

**WARNING:**

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

FORM CPU-XL VS PI 8-13

**1.0 DESCRIPTION**

**1.1** The Altronic CPU-XL VariSpark Terminal Program runs on a standard PC and permits the operator to program a standard or custom configuration. This software gives the user access to all of the capability designed into the CPU-XL system. Custom timing curves, offset timing on an individual cylinder basis, and advanced features can be programmed. A data sheet can be printed which shows the engine firing pattern resulting from the information entered—as well as other programming information—in table form. In monitor mode, the operator can monitor an existing installation and access most of the configurable settings via the RS-485 serial link.



**1.2** The following Altronic material is required:

**CPU-XL CD-ROM, P/N 609039**

**1.3** The following user-supplied hardware is required:

**Computer:** IBM-compatible PC, Windows® XP/7/8

Hard drive (10 MB of free disk space required)

CD-ROM drive

1 USB port

SVGA graphics (1074x768 or greater preferred)

Color monitor

**Printer:** Selections on screen for Windows™ printer

**Serial Converter:** Isolated RS-422/485 USB converter for PC interface

and/or...

**USB A-B cable:** Direct connect to USB port in the back of Display board (A) and USB of PC (B).

**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 setup file. Installation of Altronic Terminal program requires “Administrative Privilege”. If you have the “autorun” selection enabled on your CD-ROM drive, disable it. Navigate to your CD-ROM drive and run

the setup.exe file, select “Run As...”, select the Administrator account and provide the password. For Windows® VISTA, Windows® 7, and Windows® 8, right click on the setup.exe file, select “Run As Administrator” to start the installation.

For 32-bit systems, the default folder is C:\Program Files\Altronic CPU-XL VariSpark Terminal Program\. For 64-bit systems, the default folder is C:\Program Files86\ Altronic CPU-XL VariSpark Terminal Program\. Reboot the system after the installation is complete. Run the Program from the Start Button, All Programs, Altronic LLC, CPU-XL, and select the CPU-XL menu selection.

### 3.0 PROGRAM OPERATION

- 3.1 **LOAD PROGRAM:** Once installed, click on the CPU-XL icon to load the program.
- 3.2 **MAIN SCREEN:** The splash screen appears briefly when the program first runs. Next, the MAIN screen displays. All options are available from the graphic toolbar on the MAIN screen.

Most screens have a status bar at the bottom that displays the current status of each operation. Version information, along with general help, can be found under the Help menu.



### 3.3 MAIN SCREEN OPTIONS

- A. **COM Port Menu:** Use the COM Port Command Menu to configure the PC to “talk” to the Monitor: Com port “x” (x is the com port used on the PC), Baud Rate (set to the same as the CPU-XL), 1000ms Timeout, Parity none, and 1 Stop Bit.
- B. **Help Menu:** “About CPU-XL” displays version information of the Terminal Program.
- C. **MONITOR/ADJ:** The user can monitor a unit and adjust values via Modbus RTU link.
- D. **CONFIGURE:** This allows the user to configure the CPU-XL.
- E. **PRINT:** The user can print out the data from a saved disk file.
- E. **EXIT:** Terminates the CPU-XL terminal program.

### 4.0 PROGRAMMING THE EEPROM

- 4.0.1 Download the memory file to the Display Board.
- 4.0.2 Download the memory file from the Display Board to the Logic Board (inside the Logic Module).

### 4.1 DOWNLOAD THE MEMORY FILE TO THE DISPLAY BOARD

- 4.1.1 Press RETURN to move the cursor between fields.
- 4.1.2 Enter the Slave ID of the unit to be programmed. Values can be from 1 to 254.
- 4.1.3 Select the Firing Pattern Code. Codes can be found in Form CPU-XL VariSpark IOM.
- 4.1.4 Enter the number of gear teeth or holes; the limits are from 90 to 500. Some firing patterns will have limited options as the number of teeth increases vs. firing angles.
- 4.1.5 Select the 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.
  - D** - Standard 16 degree curve.
  - E** - Standard 8 degree curve.
  - SPECIAL** - Denotes user-entered special curve.
- 4.1.6 Select the choice for RPM Curve:
  - NO** – No RPM Curve desired.
  - YES** – Enter an RPM curve; this makes the memory an “N” type, and a version number must be specified if not already defined. Follow the on-screen instructions to complete the table.
- 4.1.7 Select the Advanced Features:
  - NO** – Use default choices (one-step retard active through Misc. terminal).
  - YES** – Choose Advanced Features and follow the on-screen instructions to complete the table.

