



**EZ-STREET EFI SYSTEM**  
**for Carbureted V8 Engines**  
**PART# 30700**  
**INSTALLATION INSTRUCTIONS**



Thank you for selecting the Edelbrock EZ-Street EFI system. This is an electronic fuel injection system intended for V8 engines originally equipped with carburetors. The EZ-Street EFI system can be paired via Bluetooth connection with an exclusive tuning software, E-Tuner 4, which is available as a free app for most Android and IOS based tablets and smartphones. The use of a laptop PC is not required for tuning. The E-Tuner 4 app will enable real-time system performance monitoring and fine-tuning adjustments. The EZ-Street EFI system offers you the most bang for your buck, along with out-of-the-box performance from a name you can trust....Edelbrock!

If you have any questions, please contact us toll free at 1.800.416.8628 from 7:00 AM-7:00 PM CST, Monday-Friday with any questions.

**IMPORTANT WARNING:**

**Before beginning the installation, verify that all components are present in the box. Inspect each component for damage that may have occurred in transit. If any parts are missing or damaged, contact Edelbrock Technical Support at (800) 416-8628, not your parts distributor.**

**Carefully study and understand all instructions before beginning the installation. Proper installation is the responsibility of the installer. Improper installation will void the manufacturer's warranty and may result in poor performance and engine or vehicle damage.**

**WARNING: The Edelbrock E-Tuner 4 Software is intended to be used as a hands-free tuning tool and gauge display. Any function that requires prolonged attention should only be performed after coming to a complete stop. Distracted driving is extremely dangerous and illegal in most states. If adjustments are to be made during driving, always stop the vehicle in a safe location before performing any adjustments, or have a passenger perform the necessary adjustments. Please check with your local laws for legal mounting locations in your vehicle.**

**O2 SENSOR INSTALLATION**

It is suggested that the O2 sensor bung be installed by a professional muffler shop prior to the installation of the Edelbrock EFI system. DO NOT drive the vehicle with the O2 sensor unplugged, sensor damage will occur. An O2 sensor bung plug is provided for your convenience. Refer to page 4 for the O2 sensor installation procedure.

**EMISSION CONTROLS**

The Edelbrock EFI system will not accept stock emissions control systems. Check your local emissions laws for requirements before installing the EFI system. This system is not legal for use on pollution-controlled motor vehicles.

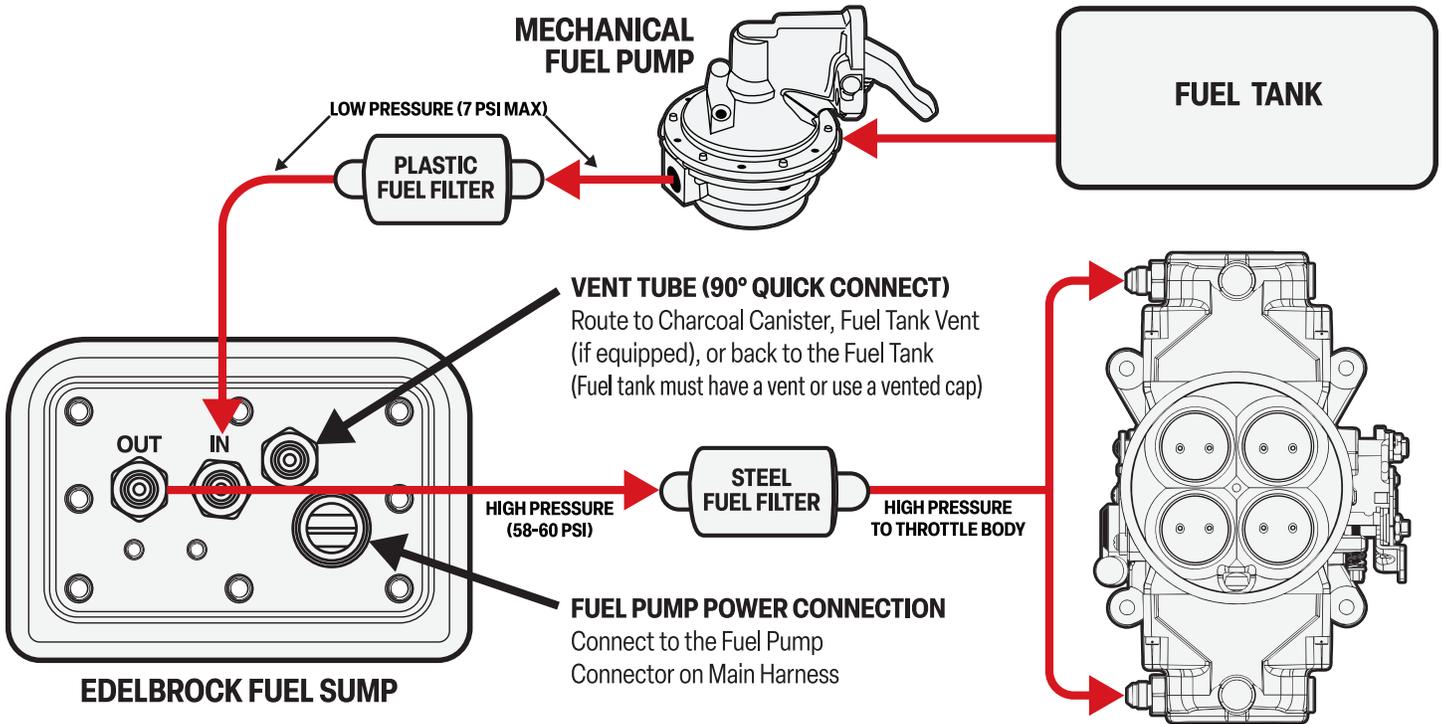
## FUEL REQUIREMENTS

Because the EFI system uses a wideband oxygen (O<sub>2</sub>) sensor, unleaded fuel must be used at all times. Using leaded fuels will damage the O<sub>2</sub> sensor and void your warranty. If leaded fuel is present in your fuel tank, the tank must be drained and filled with unleaded fuel. It is also recommended to have a full tank before operating the vehicle (after the installation).

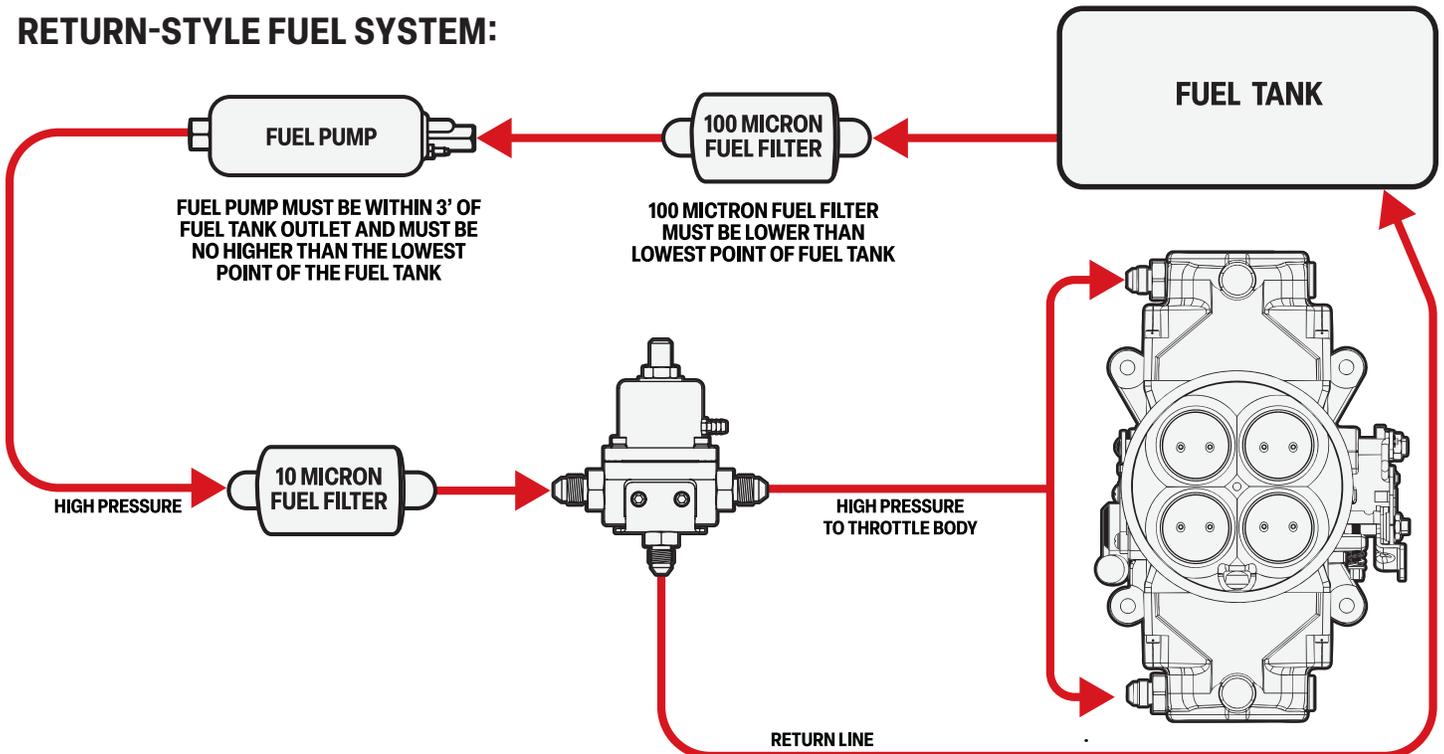
**NOTE: E85 fuels are not compatible with this EFI system.**

## FUEL SYSTEM REQUIREMENTS

### UNIVERSAL EFI FUEL SUMP SYSTEM:



### RETURN-STYLE FUEL SYSTEM:



## AUTOMATIC TRANSMISSION CHECK

For best performance, economy, and emissions, the transmission kick down and shift points must be checked before and after the EFI system installation.

## IGNITION SYSTEM CHECK

Verify that all your ignition components are operating properly. Verify ignition timing and spark advance curves have been properly set. High EMI suppression spark plug wires are necessary (Edelbrock Max-Fire Spark Plug Wires), do not use solid core spark plug wires. Resistor type spark plugs are necessary.

## CHARGING SYSTEMS

The EFI System requires a constant battery voltage of 12.0 volts or greater to operate properly. Recommended battery capabilities are: 1000CA @32°F / 800CA @0°F. The vehicle's battery must be in good operating condition capable of maintaining a proper charge at all times. Verify the vehicle's charging system is operating properly and that the system voltage maintains 12.0 volts, or greater, at all times. All chassis grounds must be tight and clean. A ground cable from the engine block to chassis and battery negative should be employed. All battery cables must be in good condition providing a clean tight connection to the battery.

## COOLING SYSTEM

The minimum temperature requirement for the thermostat is 180°F.

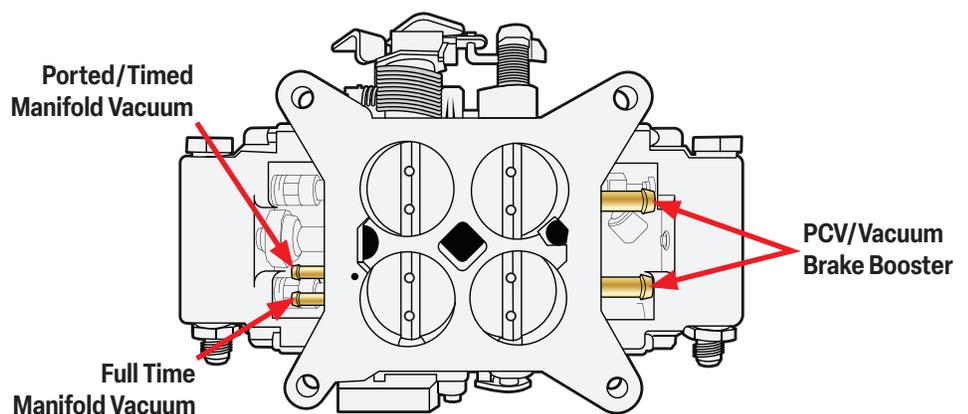
## TOOLS AND SYSTEM REQUIREMENTS

Use the following checklist for items needed.

- |  |   |
|--|---|
| <input type="checkbox"/> Wrench / Socket Set   | <input type="checkbox"/> Throttle, Cruise Control & Transmission Kick-Down Mounting Bracket (See general Edelbrock catalog if necessary)                                  |
| <input type="checkbox"/> 7/8" Oxygen Sensor Socket or Equivalent                                 | <input type="checkbox"/> 180°F Thermostat   |
| <input type="checkbox"/> Pliers (Channel locks and hose clamp)                                   | <input type="checkbox"/> Resistor Type Spark Plugs (Use correct heat range for your particular application)   |
| <input type="checkbox"/> Screwdrivers (Phillips and Flathead)                                    | <input type="checkbox"/> High EMI Suppression Spark Plug Wires (DO NOT use solid core spark plug wires)   |
| <input type="checkbox"/> Gasket Scraper or Equivalent  | <input type="checkbox"/> EFI Fuel System (See fuel system recommendation on Page 2)   |
| <input type="checkbox"/> Timing Light  | <input type="checkbox"/> Mechanical Fuel Pump Block Off Plate (Except for vehicles running a Fuel Sump System #36031 or #36032)   |
| <input type="checkbox"/> Shop Rags   | <input type="checkbox"/> Fuel Fittings (Additional fitting may be required depending on routing preferences. Visit <a href="http://www.russell.com">www.russell.com</a> ) |
| <input type="checkbox"/> Loclite 598 OEM High Temperature Silicone Gasket (O2 Sensor Compatible) | <input type="checkbox"/> 30 AMP Automotive Relay (If using electric fans or A/C Kick up one relay required for each accessory)  |
| <input type="checkbox"/> Vehicle Wiring Diagram (If Available)                                   |   |
| <input type="checkbox"/> Thread Sealer   |   |
| <input type="checkbox"/> High-Heat Anti-Seize Compound   |   |

## INCLUDED COMPONENTS:

- Throttle Body Assembly
- Throttle Body gasket
- Wiring Harness
- ECU
- Wideband O2 Sensor
- Weld-In Oxygen Sensor Bung
- Oxygen Sensor Bung Plug
- Coolant Temp Sensor
- Bag w plugs, fittings, pigtails, and miscellaneous electrical connectors and terminals
- Screws for mounting ECU



**PLUG ANY UNUSED VACUUM PORTS BEFORE INSTALLING THROTTLE BODY**

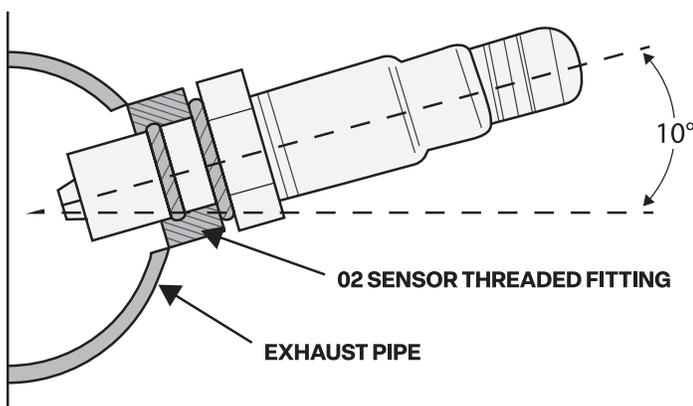
## WIDEBAND OXYGEN (O2) SENSOR INSTALLATION PROCEDURE

The O2 sensor must be installed in the exhaust system using the supplied O2 sensor bung from Hardware Bag #1. The O2 sensor is required as it measures the oxygen content of the exhaust gas, which is used by the ECU to manage fuel delivery under closed loop control.

