



Calibration and Programming Manual

Table of Contents

GETTING STARTED.....	4
CONTACTS:.....	4
DISCLAIMER	4
NOTES:.....	5
ACRONYMS:.....	5
INSTALLATION.....	6
IN VEHICLE OPERATION.....	8
IN-TRUCK CONTROLLER INTERFACE.....	8
<i>On/Off Switch</i>	8
<i>Fuel Level Indicator</i>	8
<i>DTC (Diagnostic Trouble Code) Indicator</i>	9
DISCLAIMER SCREEN.....	10
MAIN MAP SCREEN.....	11
SCREEN LAYOUT.....	11
MENUS:.....	11
<i>File (Alt-F)</i>	11
<i>Controller (Alt-C)</i>	12
<i>Open Log Viewer (Alt-L)</i>	12
<i>About (Alt-A)</i>	12
TOP.....	12
<i>The Technocarb Logo</i>	12
<i>Current Map/Configuration File</i>	12
<i>Connection Status</i>	13
<i>Warning Messages</i>	13
<i>Upload/Download Buttons</i>	14
MAP.....	15
<i>The Difference between the Two Maps</i>	15
<i>The Indicator</i>	16
<i>Changing Injection Timing</i>	16
Changing 1 cell.....	16
Changing Multiple Cells.....	16
The Adjustment Screen.....	17
LIVE DATA/INDICATORS.....	18
<i>Live Data</i>	18
<i>Indicators</i>	18
CONFIGURATION SCREEN.....	19
SCREEN LAYOUT.....	19
SETTINGS.....	20
COUNTS/REVOLUTION.....	20
<i>Set Counts/Rev & Idle RPM</i>	21

TPS.....	22
<i>Disabling the TPS</i>	22
<i>Setting the TPS</i>	23
MODE SETTINGS.....	24
INSTALLED DATE.....	25
OK/CALCULATE MAP.....	25
DASH BOARD.....	26
SCREEN LAYOUT.....	26
MENUS.....	26
<i>File (Alt-F)</i>	26
<i>DTCs (Alt-D)</i>	26
STATUS INDICATOR.....	27
GAUGES.....	27
THE PLAYBACK/RECORD CONTROLS.....	28
<i>Recording a Log File</i>	29
<i>Playing Back a Log File</i>	29
CURRENT USER RUNTIMES.....	30
INDICATORS.....	30
DTCs (DIAGNOSTIC TROUBLE CODES).....	31
DTC SCREEN.....	32
SCREEN LAYOUT.....	32
MENUS.....	32
<i>File (Alt-F)</i>	32
<i>Clear (Alt-C)</i>	32
CURRENT/HISTORY CODE SELECTOR.....	33
INSTALLED DATE.....	33
DTC CODE DISPLAYS.....	33
TIMERS.....	34
LOG VIEWER SCREEN.....	35
MENU.....	35
<i>File</i>	35
OPENED LOG FILE SCREEN.....	36
<i>File Name</i>	36
<i>Data Options</i>	37
<i>The Graph</i>	38
Layout.....	38
Instantaneous Data.....	38
THE ABOUT SCREEN.....	39
ECODIESEL SYSTEM LIMITED WARRANTY POLICIES	40

Getting Started

Manual Revision 1.6

Technical Assistance:

Technical support is available from 8am through 4pm (PST) Monday through Friday.

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Disclaimer

Technocarb Dealers or their assigns have access to the EcoDiesel System master calibration software which adjusts the amount of LPG or CNG delivered to the engine.

The installer acknowledges that any pre-calibration data embedded in the controller is just approximate and that excessive LPG or CNG injection may raise combustion temperatures to levels which could cause damage to the engine.

The EcoDiesel System electronic controller incorporates a number of built in safety features to automatically shut down the system should an “out of limit” condition occur. All the warning and safety shut down systems rely on the proper installation of the hardware and the set up of the calibration software.

