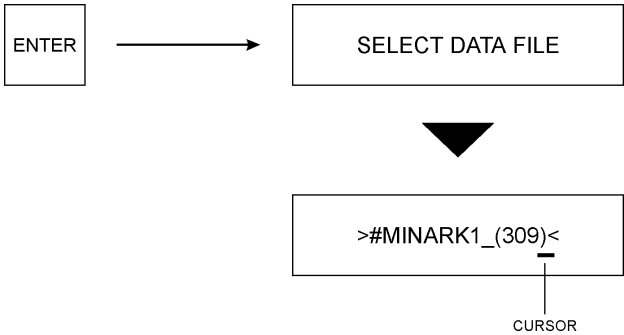
Follow the procedure below to edit a data file stored in the EPM PROGRAMMER:

- 1. Use the MENU key to scroll to EDIT DATA FILE.

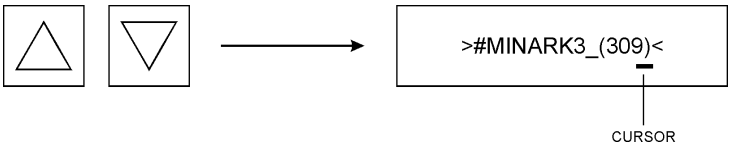


2. Press ENTER. The display will flash SELECT DATA FILE, and then show the last data file that was selected. A blinking cursor will appear on the right side of the display.

If the data file that appears is the desired one, go to Step 3.

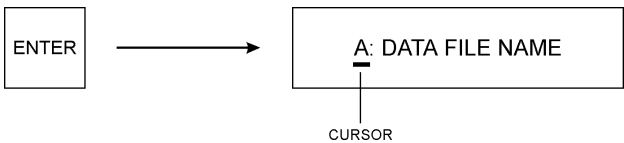


Use the ▲ and ▼ keys to scroll through the data files.

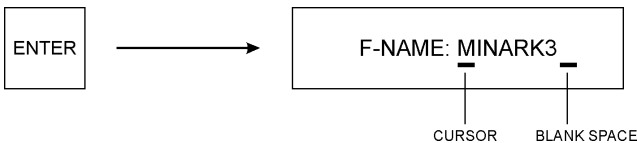


3. Once the desired data file is found, press ENTER to access the items that can be changed within the file. A blinking cursor will appear on the left side of the display. the first item that can be changed is the data file name.

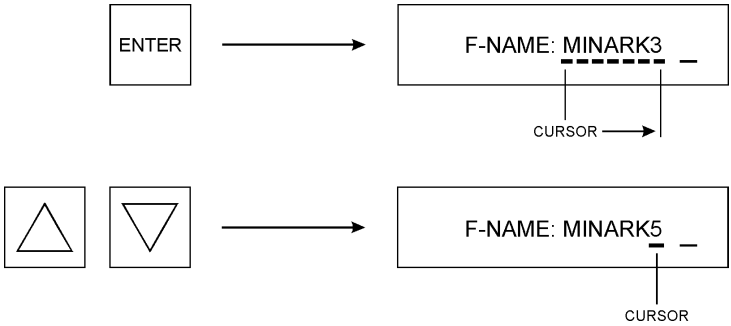
To skip the procedure for changing the data file name, go to Step 7.



4. Press ENTER. A solid cursor will appear under the first character of the file name. The file name can be up to 8 characters long.

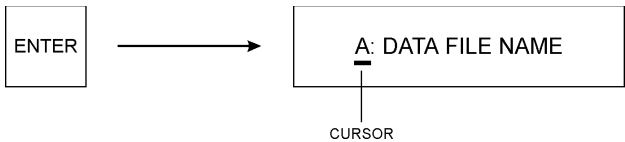


5. Use the ▲ and ▼ keys to change the character in a space, and use the ENTER key to move the cursor from space to space (left to right only).



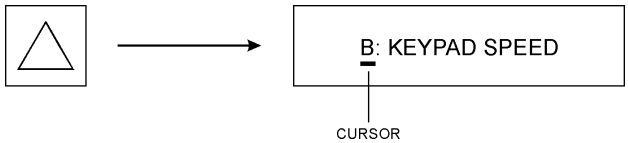
6. Once the cursor is under the last character space (and the desired file name is on the display), press ENTER. This will store the new file name, and return the display to the item menu.