**NOTE: It is suggested that the O2 sensor bung be installed by a professional muffler shop prior to the installation of the Edelbrock EFI system. DO NOT drive the vehicle with the O2 sensor unplugged as this will damage the O2 sensor. An O2 sensor bung plug is provided for your convenience. Because of harness length constraints, it is highly recommended to install the O2 sensor and the ECU on the same side of the vehicle.**

**WARNING: A properly sealed exhaust system is critical for the E-Street 2 EFI to function properly. Any air leaks in the exhaust system will skew the O2 sensor's output resulting in improper calibration which can lead to engine damage. Improper installation of the O2 sensor and any damage that may result is not covered by any Edelbrock Warranty.**

1. Verify that the header and tailpipe gaskets and flanges are in good condition. It is recommended to replace any damaged gaskets and flanges as they may cause exhaust leaks, which can lead to inaccurate Air Fuel Ratio (AFR) readings. Torque all fasteners to manufacturer's specifications to avoid any possible exhaust leaks.
2. The O2 sensor bung must be installed in the exhaust system approximately 4-8" after the header collector and before the catalytic converter (if equipped). There must be at least 4 feet of exhaust after the sensor (no cutouts or open headers). This location must be approximately 10° above horizontal and within reach of the O2 sensor harness connector on the E-Street main harness.
3. Mark the drilling location on the exhaust system pipe with a permanent or paint marker. Check the proposed mounting location to ensure the clearance for the O2 sensor is adequate and that the O2 sensor connector on the main harness will reach the O2 sensor location. Make sure to take engine movement into consideration when checking for clearance.



4. Drill a 5/8" hole at your mounting location. Deburr and clean the hole as needed.

5. Fit the provided bung onto the hole opening. Secure the bung with a clamp and weld the bung into place.
6. Once the installation of the bung is complete, make sure to clean the threads of the fitting to ensure it's free of debris.  
**NOTE: The O2 sensor bung uses an M18 x 1.5 thread pitch.**
7. If you are ready to install the EFI system, proceed to Step #9 to install your O2 sensor. Otherwise, if your EZ-Street EFI System will be installed at a later time, temporarily install the O2 sensor bung plug supplied in the Hardware Bag #1 with a 7/8" wrench. This will allow you to drive the vehicle until the O2 sensor is installed.
8. When you are ready to begin installation of the EFI system, remove the O2 sensor bung plug.
9. Apply a high-heat anti-seize compound (not included) to the threads of the O2 sensor and install into the bung using a 7/8" oxygen sensor socket or 7/8" wrench.

## EDELBROCK EFI INSTALLATION

1. Disconnect the battery before proceeding with the installation.
2. Remove the air cleaner, throttle linkage, vacuum, and fuel lines from the factory carburetor.
3. Clean all debris from the intake manifold and unbolt the carburetor. Cover the 4150 flange of the manifold to prevent debris from falling into the plenum.
4. Install the coolant temperature sensor in the intake manifold coolant passage on the engine side of the thermostat.
5. Remove the covering from the 4150 flange of the manifold. Install the TBI throttle body with the supplied 4150 gasket. Verify that the throttle linkage is on the driver side of the vehicle. Use the hardware to fasten the throttle body to the intake manifold.  
**NOTE: Connect any vacuum lines to throttle body**
6. Attach the throttle linkage and **verify that it moves freely without binding**. Also, verify that the throttle is completely open whenever the gas pedal is to the floor.
7. Find a suitable mounting location for the ECU. This should be on the same side of the vehicle as the O2 sensor. Recommended mounting locations are the fender well, inner fender panel or inside the vehicle on the passenger side kick panel. Be sure the O2 sensor connection reaches the main harness connector.  
**NOTE: It is recommended to mount the ECU in a location away from excessive heat, vibration, possible water exposure and as far away from spark plug wires, and ignition related components as possible.**
8. Using the supplied sheet metal screws from hardware bag, mount the ECU to the desired mounting location.
9. Find a suitable harness route in the engine compartment which leads to the ECU location. Connect the main harness to the ECU.

**TIP: For most installations, the harness fits best if routed from the throttle body back towards the firewall, across the firewall, then**

towards the ECU location.

**NOTE: Avoid routing the harness near any ignition related components (ignition coil, distributor, spark plug wires). Also avoid routing near the headers, sharp edges, or any tight radius corners that may damage the harness.**

10. Route the power and ground leads on the main harness towards the battery. Connect the RED POWER lead (+12 Volt) and the BLACK GROUND (-) lead to the appropriate battery terminals. If necessary, the power and ground leads may be extended to reach the battery. However, the use of 12-gauge wire or larger is required.

**WARNING: All power and ground leads must connect directly to the battery. DO NOT RUN THE BATTERY POSITIVE LEAD TO THE STARTER OR GROUND LEAD TO ENGINE BLOCK OR CHASSIS!**

Securely mount the Fuse Holder and the Main Relay in an accessible location.

11. Connect the Pink/Black IGN switched wire on the main harness to a +12 Volt switched power source that provides +12 Volts when the key is both "ON" and "CRANKING".

**NOTE: It is critical that the switched +12 Volts to the IGN switch wire is constant during cranking. This is a common issue on vehicles with no start or hard to start issues. Do not connect this to the positive side of the coil.**

12. Secure the harness and leads with tie wraps from the hardware bag. Avoid over tensioning wire ties as this may damage the harness.

13. If not already completed, remove the previously installed O2 sensor bung plug from the bung in the exhaust system and install the O2 sensor into the bung using a 7/8" oxygen sensor socket or 7/8" wrench. Connect the main harness lead labeled "O2 Sensor" to the O2 sensor connector. Secure the O2 sensor lead as to avoiding contact with the exhaust pipes. Make sure to leave plenty of air space between the harness and the exhaust manifolds/headers.

14. Connect the sensor/injector portion of the main harness from the ECU to the sub harness that is pre-installed in the TBI throttle body. Plug the coolant temp sensor (ECT) harness lead into the ECT sensor.

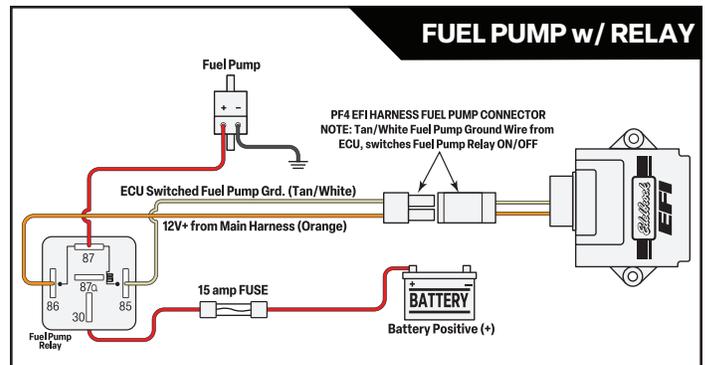
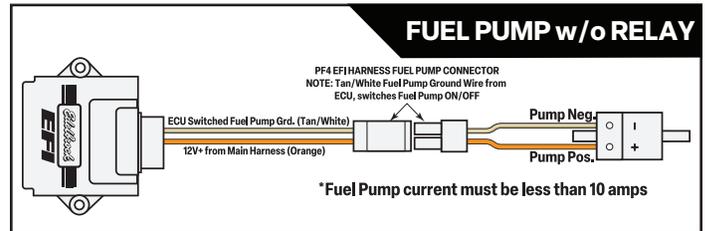
15. Due to the universal nature of the Edelbrock EFI system, it's impossible to preset the front and rear throttle blades to best fit all the different possible idle characteristics of engine and cam size combination.

**NOTE: To produce the best idle, the front and rear throttle blades MUST be opened the same amount.**

16. If you are NOT running Ignition Control (separate Ignition Control components are required), refer to the Ignition Diagrams (pages 12-14) at this time to properly configure your tach signal input. Once your tach signal input is configured, proceed with Step 17.

**NOTE: If you ARE running Ignition Control, refer to the Ignition Control installation instructions on page 9-11 to properly install the Pro-Flo distributor. Once complete, return to this manual and continue with Step 17.**

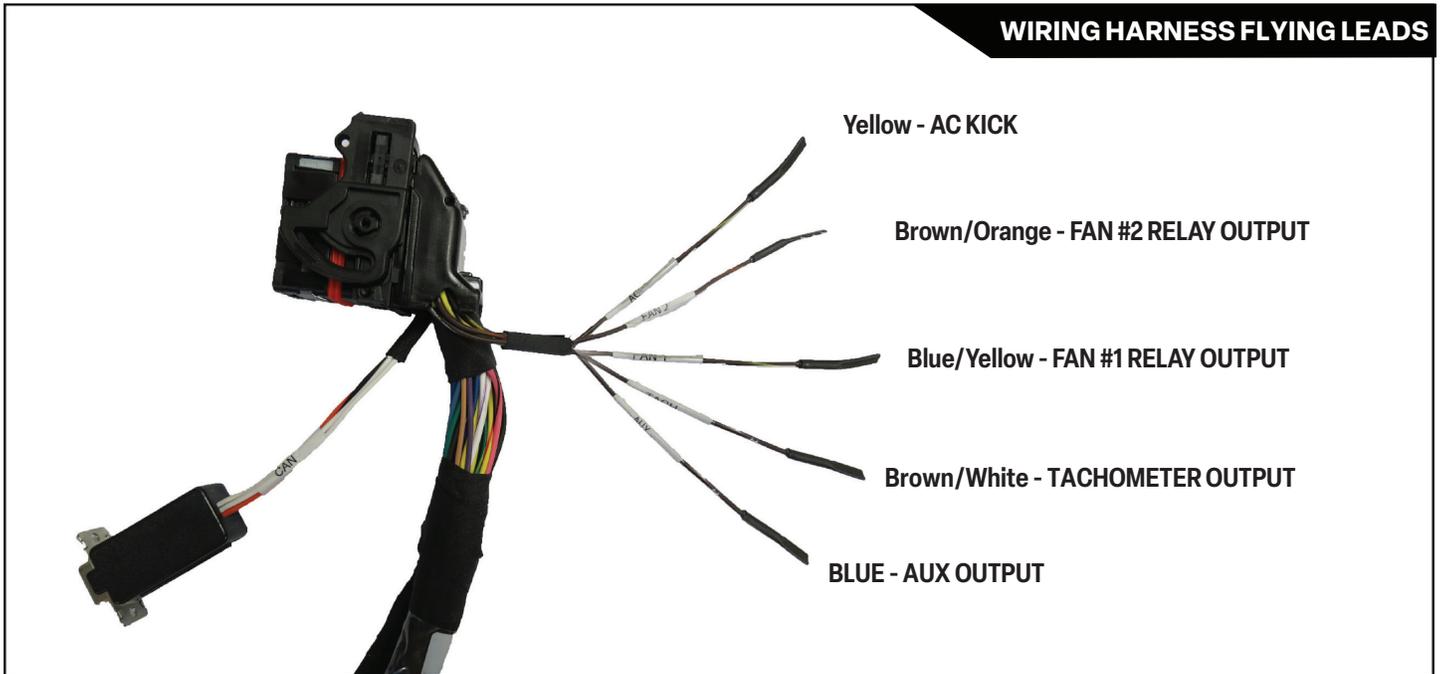
17. Use the provided 2 pin male Weather Pack connector and terminals to build a plug-in fuel pump power/ground connection with the fuel pump power lead in the main wiring harness labeled "Fuel Pump". Maximum fuel pump current must be less than 10 Amps if powering the pump directly from the ECU. If using a fuel pump that draws more than 10 Amps during normal operation, a relay must be used – see fuel pump wiring diagrams below. When the ignition switch is first turned on, the ECU will run the fuel pump for 8 seconds to prime the fuel system and then shut off. The fuel pump will be turned on anytime an RPM signal is detected by the ECU. Refer to your fuel system's installation instructions then return to this manual and continue to the next step.



18. Once the Edelbrock EFI System and fuel delivery system have been installed, continue to the setup guide for the Edelbrock E-Tuner Setup Wizard to complete your installation.

## FAN AND TACHOMETER OUTPUTS

The main harness has five flying leads near the ECU connector: two outputs for triggering electric fan relays, one output for tachometer signal, one auxiliary output, and one AC kick. Do NOT connect ECU fan outputs directly to electric fans. Fan outputs can only be used to trigger relays – see fan diagrams on the next page. Use only Bosch type automotive relays. Do not use heavy duty relays – see relay selection below.



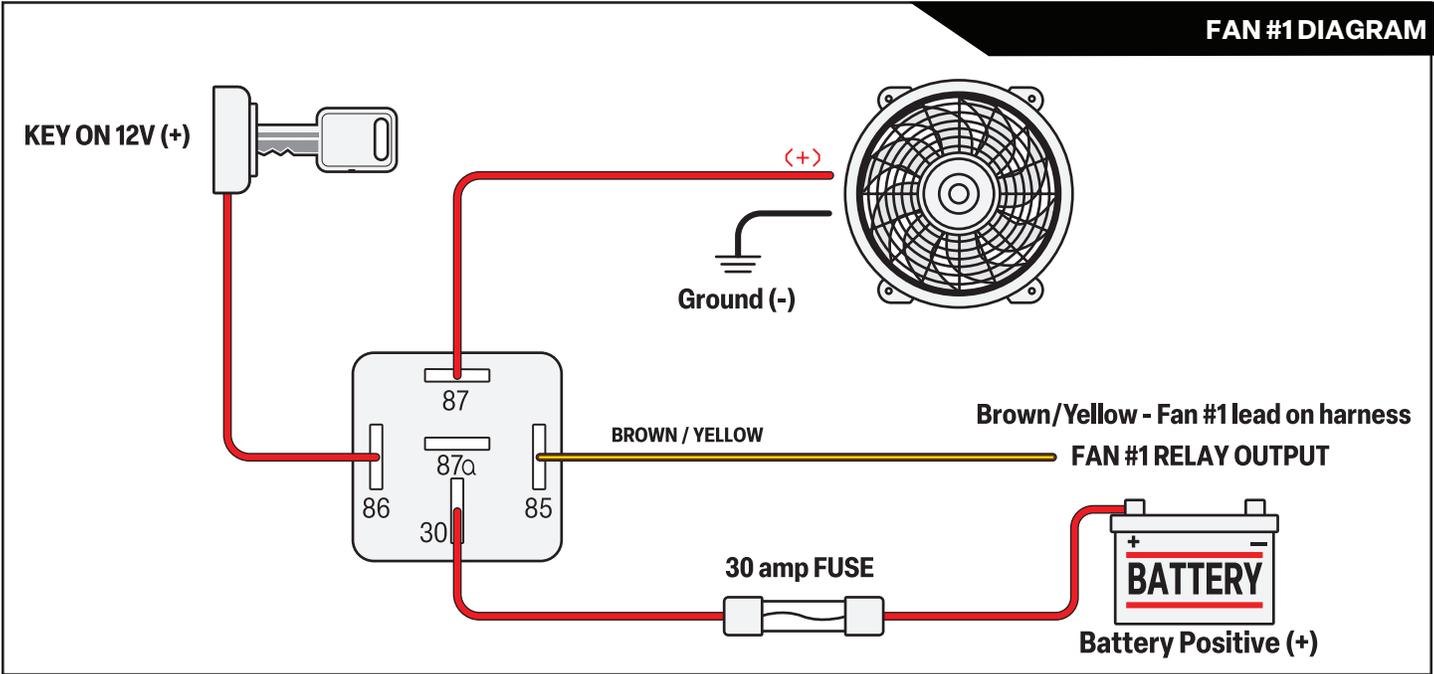
## RELAY SELECTION

Be sure to use Bosch style 12v relays. Do not use “heavy duty” style relays or solenoids. Doing so could damage the ECU.