Therefore;

The installer assumes sole and complete responsibility for the installation and calibration of the system. It is the installers’ sole and complete responsibility to ensure the finished product is delivered to the customer working in accordance with all manufacturers’ specifications and limits and to ensure that ALL applicable safety regulations are met.

Notes:

This software is designed to program and diagnose Technocarb's EcoDiesel LPG/CNG controller. This program is used to map out the injection curve based on either TPS vs. RPM or Boost Pressure vs. RPM.

To connect to the controller, the controller must be completely installed in the vehicle and properly wired up.

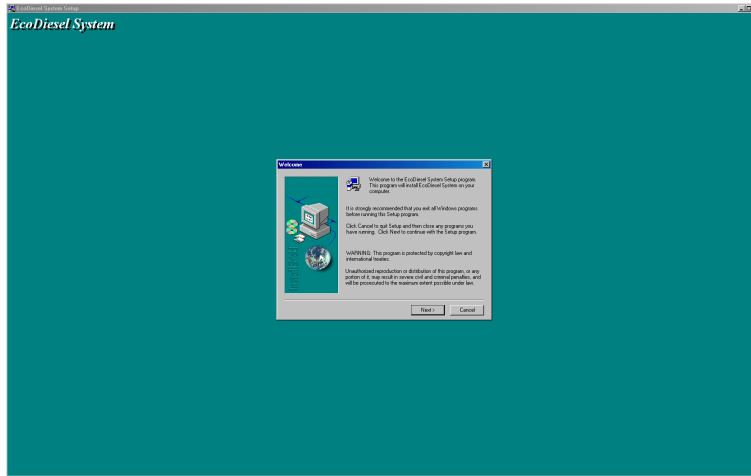
When the controller is connected to your laptop computer, the first thing the program does is download the current information from the controller. If you want to make a Map file offline then just upload to the controller, you must Save the Configuration/Map File, then once connected reload it and then upload to controller.

Acronyms:

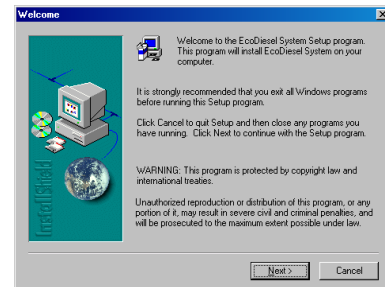
CNG – Compressed Natural Gas
DTC – Diagnostic Trouble Code
EGT – Exhaust Gas Temperature
LPG – Liquefied Petroleum Gas
TPS – Throttle Position Sensor
WOT – Wide Open Throttle

Installation

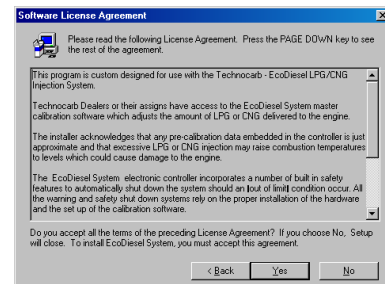
To install the Software, run the EDS-XXXX.exe



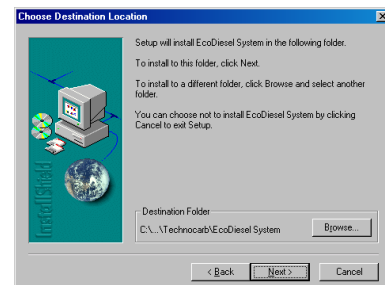
You will briefly see a cover screen, then the Welcome screen. Press Next to continue.



The next screen is the copyright screen. This informs you that the software is designed and approved for the sole purpose of interfacing with the Technocarb EcoDiesel injection controller. To continue with the installation, press the “Yes” button.

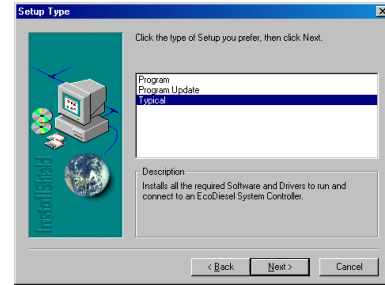


The next screen confirms that you want to install the software in a default location. To continue, press the “Next” button.