**NOTE:** File names cannot be duplicated. If a file stored in the EPM Programmer already exists with the same name, the display will flash NAME EXISTS!!!, and a different name must be selected.

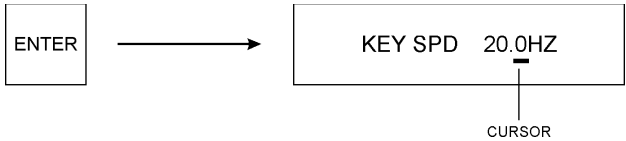


7. Press the ▲ key to scroll to the next menu item: KEYPAD SPEED. This sets the initial keypad speed command when the drive parameters are reset to OEM Defaults. If the drive parameters are reset to factory defaults, the initial keypad speed is always 20.0 Hz. Refer to Parameter 48 in the AC100 or AC200 Series Installation and Operation manual for more information on resetting the drive parameters.

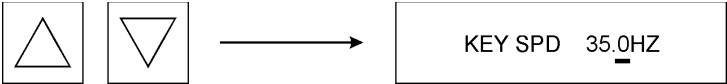
To skip this procedure, go to Step 10.



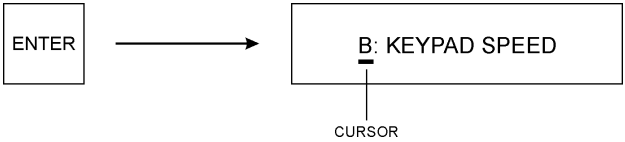
8. Press ENTER. The present keypad speed default setting will be displayed, and a blinking cursor will appear on the right side of the display:



Use the ▲ and ▼ keys to change the keypad speed value.

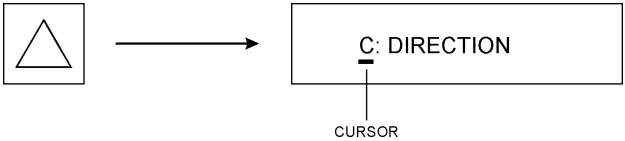


9. Once the desired value is selected, press ENTER to store the value and return the display to the item menu.

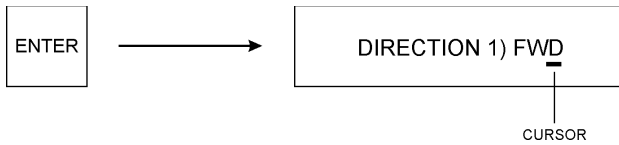


10. Press the ▲ key to scroll to the next menu item: DIRECTION. This sets the initial rotation direction when the drive parameters are reset to OEM Defaults. If the drive parameters are reset to factory defaults, the initial rotation direction is always forward. Refer to Parameter 48 in the AC200 Series Installation and Operation Manual for more information on resetting the drive parameters.

To skip this procedure, go to Step 13.



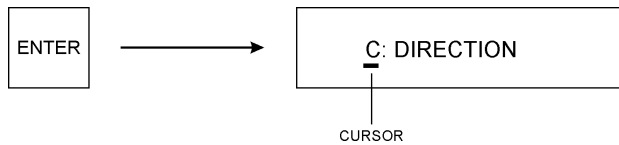
11. Press ENTER. The display will appear as follows, with a blinking cursor on the right side of the display.



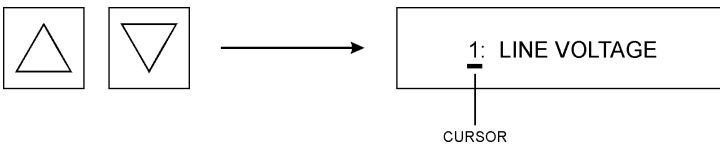
Use the ▲ and ▼ keys to change the direction.



12. Once the desired value is selected, press ENTER to store the value and return the display to the item menu.



13. Press the ▲ and ▼ keys to scroll through the next menu items, which are the drive parameters. The procedure for changing the parameter settings is the same as that for changing the default keypad speed and the rotation direction. Refer to the AC100 or AC200 Series Installation and Operation Manual for a complete list and description of the parameters.



### 5.2.5 CREATE NEW FILE

This function is used to create data files, which are stored in the EPM Programmer. New data files are created by copying data from an existing data file stored in the Programmer, an EPM installed in the MASTER AND CONFIGURATION PORT, or a computer file (created using TechLink software). The new files can then be edited using the EDIT DATA FILE function (see Section 5.2.4).

