

# EPC FIELD PROGRAMMING SOFTWARE USER GUIDE

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## 1. SYSTEM REQUIREMENTS

<b>Operating System</b>	Windows 7, Windows 8/8.1, Windows 10
<b>Processor</b>	1 GHz or faster
<b>RAM</b>	1 GB (32-bit) or 2 GB (64-bit)
<b>HDD Space</b>	5 GB
<b>Interface</b>	USB 2.0 (or higher)
<b>Display Resolution</b>	800x600 dpi or better



## 2. SAFETY NOTES

- Use the correct adapter cable for the encoder being programmed. Incorrect wiring could cause damage to the encoder, USB Programming Module, or the Interface Cable.
- Do not disconnect the encoder, USB Programming Module, or the Interface Cable from other parts while programming is in progress. This may cause damage to the encoder.
- Before disconnecting encoder from Interface Cable, choose from the options that appear on-screen. See Figure 6.

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## 3. SOFTWARE INSTALLATION

**Administrator privileges are required for installation.**

1. Install Field Programming Software
  - a. Insert Field Programmer Installation USB flash drive into available USB port (see *Figure 1*).
  - b. Navigate to the directory for the USB flash drive and open the appropriate installer folder for your machine (x64 for 64-bit or x86 for 32-bit).

**-OR-**

- a. Download the Field Programming Software from [www.encoder.com](http://www.encoder.com)
  - b. Select the appropriate installer for your machine (64-bit or 32-bit) and save to your local drive.
  - c. Unzip the folder.
2. Double-click setup.exe. You will be prompted to enter administrator credentials.

*NOTE: If you right-click on setup.exe, "Run as Administrator" is an option on the pop-up menu. Do not choose this option because the software will not install correctly.*

3. Follow the installer prompts to install the USB driver and Field Programming Software. Installer will add desktop icon during installation (see *Figure 4*).

*NOTE: The installer package may request the installation of Microsoft .NET Framework and Visual C++ Redistributables if they are not already present on your machine.*

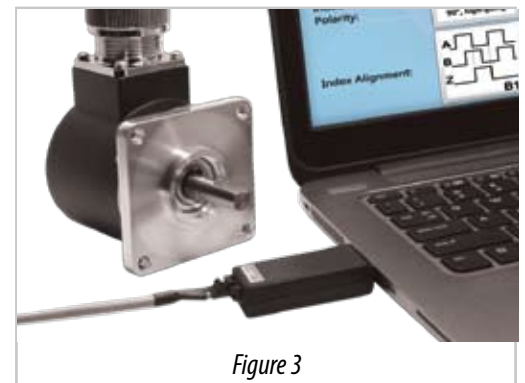
4. Connect Interface Cable to encoder (see *Figure 2*).
5. Connect Interface Cable to USB Programming Module (see *Figure 2*).
6. Insert USB Programming Module into a USB 2.0 or higher port on computer (see *Figure 3*).
7. Open Field Programming Software by double-clicking desktop icon (see *Figure 4*).



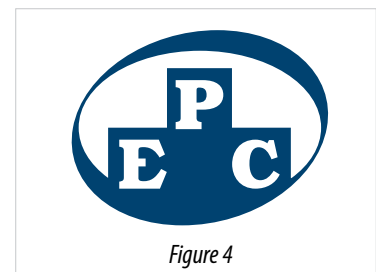
*Figure 1*



*Figure 2*



*Figure 3*



*Figure 4*

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## 4. PROGRAMMING AN ENCODER

### SOFTWARE INTERFACE

(see Figure 5)

**a. CURRENT SETTINGS:** Displays the current resolution (CPR), output type, quadrature direction, and waveform values stored in the encoder attached to the USB Programming Module.

**b. NEW SETTINGS:** Allows the user to enter the desired settings of the encoder to be programmed. NOTE: New Settings can only be programmed into the encoder when Program New Settings is selected. See Subsection h, below.