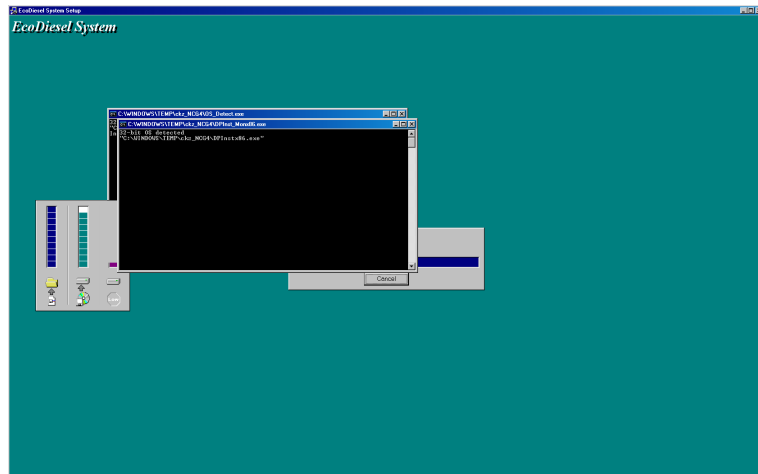


The next screen gives you three options for the installation. The default is “Typical”. Once you make your selection, press the “Next” button to continue.

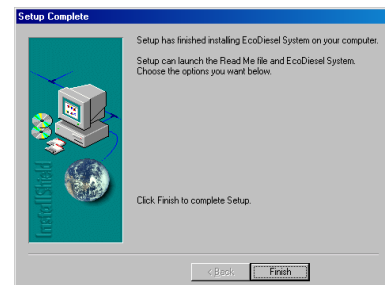
- Program: This installs a basic stand-alone version of the software.
- Program Update: This just updates the Program and Example files.
- Typical: This will install the program and all the Drivers to interface with the controller.



The next screen shows the actual installation. The black windows indicate that the program is installing the drivers for the controller. It will come up if you are doing the “Typical” install.

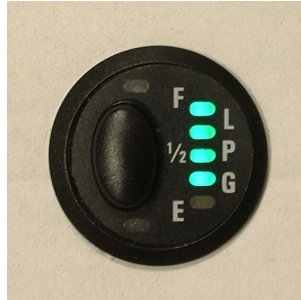


The last window informs you that the installation was successful and you are ready to run the program. Click finish.



In Vehicle Operation

In-Truck Controller Interface



The In-Truck Controller Interface incorporates an On/Off switch, a Fuel Level indicator as well as a DTC indicator.

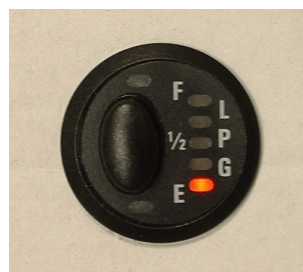
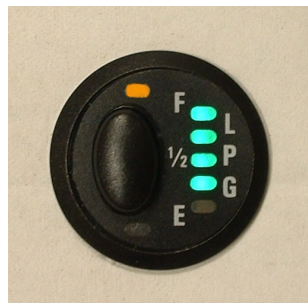
On/Off Switch

Pressing the button on the Controller Interface will manually turn the system off. When the system is off, the Fuel Level indicator is off. Press the button to toggle the system.

There is an initial 2 second delay when the system is activated to stabilize the sensors.

Note: “On” does not mean that the system is injecting propane, it means that the system is monitoring and ready. If Idle Mode is disabled or if conditions like the Reducer Warm-Up Delay have not be met yet, then the system may not be injecting propane yet.