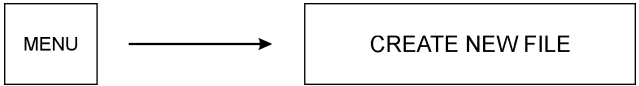
The EPM Programmer can typically store up to thirty data files, depending on the configuration version. Some configuration versions may require more memory, resulting in less available memory to store data files.

**NOTE 1:** If a file is to be created by copying data from a computer file, the COMPUTER TO EPM function must first be used to download the desired file. Refer to Section 5.2.2.

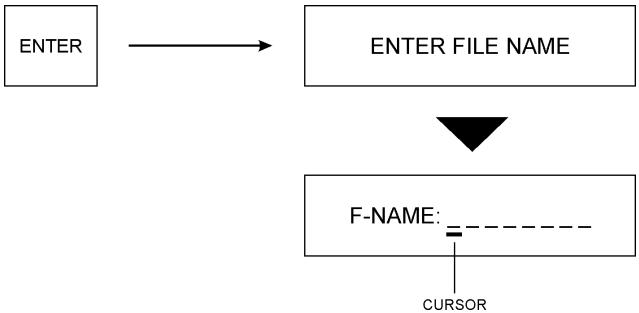
**NOTE 2:** The new file will have the same parameter version as the file that it was created from, regardless of the parameter version that the EPM Programmer is configured for. However, once the new file is created, it can only be edited if the configuration version of the EPM Programmer matches the parameter version of the data file (refer to Section 5.2.7).

Follow the procedure below to create a new data file to be stored in the EPM PROGRAMMER:

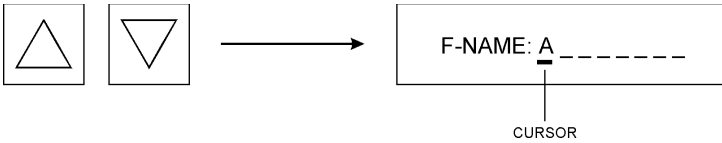
1. Use the MENU key to scroll to CREATE NEW FILE.



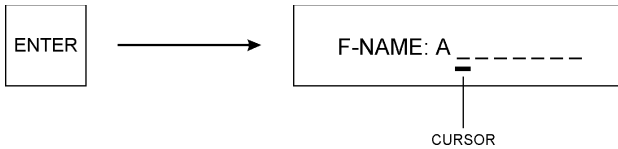
2. Press ENTER. The display will read ENTER FILE NAME and then change to a display that allows the desired file name to be selected, which can be up to 8 characters long. A solid cursor will appear under the first character space.



Use the ▲ and ▼ keys to select a character for each space.

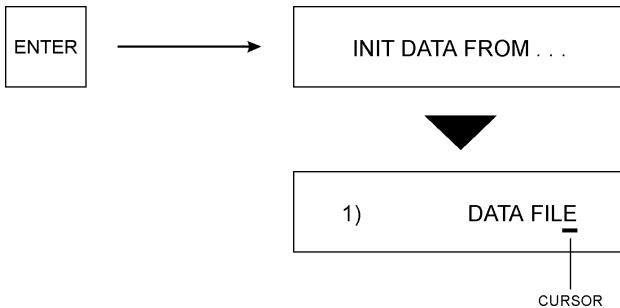


Use the ENTER key to move the cursor from space to space (left to right only).

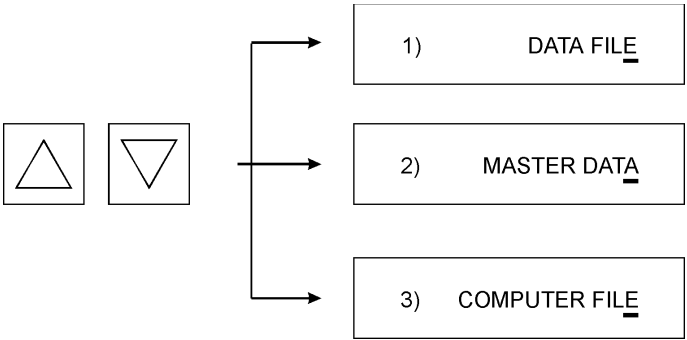


3. Once the cursor is under the last character space (and the desired file name is on the display), press ENTER to store the file name. The display will then flash INIT DATA FROM, indicating that the source of the initial data for the new file must be chosen.