**c. RESOLUTION (CPR):** Sets the cycles per revolution (CPR) of the encoder.

**d. OUTPUT TYPE:** Sets the output type of the encoder signals. Available options are HV (Line Driver), PP (Push Pull), OC (Open Collector), PU (Pull Up), H5 (5V Line Driver), P5 (5V Push Pull).

*Note: Units ordered as HV, PP or OC (the most common output types) can be programmed as any of these three output types. Units ordered as H5 or P5 regulate the output to 5V DC and can only be programmed as either H5 or P5 output types. Units ordered as PU contain internal 2.2KΩ pull-up resistors and can only be programmed as PU output type.*

**e. QUADRATURE DIRECTION:** Sets the quadrature direction of the encoder signals (A leads B or B leads A) with clockwise encoder rotation as viewed from the shaft end or mounting face.

**f. WAVEFORM:** Sets the desired waveform option using an interactive selection tool. Waveforms are shown with clockwise encoder rotation as viewed from the shaft end or mounting face.

**g. CONFIGURATION CODE:** This section provides an alternative method to change the encoder settings by filling in the three fields provided.

**h. PROGRAM NEW SETTINGS:** Stores the settings shown in the New Settings fields into the encoder. Once the new settings are programmed into the encoder, the new values will appear in the Current Settings, and a dialog box will appear. (See Figure 6.) You must choose one of these options before disconnecting the encoder.

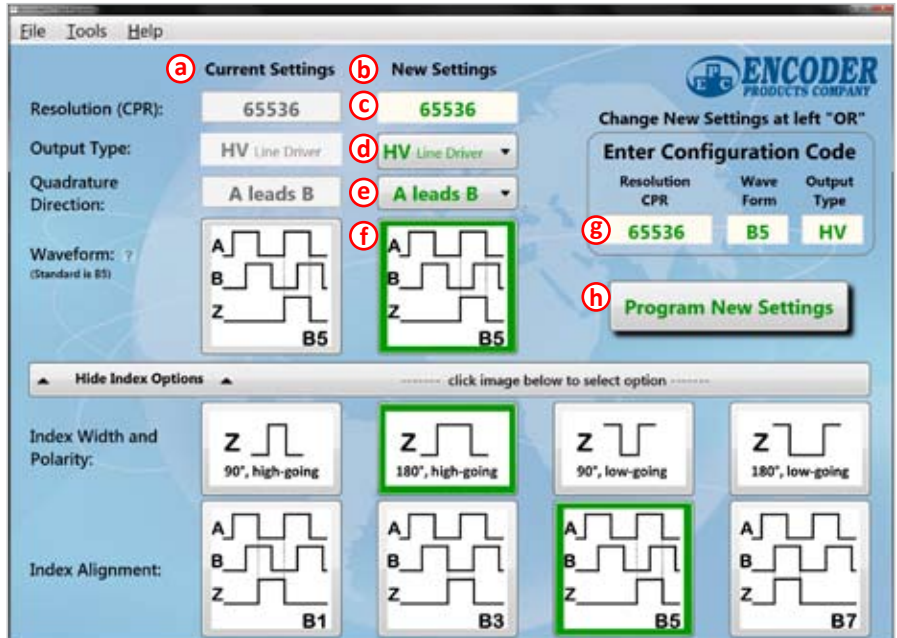


Figure 5

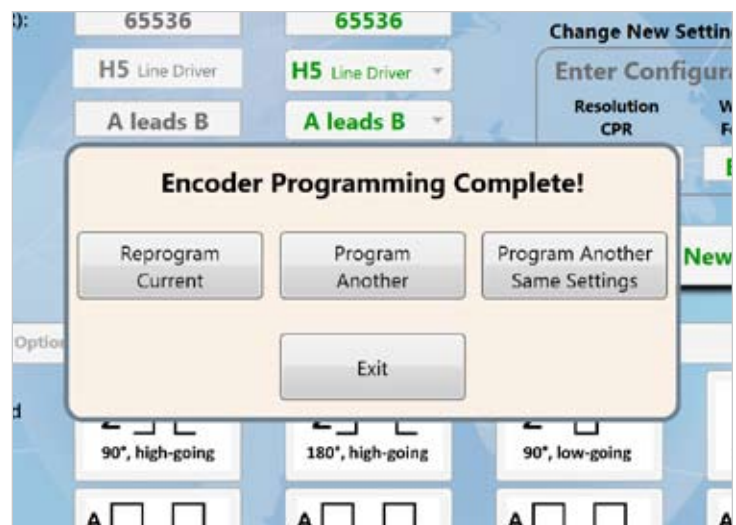


Figure 6

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## 5. TOOLS MENU

(see Figure 7)

