

**WARNING: DEVIATION FROM THESE INSTALLATION INSTRUCTIONS MAY LEAD TO IMPROPER ENGINE OPERATION WHICH COULD CAUSE PERSONAL INJURY TO OPERATORS OR OTHER NEARBY PERSONNEL.**

## **1.0 DESCRIPTION**

1.1 The Altronic CPU-2000 program operates from a standard PC and permits the operator to program a standard or custom configuration. With the Altronic CPU-2000 Terminal Program software, the user can obtain the full benefit of the capability designed into the CPU-2000 system. Custom timing curves, offset timing on an individual cylinder basis, and advanced features can be programmed. A data sheet can be printed showing, in table form, the engine firing pattern resulting from the information entered as well as other programming information. There is a monitor mode that the operator can use to monitor an existing installation and access most keypad configurable settings via the RS-485 serial link.

1.2 The following Altronic material is required:

Altronic CPU-2000 CD-ROM, P/N 609009

1.3 The following user-supplied hardware is required:

Computer: IBM-compatible PC, Windows 95 / 98 / ME / NT4 / 2000; hard drive (10 Mb of free disk space required), CD-ROM drive, 1 RS-232 serial port; SVGA graphics (800x600 or greater preferred) with color monitor.

Printer: Selections on screen for windows printer

Serial Port: RS-232 port for programming the CPU-2000.

## **2.0 INSTALLATION**

2.1 The program installs from a CD-ROM drive. A minimum of 10 megabytes of free disk space is required.

2.2 Insert the CD-ROM disk into the CD-ROM drive and run the Setup2000.exe file. If you have the autorun selection enabled on your CD-ROM drive, the install program will run automatically. The install program will prompt you for a destination folder where the program will be installed. The default folder is **C:\PROGRAM FILES\CPU-2000\**. After the install completes, you can run the program from the Start Button, Programs Menu, Altronic Inc, CPU-2000, CPU-2000 menu selection.

### **3.0 PROGRAM OPERATION**

- 3.1 LOAD PROGRAM: Once installed, to load the program, click on the CPU-2000 icon.
- 3.2 LOGIN FORM: Following the opening pictorial screen, the Login form appears. Type in your initials or code. NOTE: Pressing CANCEL at this screen will result in exiting the program. Select the PC communications port to which the RS-485 Converter will be connected (COM1-COM10). If the COM Port has a non-standard interrupt or address, these can be edited. Enter the Node Number of the unit you want to communicate with. A Node number of 0 (zero) will allow you to query the unit for the programmed node number.
- 3.3 MAIN FORM: 6 Options.
  - A. Monitor. This allows the operator to monitor a unit and adjust values via the serial link.
  - B. Configure. This allows the operator to configure the CPU-2000 for operation.
  - C. Print. This allows the operator to print out a stored program sheet.
  - D. Web Page. If the user is connected to the Internet, this allows direct access to the ALTRONIC INC. web page. This is an easy way to obtain current news from Altronic, Inc.
  - E. Exit. Quits program.
  - F. Help Menu. About CPU-2000. Displays version information of Terminal Program and CPU-2000 firmware.

### **4.0 PROGRAM EEPROM**

- 4.1 The TAB/SHIFT-TAB or RETURN will move the cursor between fields.
- 4.2 Enter the Node Number of the unit to be programmed. Values can be 1 to 254.
- 4.3 Select the type of Output Module to be used: 16 for Output Module 291116-1, 32 for Output Modules 291132-1 and 291132-2. Some selections require one of the 32-output units; the program will alert the user of this.
- 4.4 Select the Firing Pattern Code. These are found in Application List, form CPU-2000 AL. A complete listing is also available in the Firing Pattern Codes, form FP-CPU. Pressing Enter or Double Clicking on this field will bring up the list box of firing pattern selections.
- 4.5 Enter the Number of teeth or holes; the limits are 90 minimum and 500 maximum. Some firing patterns will have limited options as the number of teeth increases vs. firing angles.
- 4.6 Select the choice for Current Loop type:
  - X - No current loop will be used.
  - A - Standard 48 degree curve.
  - B - Standard 36 degree curve.
  - C - Standard 24 degree curve.
  - SPECIAL - Denotes user-entered special curve.

- 4.7 Select the choice for RPM Curve:  
NO - No RPM Curve desired.  
YES - Yes, enter an RPM curve; this makes the memory an "N" type, so a version number will have to be specified, if not already defined.  
Follow the instructions on screen for completing the table.
- 4.8 Select the choice for Advanced Features:  
NO - No, use default choices (one-step retard active through Misc. terminal).  
YES - Yes, choose Advanced Features.  
Follow the instructions on screen for completing the table.
- 4.9 Select the choice for Cylinder Offsets: (permanent modification of firing pattern)  
NO - No Cylinder Offsets desired.  
YES - Yes, define Cylinder Offsets; this makes the memory an "N" type, so a version number will have to be specified, if not already defined.  
Follow the instructions on screen for completing the table.
- 4.10 INITIAL USER SETTINGS: These include Overspeed Setting, Energy Level, Multifire option, and Reset Pin Position. Select the desired values for each field.
- 4.11 COMMENTS: These fields are to store site-specific data in the EEPROM. Engine location, number and model, can be stored along with 4 lines of user comments.
- 4.12 SAVING DATA: After completing the above information, pressing the ACCEPT button saves the input screen information. A display form will then show all selected values. To return to the input screen, press the PREVIOUS SCREEN button. To Print a Data sheet press the PRINT button. It is recommended that data sheets for all generated memories be kept on file for easy reference. Pressing the PROGRAM button accepts the display sheet information and will generate the memory file.
- 4.13 PROGRAMMING EEPROM: The Shutdown Lead must be grounded to program the EEPROM. Follow the instructions on the screen to complete the programming cycle and return to the Main Form.