**NOTE:** File names cannot be duplicated. If a file stored in the EPM Programmer already exists with the same name, the display will flash NAME EXISTS!!!, and a different name must be selected.



4. Use the ▲ and ▼ keys to select the source of the file that will be used to create the new file. The source can be an existing data file stored in the EPM Programmer, an EPM installed in the MASTER AND CONFIGURATION PORT, or a computer file created using TechLink software.



Once the desired data source is selected, press ENTER.

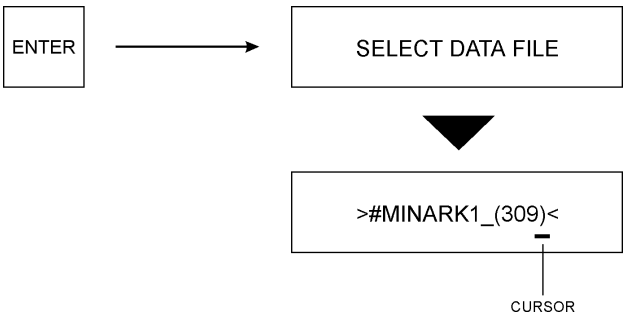
If DATA FILE is selected, go to Step 5.

If MASTER DATA is selected, go to Step 7.

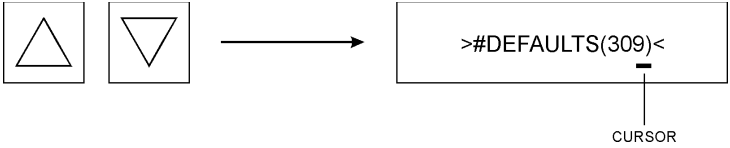
If COMPUTER FILE is selected, go to Step 8.

5. When DATA FILE is selected, the display will flash SELECT DATA FILE, and the display will show the last data file that was selected.

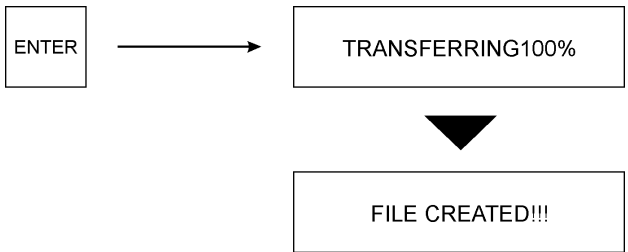
If the data file that appears is the desired one, go to Step 6.



Use the ▲ and ▼ keys to scroll through the data files.



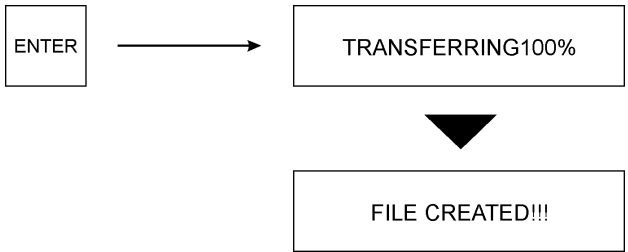
6. Once the desired data file is found, press ENTER. The EPM Programmer will copy the data, and then indicate that the new file has been created. The file can then be edited using the EDIT DATA FILE function (refer to Section 5.2.4).



**NOTE:** If this procedure is attempted without an EPM installed in the MASTER AND CONFIGURATION PORT, the display will flash MASTER MISSING! Press MENU to reset the display.

8. When COMPUTER FILE is selected, the computer file stored in the buffer can be copied to create the new file. The file can then be edited using the EDIT DATA FILE function (refer to Section 5.2.4).

**NOTE:** If the buffer does not contain a data file, or the data file is not the desired one, the COMPUTER TO EPM function must first be used to download the desired file (refer to Section 5.2.2).



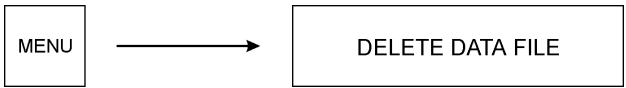
### 5.2.6 DELETE DATA FILE

This function is used to delete data files that are stored in the EPM Programmer. The EPM Programmer can typically store up to thirty data files. If the EPM Programmer's memory is full, and an attempt is made to create a new file, the EPM Programmer will display NOT ENOUGH SPACE. In this case, old or obsolete files would need to be deleted to make space for new files. Before deleting files, however, TechLink (requires version 1.12 or newer) can be used to save them to disk.