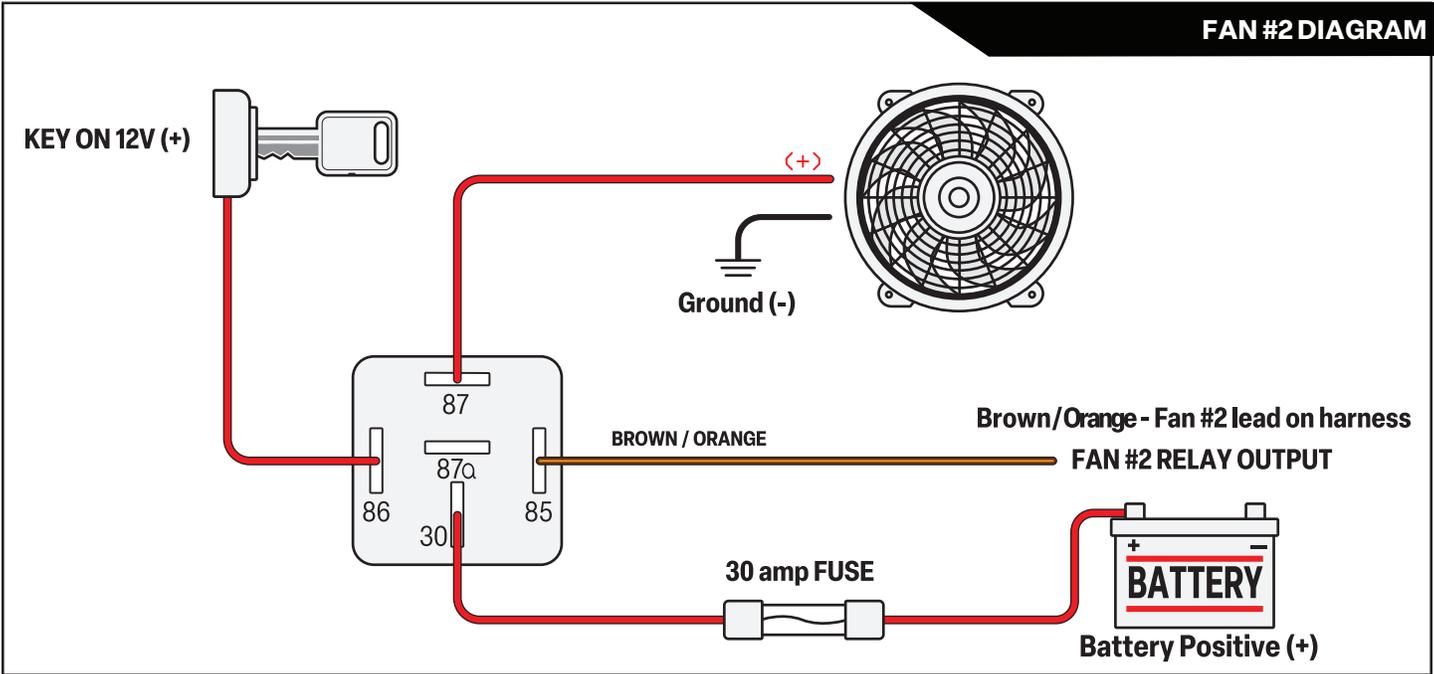


# FAN AND TACHOMETER DIAGRAMS

## FAN #1 DIAGRAM



## FAN #2 DIAGRAM

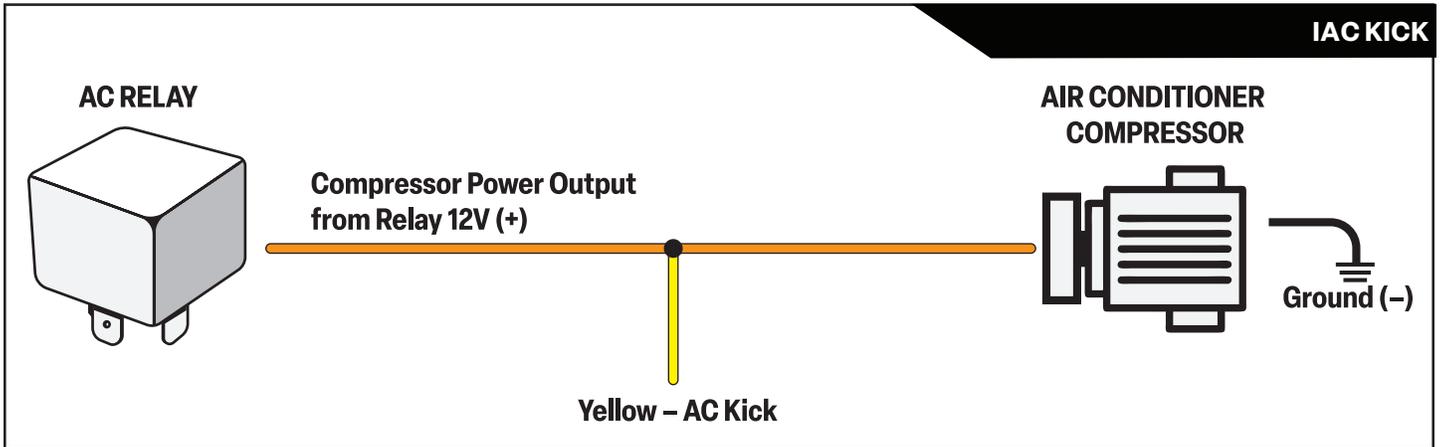


## TACHOMETER



# AC KICK DIAGRAM

IAC KICK



## DISTRIBUTOR INSTALLATION INSTRUCTIONS (IF USING EDELBROCK PRO-FLO 4 EFI DISTRIBUTOR)

1. Verify the engine is still positioned at 12 degrees before top dead center with cylinder #1 on a compression stroke.
2. Install the gasket onto the distributor housing and apply a liberal amount of lubricant to the distributor gear.

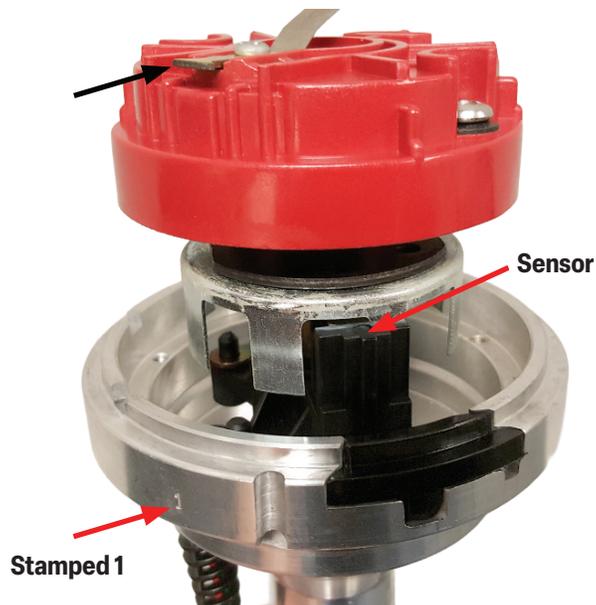
**NOTE: Disregard distributor housing O-rings on Chevrolet applications.**

3. Install the Edelbrock Pro-Flo distributor so that the rotor is pointed in the proximity of the #1 stamped on the outside of the distributor housing and the short trigger tooth is just entering the distributor sensor.

**NOTE: You may need to remove and reinsert the distributor a few times to get the alignment correct. Make sure that the distributor seats down completely and has full engagement with the oil pump drive. You may need to rotate the oil pump shaft to ensure it is engaged properly.**

4. Tighten the hold down clamp leaving it just loose enough that you can rotate the distributor during the timing procedure. The final timing will be set using the app.

### DISTRIBUTOR ROTOR LOCATION AT INSTALLATION POINTING TO #1 ON SIDE OF HOUSING WITH ENGINE AT 12° BTDC CYLINDER #1 ON COMPRESSION STROKE.

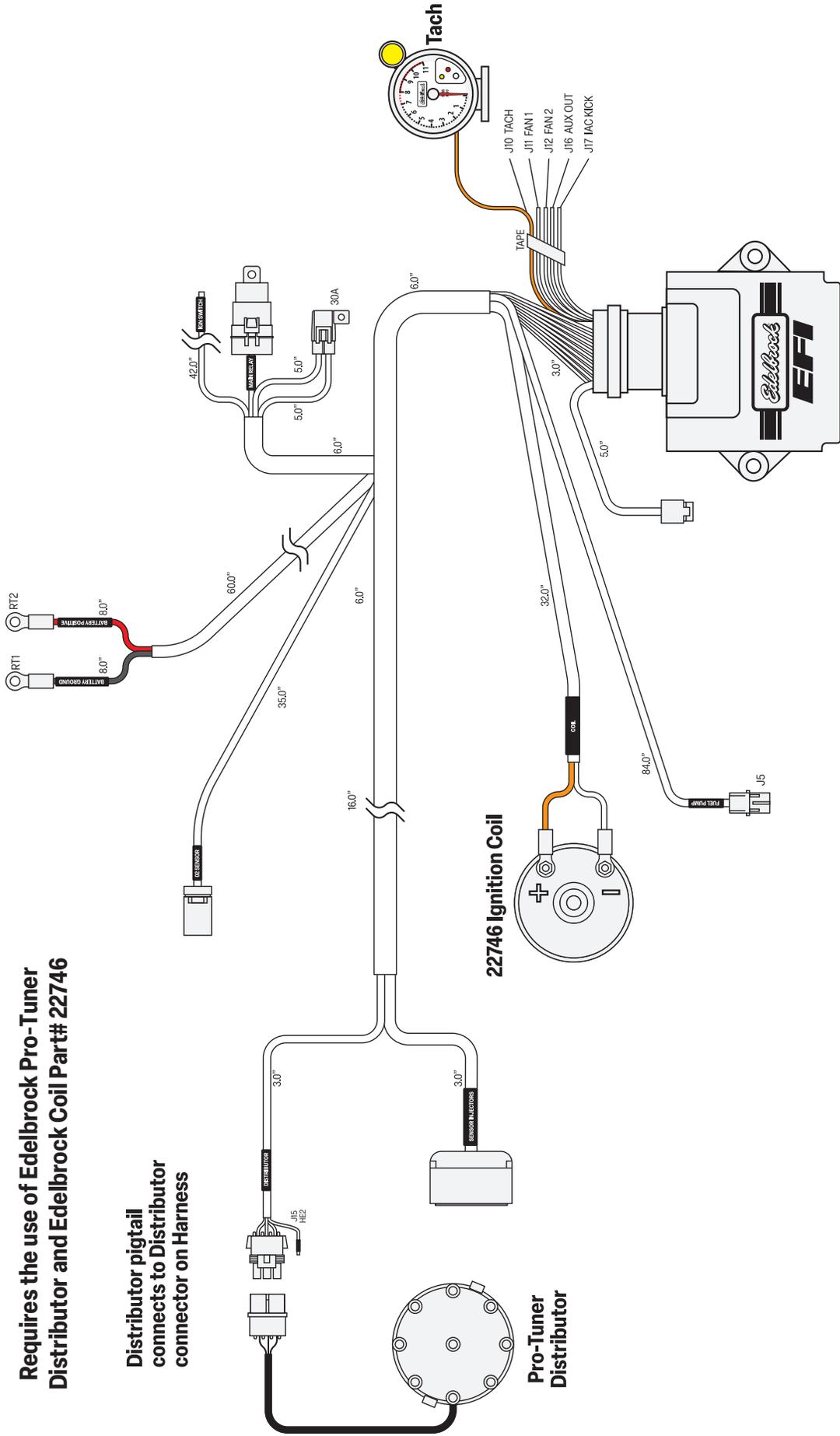


5. The coil can be directly fired without the use of a CDI box. Connect the Orange coil wire on the chassis harness to the positive (+) terminal on the coil. Connect the White coil wire to the negative (-) terminal on the coil.
6. Install the spark plug wires. Position the cylinder 1 spark plug wire on the distributor cap post located at the 1 stamped on the distributor housing.

# EZ-Street Ignition Control

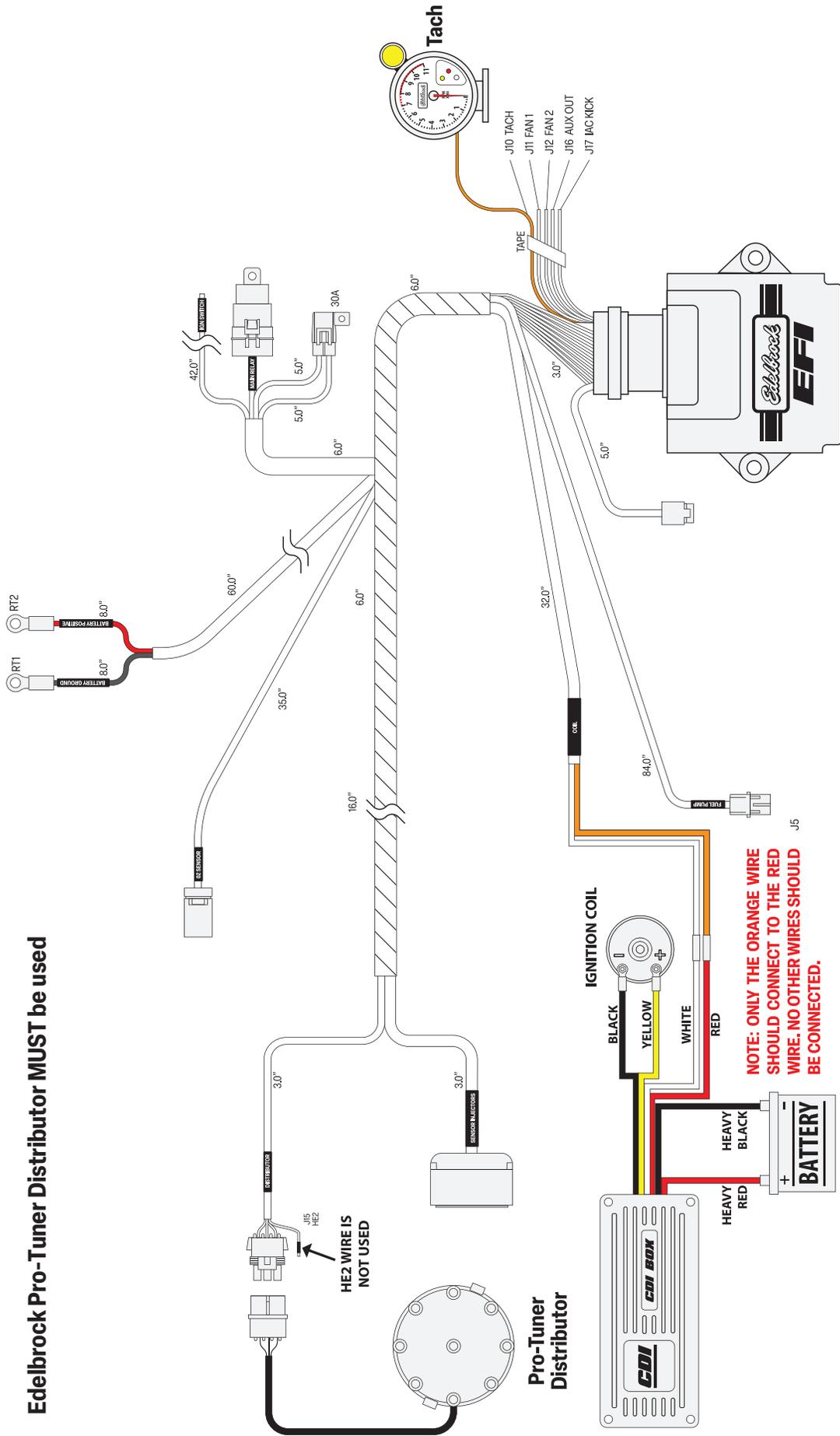
Requires the use of Edelbrock Pro-Tuner Distributor and Edelbrock Coil Part# 22746