**NOTE: ALL MEMORY CONFIGURATIONS SHOULD BE VERIFIED BY OPERATION WITH THE IGNITION SYSTEM AND AN IGNITION TIMING DEGREE WHEEL PRIOR TO USE ON AN OPERATING ENGINE.**

## **5.0 MONITOR MODE**

- 5.1 The communication link will be established and the decoded binary serial data will be displayed on the monitor screen.
- 5.2 Any field that has adjacent up/down arrows can be modified while the unit is being monitored. Use the Mouse or TAB/SHIFT TAB keys to move the screen cursor to the field to be modified. Clicking On or pressing the ENTER key while the cursor is on the UP or DOWN ARROW will cause the arrow to turn black for a moment and execute the appropriate request. The UP ARROW will increase a value or turn an option on. The DOWN ARROW will decrease a value or turn an option off.
- 5.3 Pressing EXIT will take the user back to the Main form. Like keypad operations, most changes are retained by the unit until changed again.

## **6.0 MONITOR MODE WITH OPTIONAL DIAGNOSTIC MODULE**

- 6.1 DIAGNOSTIC MONITOR SCREEN: The Diagnostic Module must be turned ON in the monitor screen for the DIAGNOSTIC button to function. Once the Diagnostic Module is turned on, the DIAGNOSTIC Button brings up the diagnostic monitor screen. This allows the operator to view coil and spark plug diagnostics.
  - A. Diagnostic field characters:
    - "." indicates normal operation
    - "X" indicates a faulted condition.
  - B. The FAULT RESET button will reset any diagnostic faults in the system.
  - C. The VIEW/ADJUST DIAG SETPOINTS button will open the View/Adjust Diagnostic Setpoints screen.
  - D. PRINT button will print out current spark diagnostic data.
  - E. The EXIT button will exit back to the system monitor screen.
- 6.2 VIEW/ADJUST DIAGNOSTIC SETPOINTS SCREEN: This screen allows the operator to adjust the spark diagnostic setpoints.
  - A. The RESTORE DEFAULTS button allows the operator to reset all values in this screen to their default values.
  - B. Any field that has adjacent up/down arrows can be modified. Use the MOUSE or TAB/SHIFT TAB keys to move the screen cursor to the field to be modified. Clicking on or pressing the ENTER key while the cursor is on the UP or DOWN ARROW will cause the arrow to turn black for a moment and execute the appropriate request. The UP ARROW will increase a value or turn an option on. The DOWN ARROW will decrease a value or turn an option off.
  - C. The EXIT button will exit back to the diagnostic monitor screen (section 6.1).

## **7.0 TROUBLESHOOTING**

- 7.1 COM485 ERROR.
  - A. RS232-RS485 Converter not connected or not working.
- 7.2 NO REPLY IN 13 mSec.
  - A. CPU-2000 node selection incorrect.
  - B. CPU-2000 not connected.
  - C. CPU-2000 not powered.

### 7.3 INVALID RS-232 ADDRESS

If the message "Invalid RS-232 Address" is received when selecting the serial port in the CPU-2000 terminal program, the following procedure is required.

Note: This information has been taken from the Microsoft web site.

On your PC desktop, go to Start, Run and type in "regedit.exe". Then successively choose the following path names:

```
HKEY_LOCAL_MACHINE
System
CurrentControlSet
Services
VxD
VCOMM
```

Then change the binary data value for the EnablePowerManagement registry location from **01 00 00 00** to **00 00 00 00**.

**MICROSOFT WARNING:** Using Registry Editor incorrectly can cause serious problems that may require you to reinstall your operating system. Microsoft cannot guarantee that problems resulting from the incorrect use of Registry Editor can be solved. Use Registry Editor at your own risk. For information about how to edit the registry, view the "Changing Keys and Values" Help topic in Registry Editor (Regedit.exe) or the "Add and Delete Information in the Registry" and "Edit Registry Data" Help topics in Regedt32.exe. Note that you should back up the registry before you edit it. If you are running Windows NT or Windows 2000, you should also update your Emergency Repair Disk (ERD).

**IMPORTANT:** This article contains information about editing the registry. Before you edit the registry, make sure you understand how to restore it if a problem occurs. For information about how to do this, view the "Restoring the Registry" Help topic in Regedit.exe or the "Restoring a Registry Key" Help topic in Regedt32.exe.