**NOTE:** If an attempt is made to delete the DEFAULTS data file, the display will flash READ ONLY FILE! The DEFAULTS data file cannot be edited or deleted.

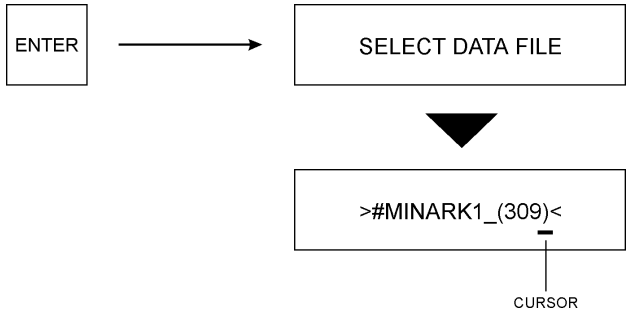
Follow the procedure below to delete a data file stored in the EPM PROGRAMMER:

1. Use the MENU key to scroll to DELETE DATA FILE.

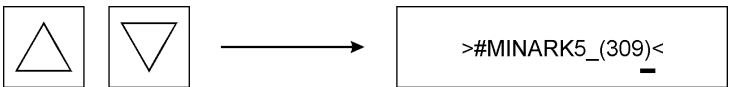


2. Press ENTER. The display will flash SELECT DATA FILE, and then show a file. A blinking cursor will appear on the right side of the display.

If the data file that appears is the desired one, go to Step 3.



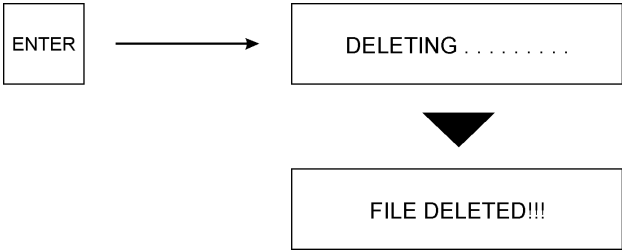
Use the ▲ and ▼ keys to scroll through the data files.



3. Once the desired data file is found, press ENTER. The display will ask for confirmation to delete the file.



4. Press ENTER to confirm that the file be deleted. The display will read DELETING and then FILE DELETED!!! when finished erasing the file.



### 5.2.7 LOAD CNFG EEPROM

This function is used to load parameter configurations into the EPM Programmer so that it can be used to edit stored data files with different parameter versions. The parameter version of the drive will change as the product is upgraded in performance and/or functionality. Once a drive is manufactured, its parameter version cannot be changed, and the EPM installed in the drive must have the same parameter version, or the drive will not operate.

Likewise, the configuration version of the EPM Programmer must match the parameter version of a data file in order to edit that data file. The EPM Programmer can store data files with different parameter versions, but can only edit files which match the configuration version. This feature allows one EPM Programmer to be used with past, present, and future parameter versions.

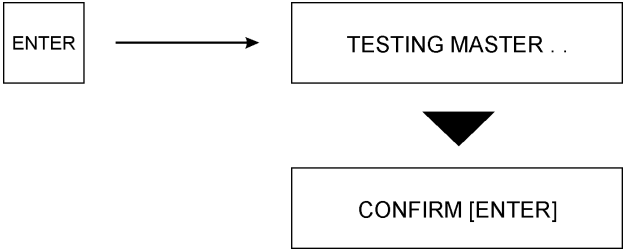
**NOTE:** This feature requires special Configuration EPMs. Please consult this factory.

Follow the procedure below to load a new configuration:

1. Install the configuration EPM into the MASTER AND CONFIGURATION PORT.
2. Use the MENU key to scroll to LOAD CNFG EEPROM.

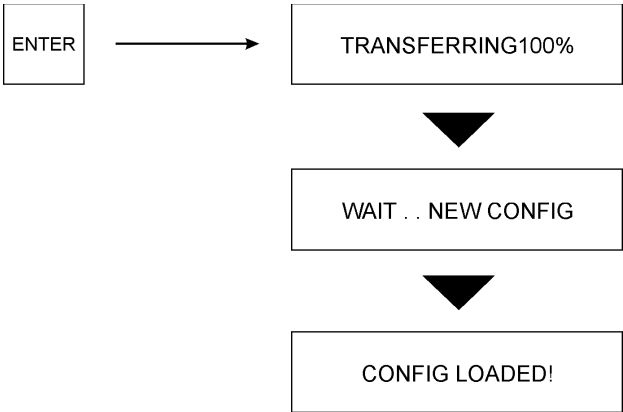


3. Press ENTER. The display will read TESTING MASTER while the EPM Programmer checks the validity of the Configuration EPM. The display will then ask for confirmation to load the new configuration.