Fuel Level Indicator



The Fuel Level Indicator is on the right portion of the Controller Interface. When the four (4) green lights indicator your fuel level in $\frac{1}{4}$ tank increments. When under $\frac{1}{4}$ Tank, the red light at the bottom will indicate that your running low.

If the Red Light starts to flash, this means that there is an issue with the Fuel Sender system.

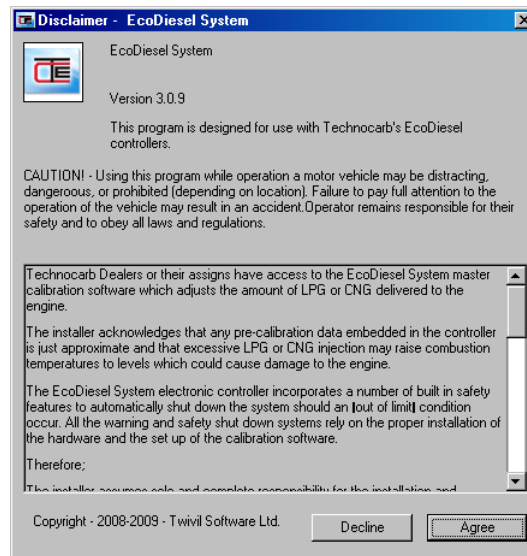
DTC (Diagnostic Trouble Code) Indicator



The DTC Indicator is on the top left of the Controller Interface. This amber light will come on when there is a DTC in the controller.

If the DTC Indicator starts flashing, this means that a Code was set that shut down the system. The vehicle must be turned off, then restarted to reset the controller (the manual On/Off button will not re-engage the system).

Disclaimer Screen



This is the first screen to come up when starting the program. Press OK to continue to the Main Map Screen.

To Start the program: go to “Technocarb” > “EcoDiesel System” in your start menu.

Controller (Alt-C)

- Download (Ctrl-D): Download the Map/Configuration information from the Controller (or push the Download Button)
- Upload (Ctrl-U): Upload the Map/Configuration information from the Controller (or push the Upload Button)
- DTC: Opens the DTC (Diagnostic Trouble Codes) window
- Dash Board (F12): Opens the Dash Board Screen

Open Log Viewer (Alt-L)

Opens the Log Viewer

About (Alt-A)

Opens the About Screen

Top



The Technocarb Logo



On the left is the Technocarb Equipment symbol. If you click on this image it will bring up the About Screen.

Current Map/Configuration File



This is the current open Map/Configuration File.




Connection Status



Not Connected



Connected



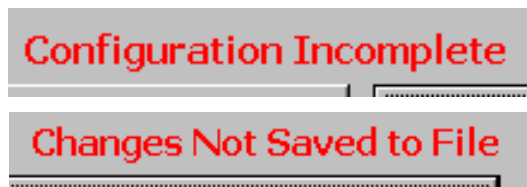
The ball on the left with the red lines in it () only appears when the controller is not connected. The red lines vary direction to indicate that the program is for a connected controller. 3 chasing circles () turn green () when the controller is connected. In addition the Message will change from “Controller not Connected” to “Downloading Live Data”.

The number that appears next ( , ) is the rate at which the program is accessing or trying to access the controller. These speeds will vary a based on your computer and what is running in the background. This feature is primarily used for connection diagnostics.

And lastly is the Status of the controller itself. You will only see four different messages here:

- Controller not Connected: The program hasn’t detected the controller
- Downloading Live Data: The program has been connected to the controller and is currently downloading the Live Data information.
- Live Data Paused: This indicates that a Log File has been loaded and is waiting to run.
- Playing Back Log File: The loaded Log File is in the process of running.

Warning Messages



The first message (which is centred on the screen) indicates that there is a problem with the Configuration Screen. The information entered is incomplete.

The second message (which is on the right side of the screen) indicates that there have been changes in the Configuration or Map screens that have yet to be saved to a file.

Upload/Download Buttons



These two buttons are for manual upload and download from and to the controller.