Distributor pigtail connects to Distributor connector on Harness



# EZ-Street Control with CDI Box

## Edelbrock Pro-Tuner Distributor MUST be used

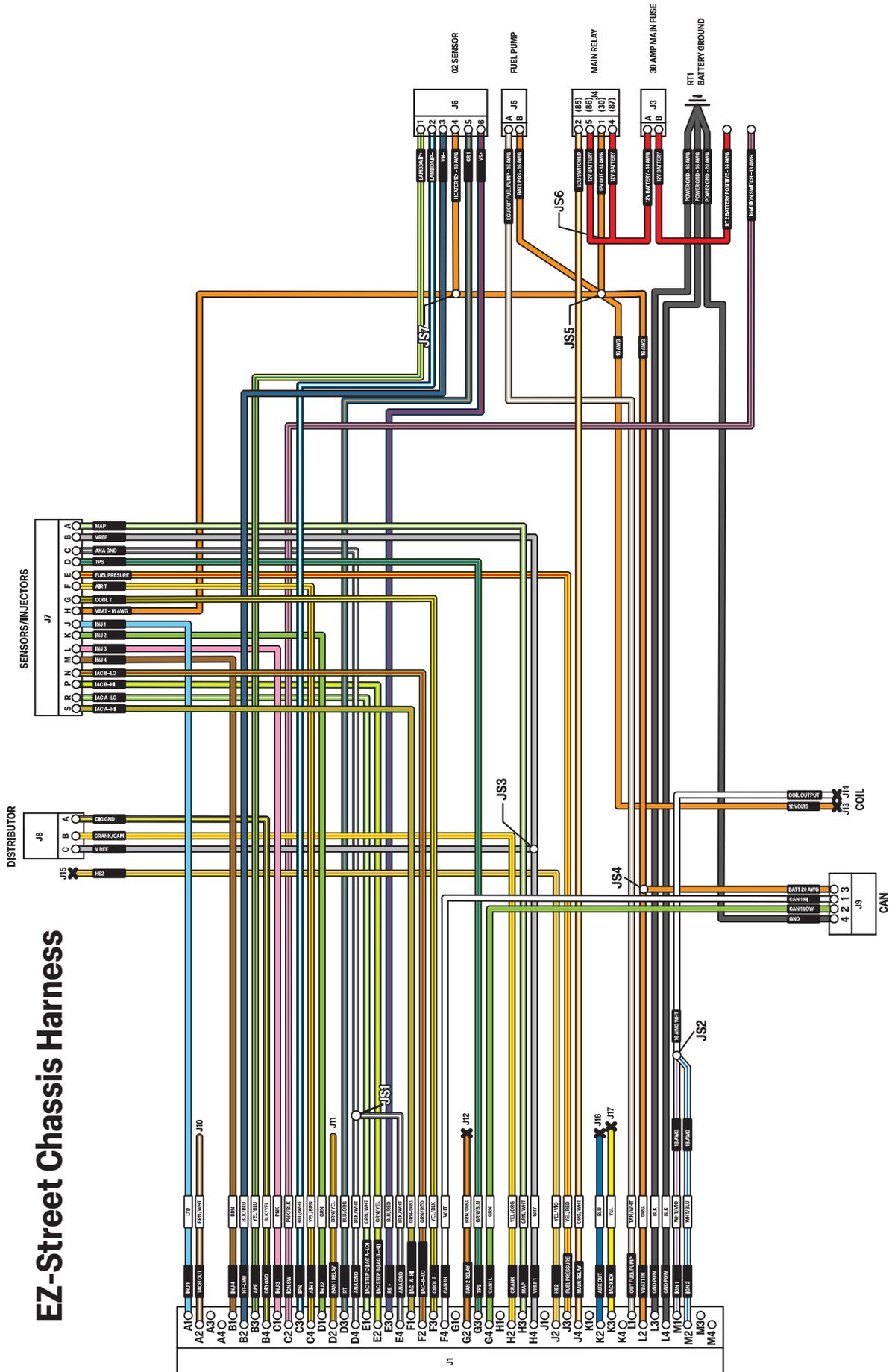




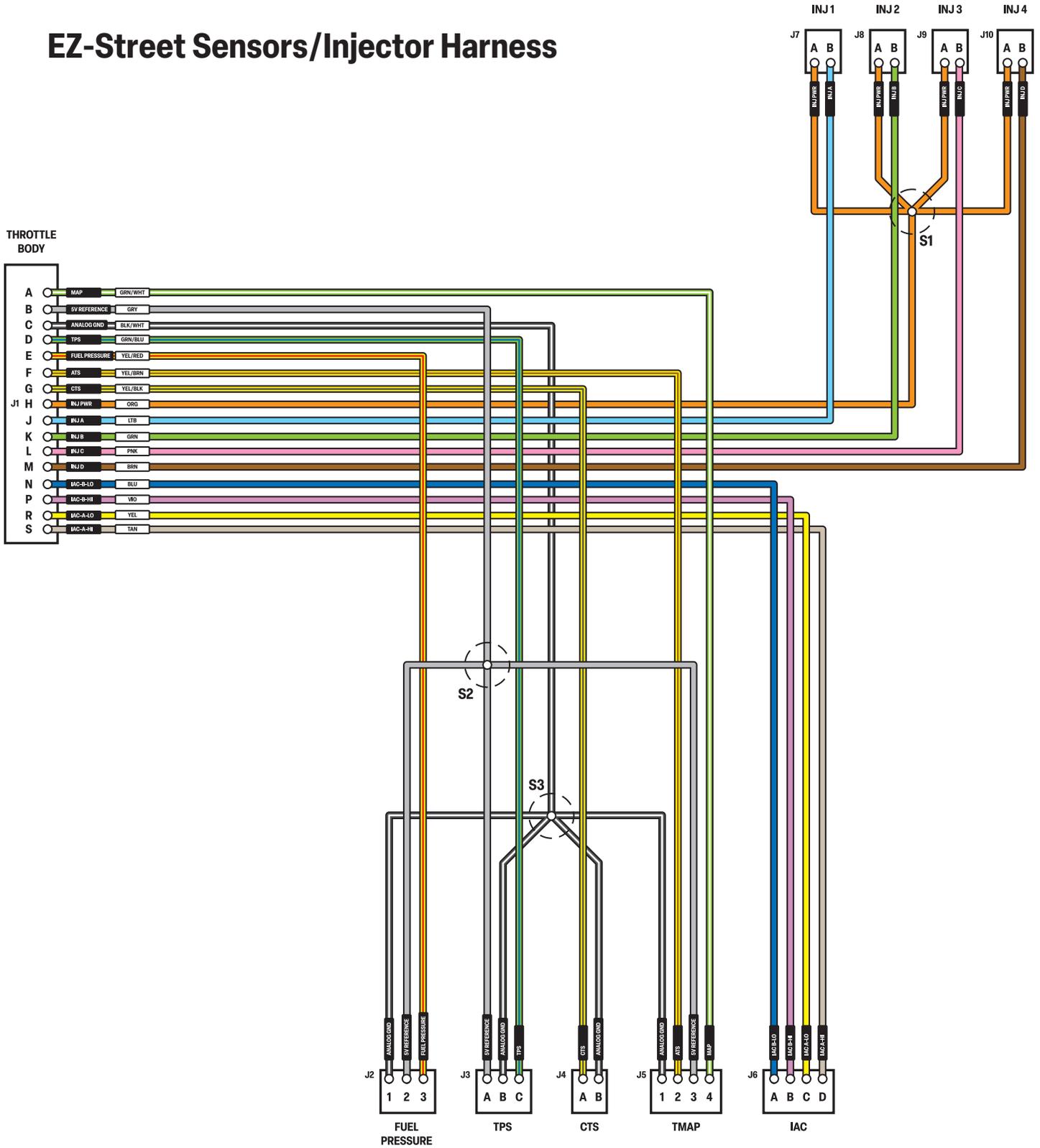




# EZ-Street Chassis Harness



# EZ-Street Sensors/Injector Harness



# E-Tuner Setup and Tuning Guide

## Communication and pairing with the ECU

**Step 1 : Download and install the E Tuner 4 app on your smartphone or tablet.**

### GENERAL MOBILE DEVICE RECOMMENDATIONS

The Edelbrock EFI E-Tuner app is compatible with most Android and IOS based Smartphones and tablets. However, due to slight variations in device specifications and operating systems, some devices may work better than others, and in rare cases, some devices may not function at all. Any device that is known to be “incompatible” or “problematic” will either be specified on the App Store page or will fail to download.

**NOTE: All information in this guide is also available in app by pressing the help icon in the upper right hand corner.**

### Device Types:

Smartphones (5” – 6”) or Tablets (7” – 8”) Screen Resolution should be at minimum 1024 x 600 pixels.

**NOTE: Screens sizes in the 3” - 4” or 10” - 12” range, or screens with lower resolutions are supported but not recommended for the E-Tuner App.**

### Bluetooth:

It is recommended that the Mobile device has at least Bluetooth 2.0 or higher.

**NOTE: Not all devices with Bluetooth may communicate properly with the Edelbrock ECU.**

### Wi-Fi / Data (3G/4G)

Wi-Fi or a Data Plan will be necessary for downloading the E-Tuner app from the App Store and for downloading any updates that may be released.

### To Download or Update the App

Open the App Store and search for “Edelbrock E-Tuner 4”. This app is for both the EZ-Street and Pro-Flo 4 systems. Be careful not to install “Edelbrock E-Tuner 4 Plus”, which is for the Pro Flo 4 Plus system. This will require a Google or Apple Account, if one is not set up, follow the on-screen tutorial to do so. Edelbrock may periodically push out updates to the app. It is highly recommended to download these updates as they will include vital improvements as well as bug fixes. To check for updates, go to the App Store or the Edelbrock website.

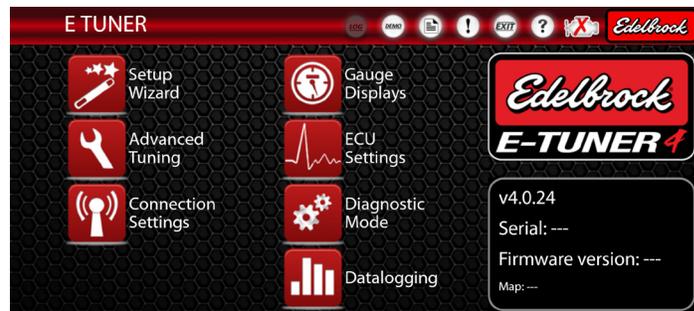
### Step 2: Start the Edelbrock E-Tuner App

From your mobile device’s Home Screen, find the Edelbrock E-Tuner icon and select it. The icon may be on a different part of the home screen, or select the “All Apps” icon and find it in that menu.



### E-Tuner Home Menu Overview

The E Tuner APP and Tablet are for setting up, tuning and troubleshooting the EZ-Street system. The Tablet does not have to be permanently used for the EFI system to operate. All of the E-Tuner’s functions can be conveniently accessed directly from the main menu.



### E-Tuner Features

**Setup Wizard** - Initiates E-Tuner’s step-by-step guide to selecting & loading a proper base calibration for your specific engine combination.

**Advanced Tuning** - Provided to make modifications beyond the basic settings that were configured during the initial setup of the EZ-Street.

**Connection Settings** - Use this menu to pair an Android device with the EZ-Street.

**Gauge Displays** - Displays essential parameters to monitor proper EZ-Street performance.

**ECU Settings** - Contains all the functions related to saving and restoring the ECU’s map and firmware settings.

**Diagnostic Mode** - Diagnostic Mode can be used to help determine if a sensor is unplugged, damaged or otherwise reading outside of its expected range. If the vehicle runs poorly, check the status of each of the parameters on this page.

**Datalogging** - This menu allows importing and viewing of saved Datalogs. It also allows the user to email a datalog directly to EFI Tech Support.

**System Info** - This box in the lower right corner will display the system info when connected to an ECU (Serial #, ECU Firmware, Map, EFI System, and App Version).

**Main Menu Shortcut Buttons** - Log, Demo, Installation Documents, Warnings, Exit, Help, and Connection Status.



The **HELP** icon provides detailed information regarding the selected menu page currently in use.

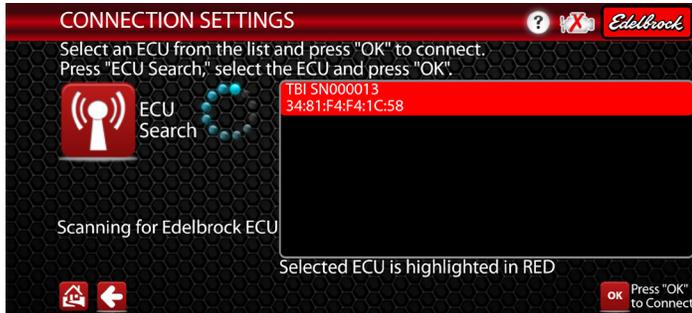


### Step 3: Connect the App to the EZ-Street ECU

The ECU must be paired to a Tablet or Cell Phone and powered ON before attempting to connect. All ECU connections can be managed from the E-Tuner's Connection Settings menu.

#### Bluetooth Pairing:

To pair your Bluetooth enabled Tablet or Cell Phone follow the pairing instructions below. E-Tuner will search for an EZ-Street ECU that is within a "discoverable" range. This discovery range should be as close as possible, within 10-15 feet of the ECU for best results. However, this can vary between different smartphones, tablets, and vehicles. The chances of successfully pairing will decrease if the bluetooth device is too far away from the ECU or if the signal is too weak.



#### To Pair with an ECU:

- 1 Turn the ignition to the ON position to power on the ECU.
- 2 Press ECU Search and wait for your ECU to be listed. EZ-Street ECU's are identified by their six digit serial number: SNXXXXXX.
- 3 Select your ECU and press OK to start connecting.
- 4 The top of the screen will flash yellow and the hourglass icon will spin while the app tries to connect.
- 5 If the pairing and connection are successful, the app will show a green check mark icon. Once connected, the Setup Wizard (see Quick Reference Guide) can be used to configure the ECU with a calibration specific for your engine configuration, watch the Gauge Displays to monitor the system, or change settings in the Advanced Tuning Section.

#### Connecting to the ECU, After Pairing:

It should not be necessary to repeat the pairing procedure once the pairing code has been entered and the Android device and the ECU are connected. NOTE: If the ECU is deleted or unpaired, it will be necessary to revisit the Pairing Procedure menu before any further communications can be made.

The **Connection Button** is to start or stop a connection with the ECU when the system is powered on. This is shown in the upper right-hand corner of the menu, next to the Edelbrock Logo.

#### Connection Button



**To Start Connecting to an ECU:** Key ignition power on and press the connection button while a RED X icon is shown. This icon will turn into a rotating hourglass and a yellow bar will flash at the top of the screen until E-Tuner is connected. This icon will turn into a GREEN check mark when E-Tuner is connected with the ECU.

**To Stop a Bluetooth Connection:** Press the GREEN check mark icon. The icon will return to a RED X. This may take a few seconds to disconnect.

Bluetooth connection will also be stopped each time the app is closed. If the flashing yellow bar is active on the menu, the Connection Button can be pressed to open a popup with quick access to the Connection Settings Menu.