**a. Reread Encoder:** Reads the stored encoder settings. This will fill in the Current Settings fields with the encoder's current settings upon successful read.

**b. Teach Index Location:** Sets the index position to the current shaft position. The index is a separate output that produces a pulse at a single unique position during a full rotation of the encoder. Sometimes referred to as a "marker pulse."

**c. View Diagnostic Log:** (See Figure 8)  
Opens the diagnostic log where a list of events/errors that have occurred can be viewed.

I. **Event Count:** The number of each type of event is recorded and can be checked to help troubleshoot problems.

II. **Event Queue:** Records the last 14 events that have occurred from left (newest) to right (oldest). The event queue allows for additional troubleshooting by showing the sequence of events.

**d. Clear Diagnostic Log:** Clears all entries in the diagnostic log.

**e. Reset To Factory Defaults:** Returns the encoder to the configuration that was set when the encoder was originally ordered.

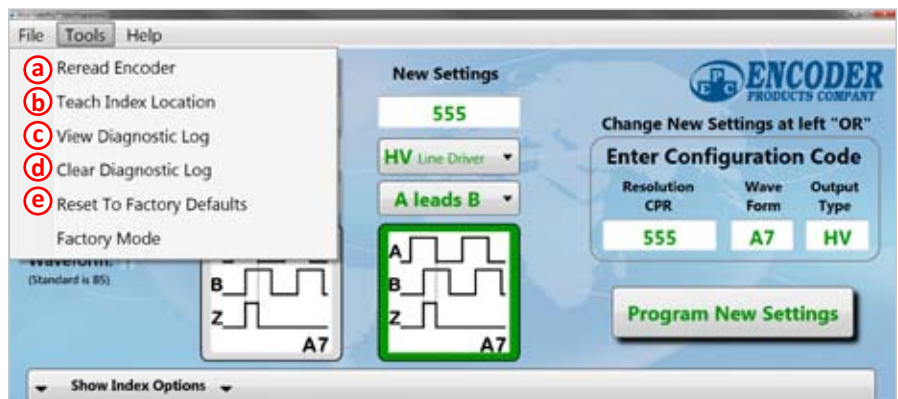


Figure 7

Diagnostic Code	Description	Count
1	LED Current	18
2	Sensor Parity	12
3	Invalid Position (POSOK)	0
4	Micro Controller Power Reset	107
5	CRC Comms	0
6	CRC Sensor Data	3
7	CRC Working Flash	0
8	CRC Backup Flash	0
9	Eusart Framing	6
10	Eusart Overrun	1
11	Sensor Not Programmed	20
12	Sensor Programmed Properly	159

Last 14 Occurrences	Newest to Oldest
4-12-4-12-4-12-4-12-4-12-4-12-4-12-4-12	

Close

Figure 8

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## 6. DIAGNOSTIC LED

(see Figure 9)

The diagnostic LED is located on the back of the encoder and can be used to troubleshoot problems with an encoder. When the encoder is working properly, the diagnostic LED will appear solid. When there is an error, the diagnostic LED will blink at varying intervals.



Figure 9

LED Flashes	Problem	Possible Solution
1	LED current out of range, may still function	Will soon need repair or replacement.
2	Internal Sensor Memory Error, may still function	Try to re-program the encoder. Return for repair or replace if problem persists.
3	Flash Memory Error. Encoder Not Programmed, will not function.	Try to re-program the encoder. Return for repair or replace if problem persists.
4	Sensor Not Programmed, will not function.	Try to re-program the encoder. Return for repair or replace if problem persists.