- 4.1.8 **INITIAL USER SETTINGS:** These include Overspeed Setting and Reset Pin Position. Select the desired values for each field.
- 4.1.9 **COMMENTS:** These fields store site-specific data in the EEPROM. Engine Location, number and model can be stored, along with four lines of user comments.
- 4.1.10 **SAVING DATA:** After completing the above information, press the ACCEPT button to save the input screen information. A display form will show all selected values in order to confirm settings. To return to the input screen, press the << BACK button. To print a data sheet, press the PRINT button.
- 4.1.11 **DOWNLOADING TO DISPLAY:** Follow the instructions on the screen to complete the programming cycle and return to the Main Form.

*Note: 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.*

### 4.2 DOWNLOAD THE MEMORY FILE FROM THE DISPLAY BOARD TO THE LOGIC BOARD

- 4.2.1 Once downloading to the Display Board is complete, press OK to accept the successful download.
- 4.2.2 Programming EEPROM does not require the terminal program.
- 4.2.3 On the Logic Module, press AUTO, then the UP arrow to PROGRAM EEPROM. The shutdown lead must be grounded in order to program the EEPROM.

5.0 MONITOR MODE

5.1 GENERAL MONITOR: The user can monitor a unit and adjust values via Modbus RTU link.

*Note: Any field that has adjacent +/- buttons or x/√ can be modified. Use the mouse key to move the screen cursor to the field to be modified. The + button will increase a value. The – button will decrease a value. The x button will turn an option off. The √ will turn an option on.*