#### Notes on how the E-Tuner connects to the ECU:

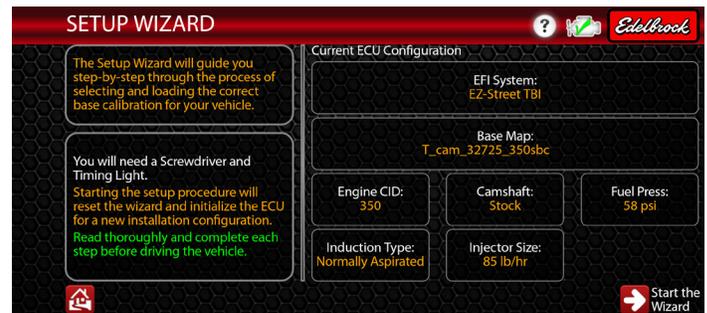
- During a key OFF event, the ECU requires 10 seconds to fully shut down. The GREEN check may continue to display for a few seconds before becoming a RED X.
- If the ECU was connected with the E-Tuner app and a different app is toggled to, E-Tuner will try to reconnect the next time the app is resumed.
- If the app is having a hard time connecting, the best recommendation is to turn the ignition off and wait until the RED X appears and then turn the ignition back on.
- If the ECU is turned off while the app is connected, the Bluetooth connection must be reestablished by pressing the RED X.

### Quick Start Guide

Follow these steps to use the Setup Wizard. Your Tablet or Cell Phone must first be paired with the ECU before using the Setup Wizard.

#### TOOLS NEEDED

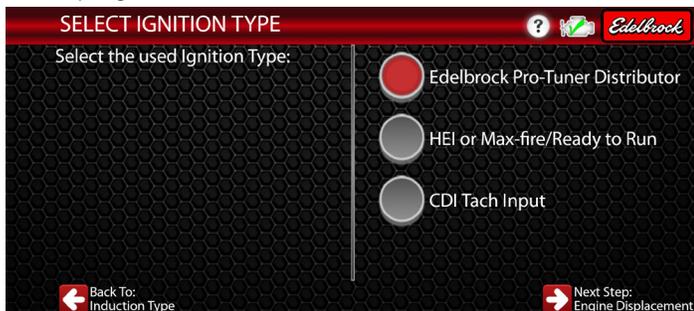
- Flat tip screwdriver
  - Timing light
  - Wrench for distributor hold down bolt
1. Power on the phone or tablet that will be paired with the ECU and verify it is adequately charged.
  2. Find the E-Tuner App icon on the home screen and tap it to launch the E-Tuner App.
  3. With the ignition switch turned ON, tap the engine icon with RED X to connect the ECU. The title bar across the top of the screen will flash yellow indicating that the device is attempting to communicate with the ECU. Once E-Tuner connects to the ECU, the engine icon will show a GREEN check.
  4. Tap the Setup Wizard icon. Once the Wizard opens, tap the Start the Wizard right arrow.



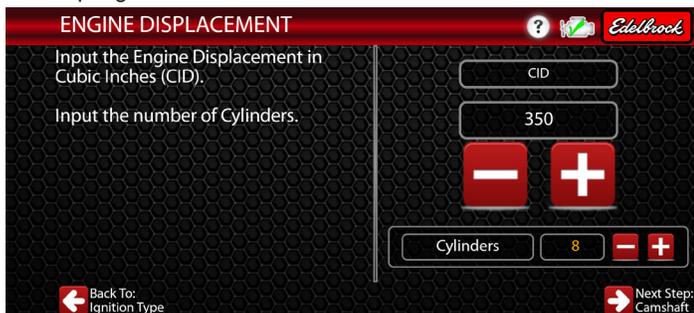
5. Induction Type. The EZ-Street only supports Naturally Aspirated engines. Tap Right Arrow to continue.



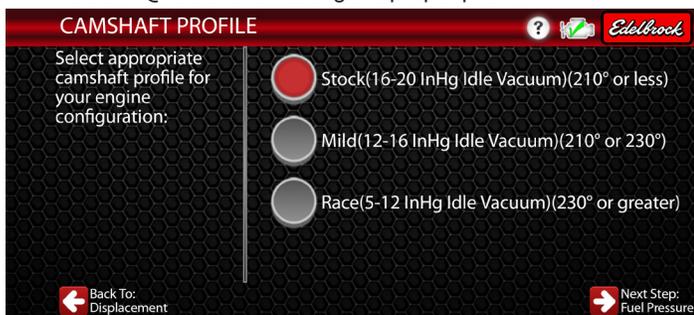
6. Select the Ignition Type or Distributor that is being used. Tap Right Arrow to continue.



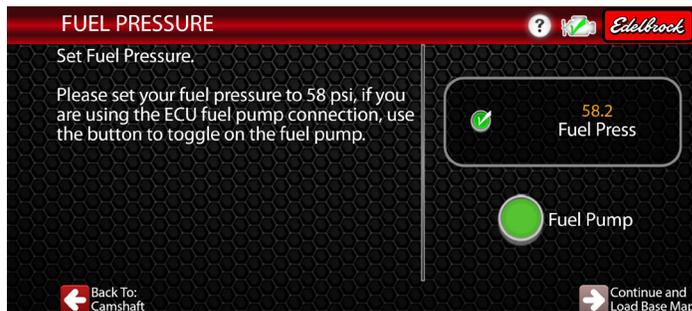
7. Use the + and - buttons to choose your Engine Displacement. The EZ-Street only supports V8 applications at this time. Tap Right Arrow to continue.



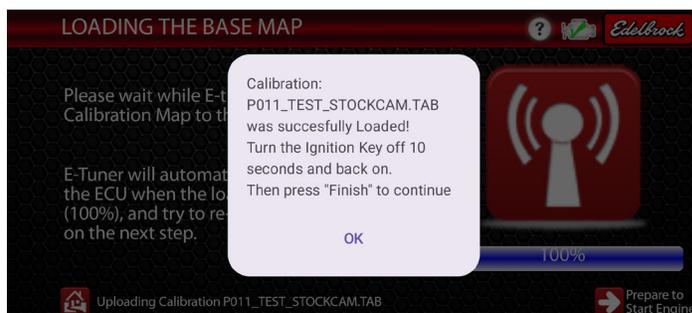
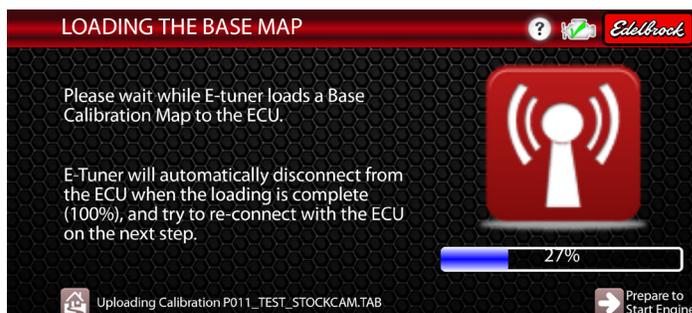
8. Select the appropriate Camshaft Profile for the engine. The screen provides guideline for Idle Vacuum and Duration @.050 of the camshaft. If Idle Vacuum of the engine is known, use it over Duration @.050 for selecting the proper profile.



9. Fuel Pressure. The fuel pressure needs to be 58psi for the EZ-Street System. Tap the Red Button next to Fuel Pump to turn the pump on. Then adjust the fuel pressure regulator to achieve 58psi. A green checkmark will appear when the fuel pressure is adjusted correctly. Tap the Green Button to turn the pump off, then tap the Right Arrow to continue.



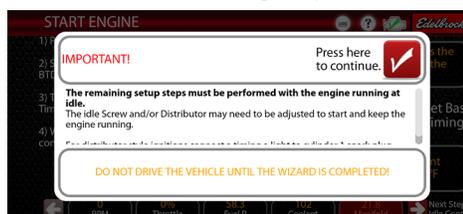
10. Loading the Base Map. The Calibration Map will load automatically. After it loads, it is important to turn the Ignition Key Off for a full 10 seconds before turning it back on. This process saves the setup values into permanent memory in the EZ-Street. Tap the Right Arrow to continue.



**If running an HEI, CDI, Max-Fire, or Ready-To-Run distributor (No Timing Control) skip to step 15.**

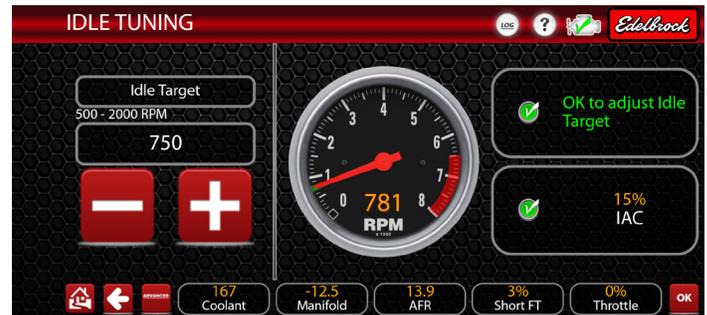
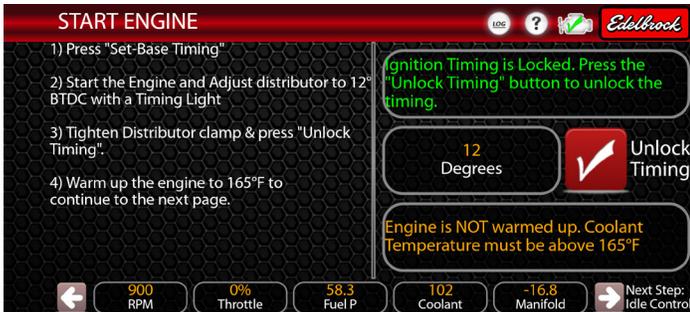
**If running Edelbrock Pro-Tuner distributor(with Timing Control) continue to step 10.**

10. Read the Important Warning. Now is the time to connect the Timing Light. A wrench for the distributor hold down and a flat blade screwdriver will also be needed. Then tap the check mark to continue. Do not start the engine, yet.



11. First, press the button next to Set Base Timing. This will lock the timing to 12° BTDC.
12. Start the Engine. The Throttle Screw may need to be adjusted for a steady idle. A little higher idle speed, like 800-1000 rpm is good. (If the engine does not start, go to page XX of these instructions.)
13. Check timing with the timing light and adjust the distributor until timing shows 12° BTDC. Tighten up the distributor hold down and double check that the timing is at 12° BTDC.
14. Press the button Unlock Timing. Let the engine warm up to at least 165°F BEFORE continuing to the next page. Click the Right Arrow to continue.

19. Press the button in the upper left corner to lock the engine in the idle state.
20. Adjust the Idle Target to your desired Idle Speed with the + and – buttons.
21. Adjust the Throttle Screw with flat blade screwdriver until the IAC is 10-15%. If the IAC is Higher than 15% turn the screw Clockwise slowly while watching the IAC number. If the IAC is Lower than 10% turn the screw Counter-clockwise slowly while watching the IAC number.
22. Once IAC is stable in the 10-15% range, tap the Right Arrow to Continue.



### Pro-Tuner distributor skip to step 18.

15. Start the Engine. The Throttle Screw may need to be adjusted for a steady idle. A little higher idle speed, like 800-1000 rpm is good.
16. Even though the EZ-Street is not controlling ignition timing, it is very important for a good running engine. Take this time to check the timing with a timing light. Consult the engine builder for the proper ignition timing or if this engine was tuned previously with a carburetor, the same timing curve should be OK. Here are some general guidelines for idle timing:
  - Near stock engine with small camshaft and over 16" idle vacuum: 6-12° BTDC
  - Modified engine with mild camshaft and 12-16" idle vacuum: 10-16° BTDC
  - Heavily modified engine with large camshaft and less than 12" idle vacuum: 14-22° BTDC
17. When finished with checking the timing and making any adjustments, tap the Right Arrow to continue.

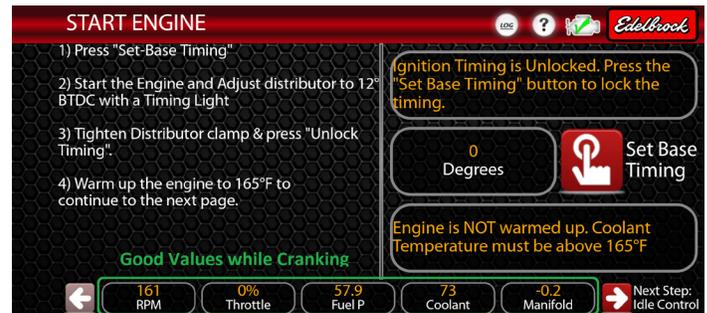
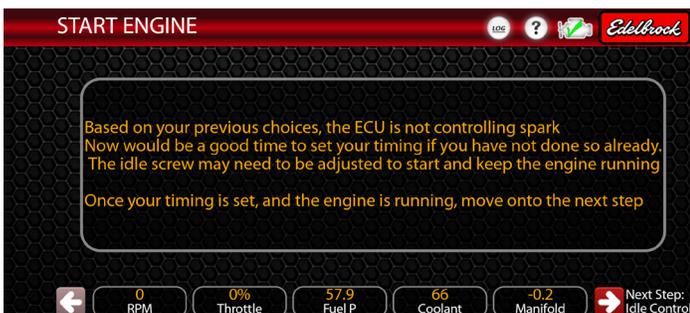
23. Throttle Follower helps to “catch” the engine and prevent stalling especially in vehicles with manual transmissions. Most engines work well with Throttle Follower% between XX and XX%. Too much can cause the revs to hang above idle and too little can cause stumbles or stalls.
24. Lightly rev the engine and adjust the Throttle Follower until the engine smoothly returns to idle. Tap the Right Arrow to Continue.

### (Picture of Throttle Follower Screen)

25. The Setup Wizard is now complete. Turn the Key Off and wait 10 seconds for the EZ-Street to save all the settings into permanent memory.

## What to do if the engine does not start?

First, check with a voltmeter or test light that the 12v Ignition Switch wire (Pink/Black) has 12v+ while Cranking. Some terminals on the ignition switch or in the fuse panel will lose power when turning the Key from the Run to the Start position. If the engine will not start during the Setup Wizard, first check the values across the bottom of the screen.



Start engine screen with Timing Control

18. Make sure the engine is warmed to at least 165°F coolant temperature. The normal operating temperature for the engine in the vehicle works best, whether that is 180°F or 210°F.

### With Key On, Engine Off:

- Throttle should read near 0%. If it is not reading near 0%, first turn the Key Off (wait at least 10 seconds) and turn the Key On. The EZ-Street should re-calibrate the Throttle% after a Key Cycle. If Throttle is reading over 80% with throttle closed, the injectors will not spray. Inspect the throttle linkage for binding. Inspect the TPS Sensor and wiring for any signs of damage. Call Edelbrock Help Line if it is still not working correctly.
- Coolant should read near ambient temperature on a cold engine. For example, if it is 60°F outside and Coolant shows 200, inspect the sensor and wiring for any signs of damage. Call the Edelbrock Help Line if it is still not working correctly.
- Manifold should read 0.0 at sea level. At higher elevations, it is OK if Manifold reads a little off 0.0. For example, at 5000ft elevation, Manifold may read -5.0 to -6.0. If Manifold reads -10.0 or higher, call the Edelbrock Help Line for additional troubleshooting.

### While Cranking:

- RPM should read between 100 and 300. If RPM is not reading at all while Cranking, make sure the distributor is connected properly. Go to Page XX of these instructions and review the distributor wiring for your application. If the engine turns over slowly, less than 100rpm, the battery may need to be charged or there could be a problem with the starter motor.
- Fuel P should read near 58.0. Fuel Pressure should have been set to 58psi in a previous step of the Setup Wizard. If that step was missed, please go back through the Setup Wizard procedure. If fuel pressure is too low, there could be a wiring problem, check for loose connections, chaffed wires, and a blown fuse. There could also be a restriction in the feed line or a problem with the pump. If pressure is very high, more than 70psi, check fuel plumbing and make sure the return line is not kinked or stopped up.