**NOTE:** If the EPM installed in the MASTER AND CONFIGURATION PORT is not a Configuration EPM, the display will read INVALID CFG DATA.

4. Press ENTER to confirm that the new configuration is to be loaded. Once the new configuration is loaded, data files with the same parameter version can be edited using the EDIT DATA FILE function (refer to Section 5.2.4).



### 5.2.8 LCD CONTRAST

This function is used to adjust the contrast of the LCD display to optimize the viewing angle. The possible settings are LOW, MEDIUM, and HIGH.

Follow the procedure below to adjust the contrast of the LCD display:

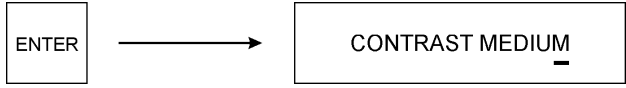
1. Use the MENU key to scroll to LCD CONTRAST.



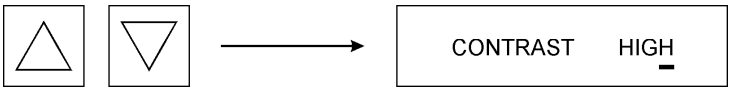
2. Press ENTER. The display will show the present contrast setting.



3. Press ENTER again. A blinking cursor will appear on the right side of the display.



Use the ▲ and ▼ keys to select the desired contrast setting.



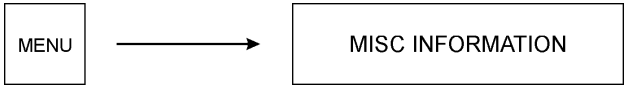
4. Once the desired contrast setting is found, press ENTER to store it. Then press the MENU key to go back to the MAIN MENU.

### 5.2.9 MISC INFORMATION

This function displays miscellaneous information related to the EPM Programmer. The software version, configuration version, number of data files stored, battery voltage, and password can be displayed.

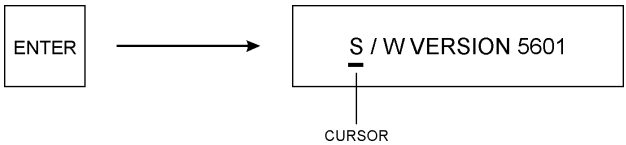
Follow the procedure below to access the miscellaneous information:

1. Use the MENU key to scroll to MISC INFORMATION.



2. Press ENTER. The first item displayed is the internal software version of the EPM Programmer. The software version cannot be changed without installing a new main circuit board in the EPM Programmer.

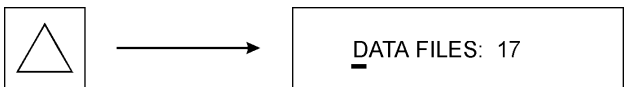
A blinking cursor appears on the left side of the display.



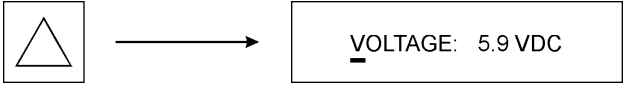
3. Use the ▲ and ▼ keys to scroll through the items. Using the ▲ key, the next item is the configuration version. This can be changed using the LOAD CNFG EEPROM function (refer to Section 5.2.7). This version number must match the parameter version number of a data file in order to edit the data file.



4. Using the ▲ key, the next item is the number of data files stored in the EPM Programmer. The EPM Programmer can store up to thirty data files depending on the configuration version (some configuration versions may require more memory, resulting in less available memory for storing data files).



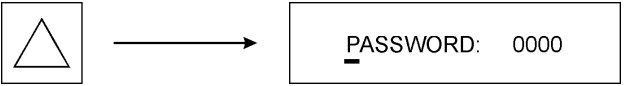
5. Using the ▲ key, the next item is the battery voltage. When the battery voltage drops to 3.6 VDC or less, it is time to change the batteries.



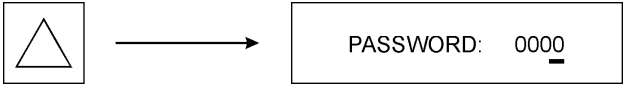
If the battery voltage is 3.6 VDC or less when the EPM Programmer is turned on, the display will indicate LOW BATT VOLTAGE to indicate that the batteries need to be replaced.