**Altronic CPU-XL VariSpark Ignition System V1.0**

File COM Port Slave ID Disconnect Reset COM Stats Help

**GENERAL MONITOR** | **DIAGNOSTICS SETUP**

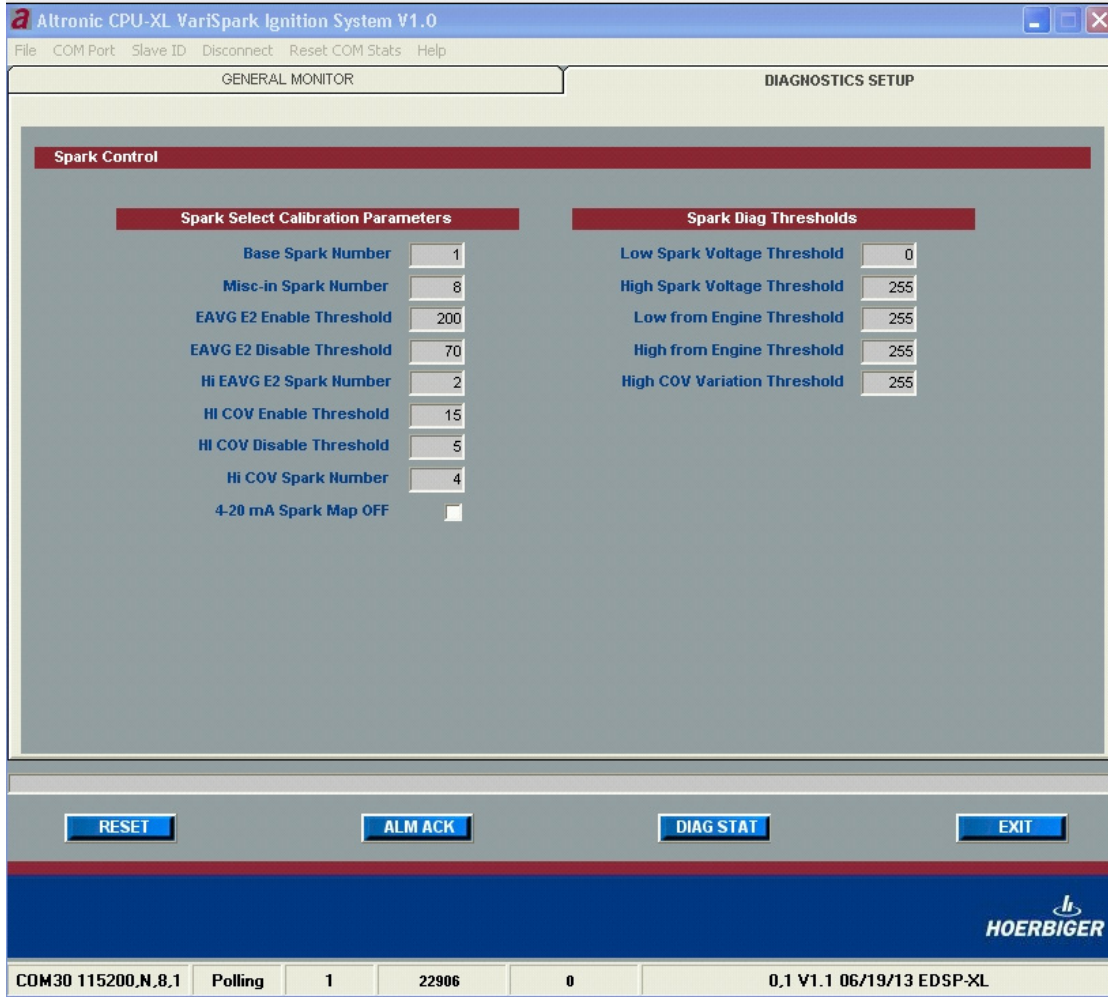
SETUP		CYLINDER (INDV)		FIRING		IGNITION LABELS	
Parameter	Value	LABEL	SPK TIMING	ORDER	RAIL-COIL	Label	Value
Overspeed:	800 RPM	1L	0.0 %Adv	1	1-A	T4A180.HC	#001
Reset pin:	16.0 °BTDC	1R	0.0 %Adv	2	4-A	4cyc.20cyl.32out	
EEPROM Unprotected	Off	2L	0.0 %Adv	3	1-B	02-29-12 14:03	
<b>GLOBAL TIMING</b>		2R	0.0 %Adv	4	4-B	BycU4AL_R v1.7	
Manual Retard:	0.0 °Ret	3L	0.0 %Adv	5	1-C	LOOP RETARD: 24	
<b>TIMING MODE</b>		3R	0.0 %Adv	6	4-C	4/20ma 0/24ret	
Current Loop Retard:	0.0 °Ret	4L	0.0 %Adv	7	1-D	RPM RETARD:NONE	
RPM Map Disabled	0.0 °Ret	4R	0.0 %Adv	8	4-D	LOCATION:	
One-Step Disabled	5.0 °Ret	5L	0.0 %Adv	9	1-E	ENGINE#:	
Total Timing Display:	10.5	5R	0.0 %Adv	10	4-E		
Total Retard:	0.5	6L	0.0 %Adv	11	2-A		
Active Spark Number:	1	6R	0.0 %Adv	12	3-A		
		7L	0.0 %Adv	13	2-B		
		7R	0.0 %Adv	14	3-B		
		8L	0.0 %Adv	15	2-C		
		8R	0.0 %Adv	16	3-C		
		9L	0.0 %Adv	17	2-D		
		9R	0.0 %Adv	18	3-D		
		°L	0.0 %Adv	19	2-E		
		°R	0.0 %Adv	20	3-E		

RESET ALM ACK DIAG STAT EXIT

COM30 115200,N,8,1 Polling 1 10923 0 0,1 V1.1 06/19/13 EDSP-XL

**HOERBIGER**

**5.2 DIAGNOSTICS SETUP:** This screen allows the user to adjust the spark diagnostics setpoints. All fields on this tab can be changed by double clicking an entry field, typing desired numbers, and pressing Enter to accept. Use the mouse to move the screen cursor to the field to be modified.



**5.3 DIAG STAT BUTTON:** Brings up the diagnostic monitor screen, which allows the operator to view the coil and spark demand diagnostics.

- A. Diagnostic field characters:
  - “.” indicates normal operation
  - “M” Indicates a faulted condition at Master
  - “S” Indicates a faulted condition at Slave
  - “X” indicates a faulted condition
- B. RESET Button – clears all diagnostics.
- C. ALM ACK Button – acknowledges all alarms.

**5.4 FILE COMMAND MENU: PRINT STORED DATASHEET:** Allows the operator to print a stored program sheet.

- 5.5 COM PORT:** Configure COM Port settings. See section 3.3.
- 5.6 SLAVE ID:** Set the Slave ID to match the CPU-XL Node ID. See section 24.8 of Form CPU-XL VariSpark IOM.
- 5.7 CONNECT/DISCONNECT:** Initiate or end communications with the CPU-XL.
- 5.8 RESET COM STATS:** Clear any past communication errors to the CPU-XL.
- 5.9 EXIT BUTTON:** Return to the Main screen.