If all these values look correct, tap the Right Arrow on each screen to exit the Setup Wizard and return to the Home Menu. Next, tap Gauge Displays, then Digital Display. This will bring up a screen with all the sensor values.

(Picture of Digital Display)

The above values are typical for a normal system with Key On Engine Off on a cold engine.

- Battery should read over 12 volts on a fully charged battery. While Cranking, it should NOT drop below 10.0 volts. If volts drop below 10 during cranking, charge the battery and/or have it tested to make sure the battery is good.
- Air Temp should read near ambient temperature on a cold engine. It will normally be within a few degrees of the Coolant Temp. If it does not read correctly, call the Edelbrock Help Line.

If all the values appear correct, but the engine will not start, call the Edelbrock Help Line, 1-800-999-0853 or email [efitech@edelbrock.com](mailto:efitech@edelbrock.com) for additional assistance.

## E-Tuner Gauge Displays

The E-Tuner app features 3 different gauge displays to monitor live engine & ECU sensor data. In order to view data you must first be connected to the ECU (GREEN checkmark).

### E-Tuner Display

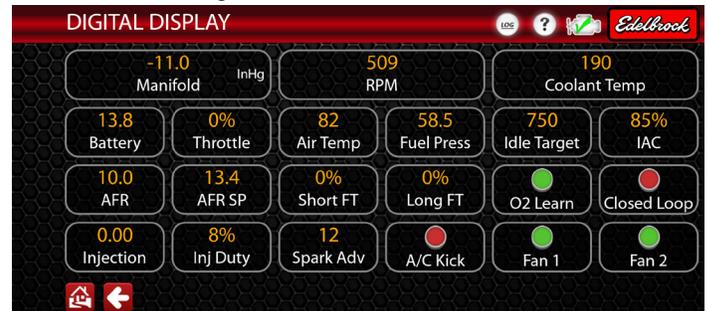
This display is most suitable for users who are new to the EZ-Street EFI system and want to familiarize themselves with how the main components and sensors work together.



E-Tuner Display

### Digital Display

This page displays all parameters used by the EZ-Street system and is useful for keeping an eye on multiple system parameters or for help while troubleshooting.



Digital Display

### EFI Dashboard Display

This display offers several different layout options rather than an all-in-one view. All information and data shown is the same as the other display pages. To switch between different layouts, press the different channel buttons.



EFI Dashboard Display CH1

## EDELBROCK E-TUNER DISPLAY DEFINITIONS

**RPM:** The current engine speed will be displayed here in units of Revolutions per Minute (RPM). On circular tach gauges, the current Rev-Limit setting will be shown as a thick RED arc along the outer edge of the gauge. The Rev-Limit can be adjusted by going to Advanced Tuning>Limiters>Rev-Limiter. If the engine RPM reaches the Rev-Limit, the gauge will be highlighted in RED until the RPM drops below the limit.

**Manifold:** Displays the amount of pressure inside the intake manifold. The amount of “negative pressure” or vacuum is measured in units of inches of Mercury (InHg). The amount of “positive pressure” or boost is measured in units of Pounds Per Square Inch (PSI).

**Coolant Temp:** Displays the engine’s coolant temperature at the location of the coolant temperature sensor, in units of degrees Fahrenheit. Many functions of the EZ-Street ECU reference this measurement. Functions such as Fan Control, Cold-Start, Self-Learning, and Idle are influenced by the coolant temperature.

**Battery:** Displays the system’s current voltage as measured at the ECU. Good indicator of the general capability of the vehicle’s charging system. Typical values should be between 12-12.6 with Key On, 10-12 while Cranking, and 13-14.5 while engine is running.

**Throttle:** Displays how much the throttle blades are open inside the throttle body. The ECU reports throttle position as a percentage of open throttle. Please note that at Idle, the Throttle should read 0%.

**Air Temp:** Displays the temperature of the engine’s incoming air charge. Air Temp channel can also give a good estimate of the under the hood temperature.

**Fuel Press:** Displays the system’s fuel pressure as measured at the fuel rail. A drop in fuel pressure during hard acceleration may indicate a fuel supply issue. Typical values should be between 56-60 PSI.

**Idle Target:** Displays the current Idle RPM Target. The Idle RPM Target when at operating temp (>160°F) is set in Advanced Tuning>Idle Tuning. When the engine’s coolant temp is cold (<160°F), the Idle RPM Target will be increased to help the engine warm up more quickly and will eventually decay down to the regular Idle RPM Target.

**IAC %:** Displays how open or closed the IAC (Idle Air Control) motor is. The IAC% channel should be used as a tool for properly adjusting the idle screw to set the base idle speed. A lower value indicates that the IAC is having to supply little additional air to help the engine idle. A higher value indicates that the IAC is having to supply a lot of additional air to help the engine idle and that the idle screw may need to be increased. Ideally, the idle screw should be adjusted so the IAC% is 5-15% with the engine at operating temp.

**AFR:** The Air Fuel Ratio is measured by the wideband oxygen sensor and is displayed as AFR gasoline (Stoich 14.7). Higher values are leaner and lower values are richer. The lowest possible value that can be sensed is 11.0. A value of 10.0 will be displayed any time the sensor is warming up or not ready to report accurate AFR readings. Note that when Decel Fuel Cut Off is active, AFR will report full lean – this is normal and expected.

**AFR SP:** The Air Fuel Ratio Set Point is the AFR value the ECU is trying to achieve. This value is set in the Air Fuel Ratios menu from the Advanced Tuning section. The AFR SP will change as the engine is operated in the different engine load zones.

**Short FT:** Stands for Short Term Fuel Trim. This is the percentage of fuel that the closed loop AFR correction function has added or subtracted from the base fuel injection amount to achieve the desired target AFR at any specific moment. As the vehicle is driven through various load and RPM conditions, the Self-Learn function will apply and save these values to the Long Term Fuel Trim (Long FT) map and this value will decrease. Ideally, Short FT values will be less than +/-10%. If Short FT values are more than this, apply Fuel Modifiers as necessary to reduce the closed loop AFR correction amount.

**Long FT:** Stands for Long Term Fuel Trim. This is the percentage of fuel that the Self-Learn table has “learned” and is being added or subtracted from the base fuel injection amount to try and maintain the target AFR at any specific moment.

**Injection:** This value is the amount of time, displayed in milliseconds, that the fuel injectors are open to deliver fuel. For the same load and RPM, a higher Injection value should result in a richer AFR and a lower Injection value should result in a leaner AFR.

**Inj Duty:** Displays the Injector Duty Cycle value. Injector Duty Cycle is a comparison of the injector on time versus the current engine cycle time and is shown as a percentage. As engine RPM increases, the engine cycle time decreases as does the available injection time.

**Spark Adv:** Displays the current ignition timing value being applied to the engine in degrees before TDC. The ignition timing curve is set in the Advanced Tuning>Spark Control. When in idle mode, the ECU will rapidly advance and retard the ignition timing to control idle speed thus fluctuation in Spark Adv are normal. Status Indicators

**O2 Learn:** When indicator light is GREEN, Self-Learn function is active and Short FT values are being written to the Learn fuel map. The “learned” values are then applied as a Long Term Fuel Trim which can be monitored by looking at the Long FT read out. For Self-Learn to be active, Closed Loop Correction must be active and engine coolant temp must be >165°F. The indicator light will be RED if these conditions are not met or if SelfLearn has been turned off in the On/Off Options. It is normal for this indicator to flash back and forth intermittently.

**Closed Loop:** When indicator light is GREEN, the ECU is actively controlling fuel corrections using the Closed Loop Correction function. When the indicator light is RED, the ECU is in Open Loop mode and no AFR corrections will be made. Closed Loop will be off for up to 30 seconds after the engine has been started as the O2 sensor warms up. After the O2 sensor has fully warmed up, the Closed Loop indicator will turn GREEN. Note that Closed Loop will turn off during periods of rapid throttle movement and during deceleration.

**Fan 1/2:** When indicator light is GREEN, the corresponding fan output has been turned on to trigger a cooling fan relay. If cooling fans aren’t triggered on, the indicator light is RED. Note that the fan outputs are only turned on when the engine is running.

**A/C Kick:** When indicator light is GREEN, the ECU has detected the Air Conditioner compressor clutch is engaged. The set idle speed will be increased by the number in the Advanced Idle menu.

## EZ-Street EFI TUNING GUIDE

The following is a guideline to driving procedures that helps assist the self-learning function of the EZ-Street EFI system. Please note that there is never really a time when the self-learn function is actually complete. The system is always adjusting for various weather, road load and engine functions that may affect engine performance. A good indication of self-learn progress is the amount of Short FT % being applied under various driving conditions. As the self-learn progresses Short FT Corr % should reduce to values near 0%. In order for the self-learn function to actually correct a specific load point the engine must actually drive through that specific point. The best procedure for assisting self-learn is to first verify that all functions of the EFI System are properly installed and functioning correctly.

Warm the vehicle to operating temperature (165 F degrees) and verify that both the O2 learn and Closed Loop indicators are lit. Drive the vehicle in an ordinary manner and observe the Short FT Corr % values. If at any point the vehicle does not run accordingly, observe the Short FT Corr % values. If the value exceeds 10%, try holding the Throttle steady so the vacuum and RPM remain steady at the point of issue. The Short FT Corr % value should reduce and the engine should begin to run better. Try to revisit the Vacuum and RPM points around the point of issue to help compensate. Try to avoid fast erratic throttle movement when assisting self-learn. If issue is severe and corrections exceed 15% see Fuel Modifiers Page.

Continue driving the vehicle, when road conditions safely permit try running the engine through various load and RPM points.

For example:

- Steady Highway driving consistently varying throttle and RPM.
- Low gear light slow acceleration from low to high RPM.
- High gear light acceleration from low to high RPM.
- High gear slow steep hill acceleration.
- Hard acceleration from low to high RPM.

As the vehicle is driven, AFR Corrections should reduce. When performance is acceptable, save the Map and ECU Settings (ECU Settings) and slow the Self Learn setting to medium or slow (Advanced Tuning\_Air Fuel Ratios\_Advanced).

**NOTE: Do not make any adjustment to the Acceleration Fuel initially.**

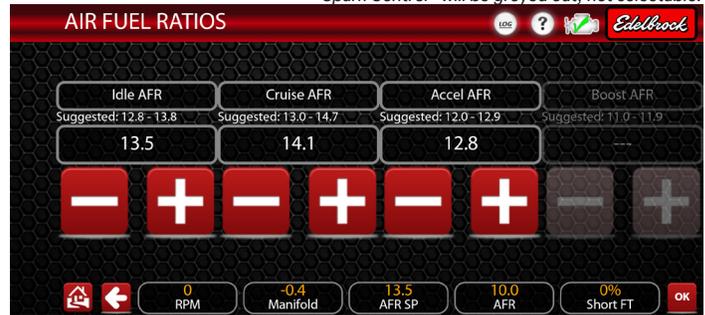
Allow the self-learn adequate time to apply corrections to the base calibration prior to making any Acceleration Fuel adjustments.

**WARNING: WOT conditions must be performed on a closed track in a controlled environment.**

## Advanced Tuning Menu



When Not Controlling Timing, "Base Timing" and "Spark Control" will be greyed out, not selectable.



### Air Fuel Ratios

EZ-Street has user settable Air Fuel Ratio (AFR) targets for three different engine load zones: Idle, Cruise, and Acceleration.

**IDLE** load zone is active when TPS is less than 2% and engine speed is less than 1400 rpm.

**CRUISE** load zone is active when TPS is 2% or more but less than 50% and engine speed is greater than 1400 rpm.

**ACCELERATION** load zone is active when either TPS is more than 50% or MAP is more than -7.5 InHg.

A lower AFR target is richer and a higher AFR target is leaner.

Default AFR Targets

Idle 13.4

Cruise 13.9

Acceleration 12.8

### AFR Set Point Tuning Guidelines

#### Idle AFR Set Point - Suggested Range: 13.0 - 14.0

Some larger displacement engines with larger camshaft profiles may require a richer idle (lower the AFR target). Observe idle quality when making adjustments. Idle set-point can also have some effects on light throttle cruise and tip-in performance. If the idle becomes unstable or wants to surge, a Richer Idle AFR Set Point will help smooth it out.

#### Cruise AFR Target - Suggested Range: 13.0 - 14.5

Adjust Cruise AFR set point for smoothest steady state cruise performance. The target can be leaned out slightly (higher AFR) for increased fuel economy. If this set-point is too lean, it can cause a stumble under acceleration as well as hunting and an increase in coolant temperature while cruising.

#### Acceleration AFR Target - Suggested Range: 12.0 - 12.9

Acceleration load state is same as being at wide open throttle(WOT). For Acceleration AFR targets, it is recommended to start more conservative with a richer (lower) AFR target.



## Fuel Modifiers

Manually add or subtract fuel to the main fuel map to help reduce AFR corrections. Fuel Modifier adjustments can be made globally or individually to each of the four engine load zones: Idle, Cruise, and Acceleration.

For Fuel Modifier changes to be most effective, it's suggested that Self-Learning be turned off and cleared.

### To Make A Global Fuel Modifier Adjustment

1. Tap the Self-Learn Enabled button to turn Self-Learn OFF (RED X). Tap the Clear Self-Learn button and select YES to clear the Self-Learn fuel map.
2. Run the engine in the Idle, Cruise and Acceleration load zones to see what the average Short Term Fuel Trim (Short FT) value is.
3. Raise (+) or lower (-) the Global modifier value to match or be close to the observed Short FT value. Doing this will change all 4 Fuel Modifiers at the same time.
4. Make small changes and monitor the engine's performance before re-adjusting the Global modifier.

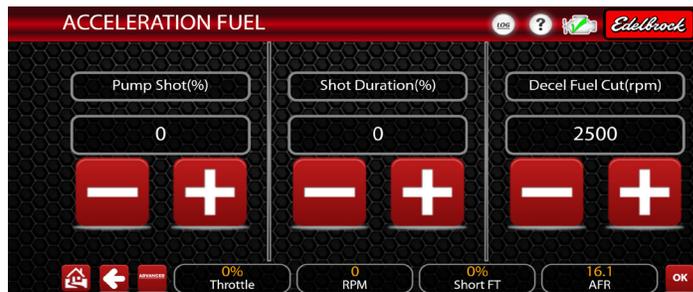
The objective is to adjust the Global modifier until the Short FT values start reducing to be near zero percent. If no further changes are needed, re-enable the Self-Learn and Press OK exit the page.

When necessary, Fuel Modifier tuning beyond a global adjustment may be made to the individual engine load zones.

### To Make An Individual Fuel Modifier Adjustment

1. Tap the Self-Learn Enabled button to turn Self-Learn OFF (RED X). Tap the Clear Self-Learn button and select YES to clear the Self-Learn fuel map.
2. Run the engine in only one of the individual engine load zones to see what the average Short Term Fuel Trim (Short FT) value is. Monitor the status of the GREEN light that indicates which engine load zone is active.
3. Raise (+) or lower (-) the specific engine load zone modifier value to match or be close to the observed Short FT value. Doing this will only change the specific engine load zone being adjusted.
4. Make small changes and monitor the engine's performance before re-adjusting the specific engine load zone modifier.

The objective is to adjust each engine load zone modifier until the Short FT values in each engine load zone start reducing to be near zero percent. It is recommended to start fine tuning in Idle first then move to the Cruise and Acceleration zone afterwards. Adjust the corresponding modifier, observe the engine performance, and make re-adjustments as necessary until you are satisfied with how the engine is running in all load zones.



## Acceleration Fuel

Acceleration Fuel is a fuel enrichment function that will inject additional fuel into the engine during rapid throttle openings. This feature operates on the same principle as a carburetor acceleration pump.