To change the batteries, remove the four screws that secure the EPM Programmer cover to the main housing. Carefully remove the cover, which will provide access to the batteries.

6. Using the ▲ key, the last item is the password. The factory default password is 0000. If the password is set to a value other than 0000, the password function is enabled.



To change the password, press the ENTER key to shift the cursor to the right side of the display.



Use the ▲ and ▼ keys to scroll to the desired password value. Press the ENTER key to store the value and shift the cursor back to the left.

Once the password function is activated, the password prompt will appear when the EPM Programmer is turned on. Use the ▲ and ▼ keys to scroll to the correct password value and press the ENTER key. If the wrong password is entered, the display will read INVALID PASSWORD, and the password must be entered again.

If the ENTER key or MENU key is pressed while the password prompt reads 0000, the EPM Programmer will allow access only to the MASTER TO EPM, LCD CONTRAST, and MISC INFORMATION menu items. If MISC INFORMATION is viewed, the password item will not appear.

## 6.0 LCD BACKLIGHT

The LCD display has a backlight to improve visibility and readability of the display. Press the BACK LIGHT key to turn on the backlight, and press the BACK LIGHT key again to turn off the backlight.

**NOTE:** If an AC adaptor is used to power the EPM Programmer, the backlight will turn on when the adaptor is plugged in, and will remain on until the AC adaptor is unplugged. Therefore, even if the EPM Programmer is turned off, the backlight will remain on if the AC adaptor is plugged in.

## 7.0 WARNING MESSAGES & TROUBLESHOOTING

The following table describes the various warning messages that can appear on the EPM Programmer's display. Some of these messages are explained in previous sections at points in the procedure where the message may appear. The table is continued on the next page.

<b>WARNING MESSAGES</b>	
<b>MESSAGE</b>	<b>DESCRIPTION</b>
CONFIG INVALID	Will appear in the MISC INFORMATION function if the configuration data in the EPM Programmer is corrupted. Data files cannot be edited in this state.
EPM MISSING!	Attempted to transfer data to the EPM PORT without an EPM installed.
EPM SHORTED!	The EPM in the EPM PORT is damaged or installed incorrectly.
HARDW FAULT	Hardware fault - consult factory.
INCOMPATIBLE VER	Attempted to edit a data file that has a parameter version which is different than the configuration version of the EPM Programmer.
INTERNAL FAULT!	Internal fault - consult factory.
INVALID CFG DATA	The LOAD CNFG EEPROM function was attempted with an EPM that was not a valid Configuration EPM.
INVALID MASTER!	Attempted the MASTER TO EPM function, and the EPM in the MASTER AND CONFIGURATION PORT is blank, corrupted, or is a Configuration EPM.
INVALID PASSWORD	The Password function is active, and the wrong password was entered when the EPM Programmer was turned on. Refer to Section 5.2.9 - MISC INFORMATION.

<b>WARNING MESSAGES</b>	
<b>MESSAGE</b>	<b>DESCRIPTION</b>
LOW BATT VOLTAGE	Appears at power-up if the battery voltage is below 3.6 Volts. Change batteries.
MASTER MISSING!	Attempted to read data from the MASTER AND CONFIGURATION PORT without a Master or Configuration EPM installed.
MASTER SHORTED!	The EPM in the MASTER AND CONFIGURATION PORT is damaged or installed incorrectly.
NAME EXISTS!!!	Attempted to copy data from the computer file buffer and a file was not downloaded from the computer.
NO COMPUTER FILE	Attempted to copy data from the computer file buffer and a file was not downloaded from the computer.
NOT ENOUGH SPACE	There is not enough memory to store another data file.
NO VALID FILES	Attempted COMPUTER TO EPM function and the EPM Programmer could not establish communications with the computer.
PROGRAMR OFFLINE	Attempted COMPUTER TO EPM function and the EPM Programmer could not establish communications with the computer.
READ ONLY FILE!	An attempt was made to edit or delete the DEFAULTS data file.
SERIAL TIMEOUT!	The EPM Programmer was requesting data from a computer and a response was not received within 5 seconds.
TRANSFER FAILED	The EPM Programmer could not properly transfer data to the target EPM. This may indicate a problem with the EPM Programmer or the target EPM.

# Notes

# Notes

# Notes

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