### To Adjust Acceleration Fuel Modifiers

Increase (+) and decrease (-) the Pump Shot and Shot Duration to the desired values.

#### PUMP SHOT (%)

Adjustment range: -100 to 100%

Controls the amount of additional fuel that is injected for acceleration enrichment. If the engine stumbles, pops, or exhibits sluggishness on initial throttle opening, adjust the Pump Shot to improve the acceleration performance.

**NOTE: Pump Shot is a GLOBAL modifier. Acceleration fuel added via this parameter will be added to ALL temperature ranges. If you would like to add extra Acceleration Fuel to a specific temperature range, press the Advanced button towards the bottom left.**

#### SHOT DURATION

Adjustment range: -5 to +5

Specify the amount of time (duration) the Acceleration fuel event will last. If the engine accelerates initially then stumbles, or lays down, adjust the Shot Duration.

#### DECCEL FUEL CUT (rpm)

Adjustment range: 1000 to 6000 RPM

Specify the RPM threshold for fuel cutoff on deceleration. If the engine RPM is greater than the specified fuel cutoff RPM AND the TPS reads 0% the engine will cut fuel to the injectors and enter Deceleration Fuel Cutoff (DFCO). During DFCO the observed AFR will go LEAN, fueling will be restored when the RPM drops below the threshold. Setting this parameter too low can cause stalling with the EZ-Street on some engines. It is recommended to set it to 2000rpm or higher.

#### Accel Fuel Tuning Tip

It is best to not tune the Accel Fuel values until the ECU's Self-learn function has had sufficient time to properly adjust the base fuel map. Make small changes and allow plenty of time between changes to properly evaluate positive or negative results.

The **ADVANCED** tab opens a page for more refined Acceleration Fuel calibration.

#### Acceleration Fuel vs Water Temperature

This menu will allow for fine tuning of the Acceleration Fuel. Increase the amount of Acceleration Fuel by the indicated percentage while within one of seven specific coolant temperature ranges. The currently operating breakpoint will be indicated by the green LED. Once the LED is no longer visible the engine is fully warmed up.

## To Adjust Acceleration Fuel vs Water Temp

Raise (+) and lower (-) the percentage of extra Acceleration Fuel added during aggressive acceleration events and throttle openings. Remember that acceleration fuel adjustments from this page are only active while the coolant is within the specified range. If the vehicle stumbles, pops, or exhibits sluggishness on initial throttle opening adjust the Acceleration Fuel at the current temperature breakpoint.

## Cold Start Enrichment

For cold conditions or when the engine coolant temp is below 165°F, the amount of fuel delivered can be adjusted to help the engine start and remain running during warm up. This modifier has no effect once the engine is warmed up. Increase (+) and decrease (-) the Cold Start percentage to adjust fueling when the engine coolant temp is cold. The objective is to get Short FT value to be as small as possible.

The **ADVANCED** tab opens a page of options provided for further calibrating the Cold Start Enrichment

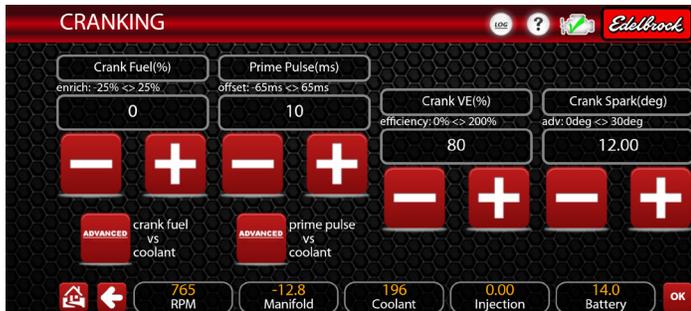
## Cold Start vs Water Temperature

This menu will allow for fine tuning of the engine's fueling while it warms up. The fuel injection amount can be increased or decreased by the indicated percentage while within one of six specific coolant temperature range in order to achieve the desired target AFR. The currently operating breakpoint will be indicated by the green LED. Once the engine coolant temperature reaches 165°F, the engine is at operating temperature and additional enrichment is no longer needed.

## Adjusting Cold Start vs Water Temp

Increase (+) and decrease (-) the percentage of Cold Start Fuel Enrichment. Doing so will adjust the amount of fuel being injected to help the engine run as it warms up.

## Crank Fuel



Crank Fuel(%) modifier will set the amount of extra fuel that is sprayed while the engine is trying to start (cranking mode). This function takes affect during both warm & cold starting conditions.

**Advanced Crank Fuel vs Coolant** - This advanced function adjusts the cranking fuel contribution at various water temperatures. A larger value increases cranking fuel, a smaller value will decrease the cranking fuel. An indicator light will illuminate during key ON indicating the Coolant Temperature range currently active.

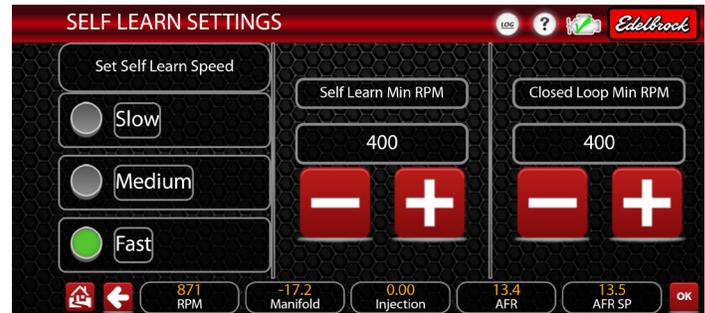
**Prime Pulse(ms)** - This feature provides a squirt of fuel to wet down the intake manifold and improve starting. It occurs approximately 1 second after Key On to allow the fuel pump to begin building pressure. The base setting is 0, and it can be adjusted up for more fuel squirt or down in to negative numbers for less fuel squirt.

**Advanced Prime Pulse vs Coolant** - Allows adjustment of the Prime pulse fuel squirt at various water temperatures.

**Crank VE(%)** – This modifier works similarly to Crank Fuel(%), but should mainly be adjusted when the engine is fully warmed up. A typical number for this value is between 80 and 120.

**Crank Spark(deg)** – This sets the ignition timing only during cranking. It is similar to how the Start Retard works in a CDI ignition. It is very helpful for aggressive engines that need a lot of spark advance at idle. A typical number for this value is between 8 and 16 degrees.

## SELF-LEARN SETTINGS



### Set Self-Learn Speed

Select between FAST, MEDIUM, and SLOW learn speeds. With EZ-Street it is recommended to start out with the FAST Speed. Once the vehicle has been driven through various load/RPM conditions AND the observed AFR correction is within +/- 5% it is advised to set the Learn Speed to SLOW.

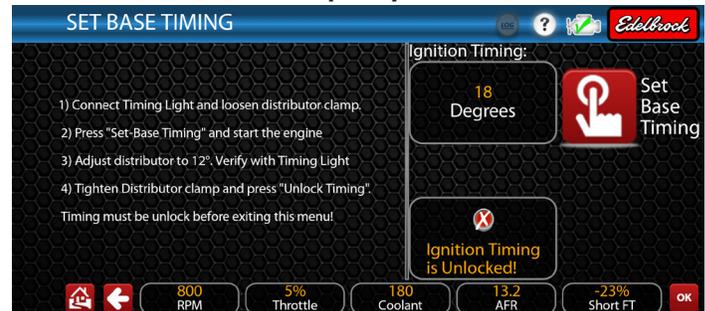
### Self-Learn Minimum RPM

Sets an RPM threshold under which the ECU's Self-Learning function will be disabled.

### Closed-Loop Minimum RPM

Sets an RPM threshold under which the ECU's Closed-Loop functionality will be disabled.

**Warning: While the Closed-Loop function is disabled the Self-Learn function is also implicitly disabled.**



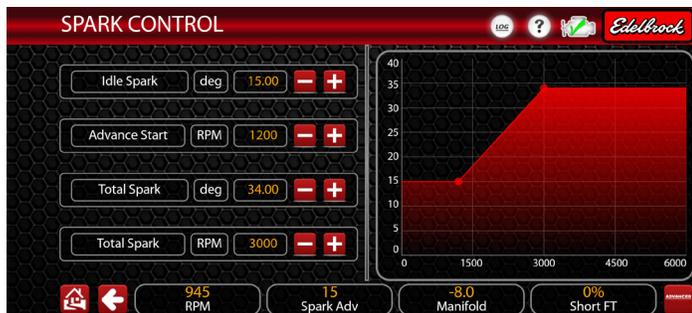
## Base-Timing

Setting the Base Timing is important for accurate ignition control with the EZ-Street system. Proper Base Timing ensures that the commanded ignition timing advance value in the ECU is the actual ignition timing advance value applied to the engine.

**NOTE: Base timing is already set for LS engines and is non-adjustable.**

## Base Timing Procedure

1. Connect adjustable/dial-back timing light, put inductive clamp around #1 sparkplug wire and loosen the distributor hold-down clamp.
2. Start the engine and let it idle.
3. Launch E-Tuner app and connect to ECU via Bluetooth.
4. Go Advanced Tuning>Base Timing and press Set Base Timing. This will lock the ignition timing to 12 degrees BTDC.
5. Using timing light, rotate distributor in either direction until timing mark aligns with 12 degrees BTDC. Tighten the distributor clamp and recheck timing with timing light to make sure it has not moved.
6. Press Unlock Timing. This will re-enable the standard ignition timing control function. The Base Timing setup procedure is now completed. The ignition timing can now be adjusted electronically from the Spark Control menu to adjust your initial timing, total timing as well as vacuum advance.



## Spark Control

EZ-Street features a simplified ignition timing advance mapping function that consists of four main components:

- IDLE SPARK
- ADVANCE START
- TOTAL SPARK
- TOTAL SPARK RPM

Raise (+) and lower (-) the setting values to adjust the spark curve.

### Idle Spark

Distributor default: 15°

This value represents the ignition timing advance applied at idle. Idle Spark timing can be adjusted in 0.25 degree increments.

Typical values: 6°- 24°

### Advance Start

Distributor default: 1200 RPM

This value represents the RPM at which the ECU will start advancing the timing towards the Total Spark value. Advance Start can be adjusted in 50 RPM increments.

Typical values: 1000-2000 RPM

### Total Spark

Distributor default: 32°

This value represents the TOTAL (maximum) ignition timing advance that the ECU will advance towards as engine speed is increased above the Advance Start value. This is the final ignition timing advance that is applied at 0" InHg (before vacuum advance is applied). Total Spark can be adjusted in 0.25 degree increments.

Typical values: 20° - 38°

## Total Spark RPM

Distributor default: 3000 RPM

This value represents the RPM at which Total Spark is applied. The ECU will stop advancing the ignition timing once at this RPM. The ignition timing will be held at the Total Spark value for all engine speeds above the Total Spark RPM setting. Total Spark RPM can be adjusted in 50 RPM increments.

Typical values: 3000-5000 RPM

## Vacuum Advance

The Vacuum Advance timing control functions round out the EZ-Street ignition timing advance mapping function. This ignition timing modifier adjusts the ignition timing relative to the engine's manifold vacuum to give full 3D ignition mapping. Starting and Full Vacuum Advance parameters allow specific adjustments for any engine, whether it makes 8" of Idle vacuum or 20" of Idle vacuum.

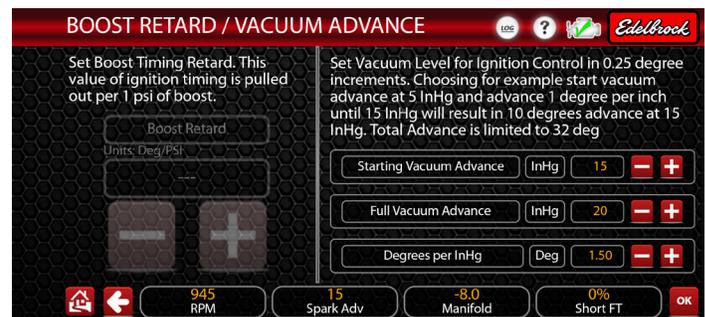
In VACUUM, the ignition timing is advanced to increase the engine's torque output in lighter loads and improve fuel economy.

## Starting Vacuum Advance

Raise (+) and lower (-) the value in 1" increments

Adjustment Range: 0" to 26", but gap between Starting and Full cannot exceed 10"

Set value 2-3" more than Manifold Vacuum at Idle



## Full Vacuum Advance

Raise(+) and lower(-) the value in 1" increments

Adjustment Range: 0" to 26", but gap between Starting and Full cannot exceed 10"

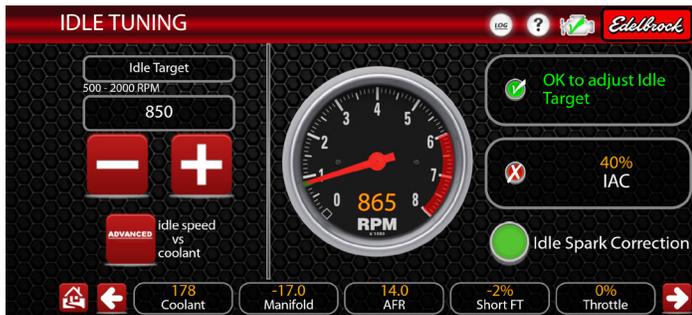
Set value to approximate Manifold Vacuum observed in Decel Typically 5-10" more than the Starting Vacuum Advance value

## Degrees per InHg

Raise(+) and lower(-) the value in .25° increments

In the screenshot above, Vacuum Advance would start at 15" Manifold vacuum and Advance the timing 1.5 degrees per 1" of vacuum to a maximum of 7.5° advance at 20" Manifold vacuum.

Typically run as much Vacuum Advance as practical without inducing detonation.



## Idle Tuning

The engine must be running and fully warmed up (coolant temp >165°F) with the TPS value showing 0% before the Idle Target RPM can be changed.

If TPS value is not 0%, with your foot off the throttle pedal, turn the ignition switch off and allow the ECU to completely shut down (10 seconds or main relay must click off) and then turn the ignition switch back on. This allows the ECU to perform its TPS autozero procedure. The autozero is designed to only move a few percent at a time. For example, if TPS is at 10%, it may take 3 to 4 key cycles for TPS to get down to 0% where it needs to be.

Wait for the Idle Target Status to indicate that it is OK to Adjust the Idle Target. When the indicator is ready, adjust the Idle Target to your desired idle RPM speed. Once you have selected your desired idle speed, the IAC% should indicate anywhere from 5-15%. It may be necessary to adjust the mechanical idle screw in order to achieve these numbers.

Opening throttle blades reduces IAC%, closing throttle blades increases IAC%

The Idle Target cannot be adjusted while the engine is warming-up. The ECU will automatically control and adjust this target during engine warm-up (coolant temp <165°F). During cold starts and as the engine warms up, the Idle Target RPM will be higher than normal as the ECU is trying to maintain a fast idle to help the engine warm up. Once coolant temp reaches 165°F, the Idle Target will stabilize to your desired idle speed rpm.

### Notes on Idle Target Adjustment

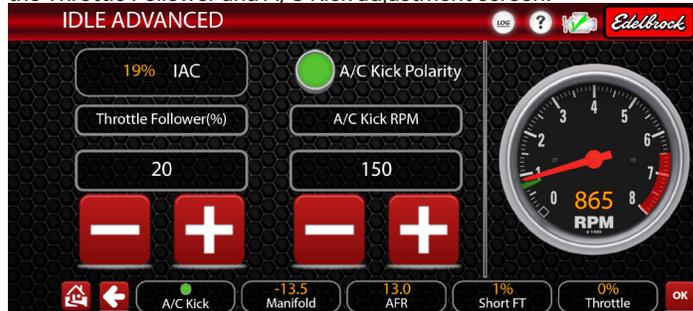
The value displayed for the Idle Target will ALWAYS reflect the current Idle Target RPM that the ECU is trying to achieve.

For hot restarts, the IAC may open to flare the idle RPM higher than normal before gradually settling back down to your desired Idle Target RPM.

During hot restarts or if the engine stalls, please wait for the Idle Target to come to its lowest value before attempting to adjust the value again. Once Idle Tuning is complete, it is good practice to Reset Self-Learn (located in the ECU Settings menu). If at any time the idle speed becomes unsteady or “hunts”, it may be a result from a bad correction value in the Self-Learn table. Resetting the Self-Learn should help fix those issues.

## Advanced Idle

Tapping the Advanced button at the bottom of the screen will bring up the Throttle Follower and A/C Kick adjustment screen.



**Throttle Follower** - helps to “catch” the engine and prevent stalling especially in vehicles with manual transmissions. Most engines work well with Throttle Follower% between 0 and 20%. Too much can cause the revs to hang above idle and too little can cause stumbles or stalls. Lightly rev the engine and adjust the Throttle Follower until the engine smoothly returns to idle.

**A/C Kick Polarity** – The A/C Kick feature can be activated by 12v+ or Ground. Tap the button to turn it Green for 12v activation or Red for Ground activation.

**A/C Kick RPM** – increases the Set Idle Speed by a certain amount when the A/C clutch is engaged. It can help prevent stalling or stumbling when the A/C is turned on. For vehicles with a mechanical cooling fan, faster idle speed can help move more air across the A/C condenser to aid cooling. Typical range for A/C Kick is 50 to 200 rpm.

## Limiter

When not controlling timing, like with an HEI or Ready to Run distributor, the Rev-Limit function will only cut off fuel to limit engine speed. When running the Edelbrock Pro-Tuner distributor with timing control, the Rev-Limit function will cut-off fuel and spark to the engine limit engine speed.

The Rev-Limiter set-point is adjustable from 3000 to 8000 RPM. You can raise (+) and lower (-) this value in 50 RPM increments.

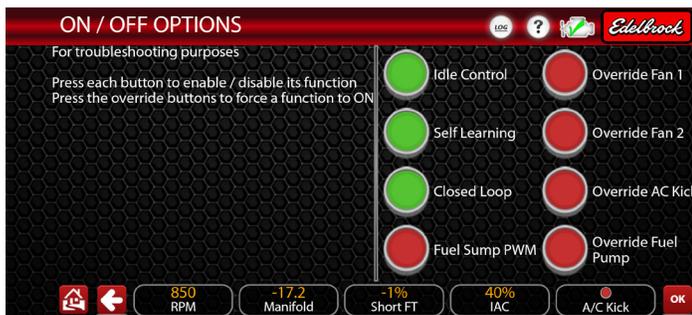
## Fan Controls

Raise (+) and lower (-) the desired coolant temperatures to trigger when the radiator cooling fans turn ON.

Two independent radiator cooling fan set-points are available. Cooling fans will be activated when coolant temp reaches these set-points and will shut off automatically when the coolant temp drops 10° below these set-points.

**NOTE: Typical configuration is that Fan 1 will be turned on first at a lower temp and Fan 2 is set to turn on at a slightly higher temp. Example: Fan 1 on at 190°, Fan 2 on at 200°.**

Refer to the EZ-Street Wiring section for fan wiring diagrams and instructions. A relay must be used to power radiator cooling fans! Do NOT connect the fan output wires from the ECU to the fans directly! This will damage the ECU!



## On/Off

In some scenarios it may be necessary to enable/disable these functions for proper tuning and/or troubleshooting. Press each button to turn each of the functions ON or OFF. A GREEN light indicates the function is enabled and a RED light indicates the function is disabled.

**Idle Control** - During normal operation, the ECU's Idle Control function will actively open and close the IAC and advance and retard the ignition timing to try and make the engine speed the same as the Idle Target RPM. By disabling Idle Control, the IAC will only follow its commanded base position based on coolant temp (more open when coolant temps are cold, closes as engine warms up) and ignition timing feedback will cease. **Self-Learn** - During normal operation, the ECU's Self-Learn function will apply the Short Term Fuel Trim closed loop AFR correction values to a secondary fuel map that allows the system to correct the base fuel map over time. If Self-Learn is disabled, the system will continue to operate using the base fuel map and closed loop AFR correction only. The ECU will NOT save any closed-loop correction values to the Self-Learn fuel map.

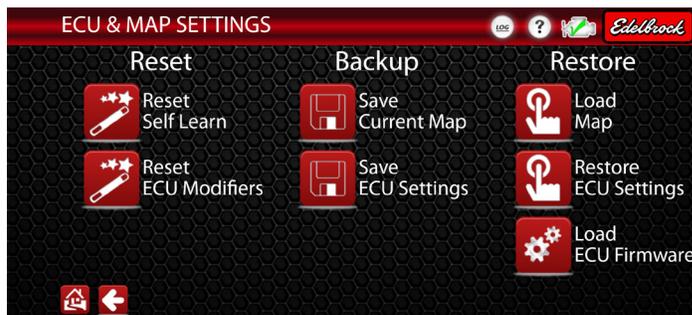
**Closed Loop** - During normal operation, the ECU's Closed Loop AFR control function will add or subtract fuel from the base fuel map in order to meet the current AFR Target. Disabling Closed Loop will cause the engine to run entirely off of the base fuel map only without AFR correction. Self-Learning relies on Closed Loop feedback thus if Closed Loop is disabled, Self-Learn is disabled as well.

**Fuel Sump PWM** - Intended for use with the Edelbrock Fuel Sump only! This function will Pulse Width Modulate (PWM) the Edelbrock Fuel Sump to run the fuel pump at lower speeds during times of lower fuel demand to reduce fuel system temperatures. If you are having issues with fuel boiling while using the Edelbrock Fuel Sump try enabling PWM. If you are NOT using the Edelbrock Fuel Sump, make sure that this option is DISABLED (RED).

**Override Fan 1 and Override Fan 2** - will force the fan outputs on or off.

**Override AC Kick** - will force AC Kick on or off.

**Override Fuel Pump** - will force Fuel Pump output on or off.



## Reset

### Reset Self-Learn

This function will clear out the Self-Learn table in the ECU. This is particularly useful if you are experiencing stuttering or surging during certain driving conditions. When the Self-Learn table is RESET the vehicle will need to be driven through various Load and RPM ranges to ensure optimal vehicle drivability.

Tap the Reset Self Learn button and then tap YES at the warning prompt.

### Reset ECU Modifiers

This function will reset all the Advanced Tuning settings to their default values. It is strongly recommended to save ECU settings before restoring to defaults.

Tap the Reset ECU Modifiers button and then tap YES at the prompt.

## Back Up

This function will allow the user to save a copy of the base map in use by the vehicle's ECU. If you would like to change maps at any time it is recommended that you save a backup copy of the map that was previously in use. After loading a base map from the Setup Wizard it is recommended to save a backup of this map as well.

Before saving a calibration, the ignition switch must be on but the engine must be off. Tap the READ button to start saving the cal. When saving is complete, name the cal and tap SAVE.

## Save ECU Settings

This function will allow the user to save the Self-Learn Table as well as the current values for all user set Modifiers on the Advanced Tuning pages. It is recommended to save a backup of the ECU Settings after the vehicle has been allowed time to learn and the correction displayed at the tablet is within +/-5%. Please note that ALL saved settings and maps will be saved to the My Maps folder and can be re-loaded to the ECU using the Restore options.

Before saving ECU Settings, the ignition switch must be on but the engine must be off.

Tap the READ button to start saving the settings file. When saving is complete, name the file and tap SAVE.

## Restore

### Load Map

If you received a custom ECU map from Edelbrock or you would like to load a new base map without using the Setup Wizard use this option to load it into the ECU.

Before loading a map, the ignition switch must be on but the engine must be off. Tap the Load Map button, select the appropriate cal file directory (My Maps, EZ-Street or Other Calibrations), select the appropriate cal file, select the Induction Type, Firing Order and MAP Sensor and then tap LOAD.

## Restore ECU Settings

Load previously saved ECU configuration settings from this menu. This will restore all the values from Advanced Tuning settings and the Self-Learn fuel map.

Before loading ECU Settings, the ignition switch must be on but the engine must be off.

Tap the Restore ECU Settings button, select appropriate .LRN file and then tap LOAD.

## Load ECU Firmware

In most instances a firmware change is only necessary after a significant update release. Unless instructed to do so, firmware updates are typically not required. Always follow any supplemental instruction guides.

Before loading ECU Firmware, the ignition switch must be on but the engine must be off.

Tap Load ECU firmware button, select appropriate .HDR file and then tap LOAD.

**NOTICE: The ECU requires 10 seconds to fully shut down during a key OFF event. During this time, the IAC valve locates its "home" position. If a rapid key OFF-ON is performed the idle speed at startup may be momentarily unstable.**

**Files can not be saved or loaded when the engine is running.**

**Always power cycle the ECU (key off 12 seconds, then key on) after loading a map or firmware file to apply new changes.**

**When flashing firmware, always make sure the Bluetooth connection is stable and consistent before attempting to load a firmware file. It is recommended to use the E-Tuner app while being as close to the ECU.**

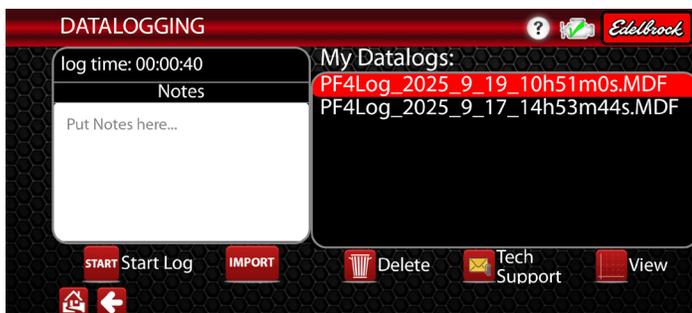
## Datalogging

The E Tuner 4 app has a Datalogging feature that can be helpful in deciding to make adjustments in the Advanced Tuning menus or Troubleshooting.

To record a Datalog, tap the LOG button at the top of the app screen. "REC" in red lettering will appear to next to the LOG button to show that a datalog is being recorded.



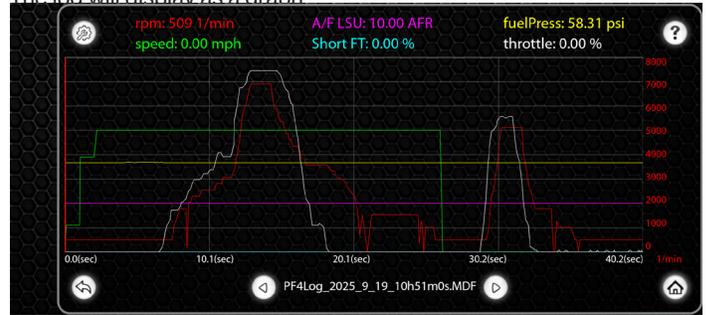
To stop the recording tap the LOG button again and "REC" will go away. The recorded log will automatically save on the device in the Datalogging menu.



Saved datalogs are named with the date in a year, month, day format and time in a 24hr format.

To view a log, tap it from the list then tap the View button.

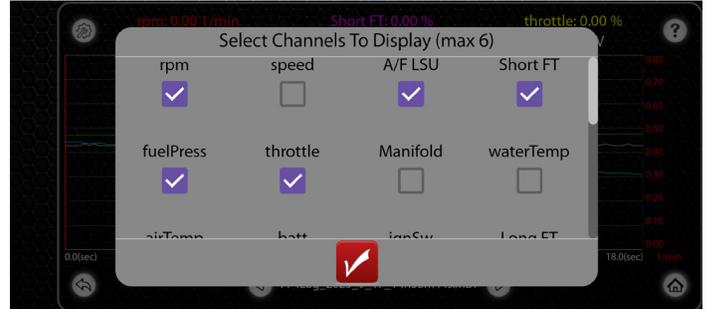
The log will display as a graph



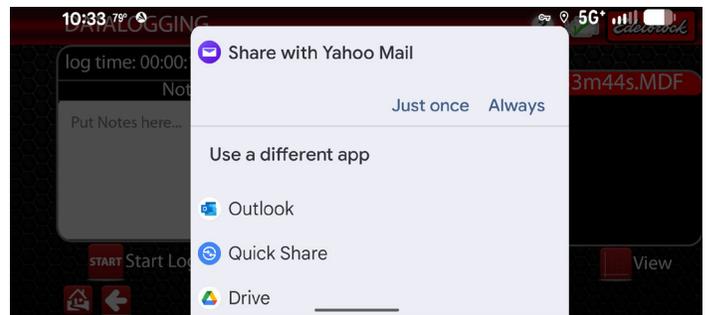
A specific section of the graph can be zoomed in by making a pinching motion with two fingers.

Tapping on the graph will move the vertical red line. The values at the top of the screen correspond to the red vertical line.

Tapping the Gear icon in the upper left corner allows the values to be changed. Six values can be selected at a time to be viewed on the graph.

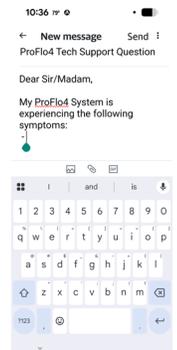


If additional help from EFI Tech Support is needed, a datalog can be emailed directly from the E Tuner App. From the Datalogging menu, choose Tech Support. A window will pop up ask for an email app to be selected.



Once the email app is selected, an email will be started automatically with the datalog attached to it.

Please take the time to type in some details about the trouble you are having and some information about you application, like type of engine, cubic inch, vehicle, and transmission. The more information you can provide will help our EFI Technicians help you more efficiently.



## Limited Warranty

Edelbrock, LLC shall not be liable for any and all consequential damages occasioned by the breach of any written or implied warranty pertaining to this sale in excess of the purchase price of the product sold. If you have any questions regarding a product or installation, please contact our Tech Department toll free at 800.416.8628 from 7:00 AM to 7:00 PM CST, Monday through Friday.

It is the constant endeavor of Edelbrock, LLC to give our customers the highest quality products obtainable. Edelbrock warrants each new product, except Edelbrock Crate Engines, Performer Series Carburetors and Race Division Parts to be free from defects in both workmanship and material for a period of one (1) year from the date of purchase, provided that the product is properly installed, subjected to normal use and service and that the product is not modified or changed in any way, nor damaged because of negligence by customer or installer or used for racing or competition purposes. Customers who believe they have a defective product should either return it to the dealer from which it was purchased or ship it directly to Edelbrock, LLC along with proof of purchase and a complete description of the problem. The product must be returned freight prepaid. If a thorough inspection of the product by the factory indicates defects in workmanship or material, our sole obligation shall be to repair or replace the product. Warranty covers only the product itself and not the cost of installation or removal.

All Pro-Flo 2, Pro-Flo XT Fuel Injection Systems, EZ-Street TBI Systems, Crate Engines, E-Force Supercharger Systems, Cylinder Heads and QwikData 2 Systems maintain a conditional warranty. These products must not be returned to the dealer; they should be sent to Edelbrock only. The product must be returned freight prepaid. If a thorough inspection of the product by the factory indicates defects in workmanship or material, our sole obligation on all products shall be to repair or replace the product. Warranty covers only the product itself and not the cost of installation or removal.

## OFF-HIGHWAY USE

Many of the parts described or listed herein are designed for off-highway use only. Installation of "off-highway" parts may impair your vehicle's emission control system performance, these parts should not be installed on any vehicle used on any street or highway. Any installation as such could adversely affect the warranty coverage for an on-street or highway vehicle and violates state or federal emission laws.



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