When the controller is first plugged into the computer (with the main power to the controller connected, and the software running on the computer) the software automatically downloads the Configuration and Map information that is currently saved in the controller. If you would like to re-download it at some point, simply press the Download button. This will reload what is currently saved in the controller's memory.

When changes are made to the Configuration screen these changes are automatically uploaded to the controller when you exit the configuration screen.

The Map is never automatically uploaded to the Controller. To upload the Map to the controller's memory, press the Upload button.

When the software uploads or downloads from the controller, the respective button flashes.



Map

Boost Pressure vs. RPM

B o o s t B a r	0.00	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
	0.34	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.9
	0.69	2.7	2.8	2.8	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.4	3.5	3.6	3.6	3.7
	1.03	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6
	1.38	3.9	4.0	4.1	4.2	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4
	1.72	4.5	4.7	4.8	4.9	5.0	5.2	5.3	5.4	5.5	5.7	5.8	5.9	6.0	6.1	6.3
	2.07	5.2	5.3	5.4	5.6	5.7	5.9	6.0	6.1	6.3	6.4	6.6	6.7	6.8	7.0	7.1
	2.41	5.8	5.9	6.1	6.3	6.4	6.6	6.7	6.9	7.0	7.2	7.4	7.5	7.7	7.8	8.0
	2.76	6.4	6.6	6.8	6.9	7.1	7.3	7.4	7.6	7.8	8.0	8.1	8.3	8.5	8.7	8.8
	3.10	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.5	8.7	8.9	9.1	9.3	9.5	9.7
	3.45	7.6	7.8	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.3	10.5
	mSec.	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400
		RPM														

TPS vs. RPM

T P S %	00%	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	2.0	2.0
	10%	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.9
	20%	2.7	2.8	2.8	2.9	2.8	3.1	3.1	3.2	3.3	3.3	3.4	3.5	3.6	3.6	3.7
	30%	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6
	40%	3.9	4.0	4.1	4.2	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4
	50%	4.5	4.7	4.8	4.9	5.0	5.2	5.3	5.4	5.5	5.7	5.8	5.9	6.0	6.1	6.3
	60%	5.2	5.3	5.4	5.6	5.7	5.9	6.0	6.1	6.3	6.4	6.6	6.7	6.8	7.0	7.1
	70%	5.8	5.9	6.1	6.3	6.4	6.6	6.7	6.9	7.0	7.2	7.4	7.5	7.7	7.8	8.0
	80%	6.4	6.6	6.8	6.9	7.1	7.3	7.4	7.6	7.8	8.0	8.1	8.3	8.5	8.7	8.8
	90%	7.0	7.2	7.4	7.6	7.8	8.0	8.2	8.4	8.5	8.7	8.9	9.1	9.3	9.5	9.7
	100%	7.6	7.8	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.3	10.5
	mSec.	600	800	1000	1200	1400	1600	1800	2000	2200	2400	2600	2800	3000	3200	3400
		RPM														


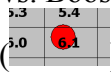
The Difference between the Two Maps

There are two different maps, both adjust the length of time (in mSec.) that the injectors run. The injectors alternate between the two, one firing each rotation. In both instances the RPM scale is from 0 RPM to 3400 RPM in 100 RPM increments, 0 being on the left, and 3400 on the right.

The first map is based on Boost Pressure vs. RPM. The Boost Pressure scale is 0 to 50 psi. (0 – 3.45 Bar) in 5 psi. increments, with 0 on top and 50 on the bottom.

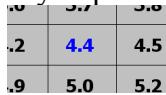
The second Map is TPS vs. RPM. The TPS Scale is from 0 to 100% (based on idle and WOT [Wide Open Throttle] settings in the configuration screen), in 10% increments.

The Indicator

When connected there is a green indicator ball () that shows the current position on the mapped data (both RPM vs. Boost or RPM vs. TPS work the same). The colour of the indicator will change to red () if the system is off or disabled.

Changing Injection Timing

Changing 1 cell

If you put the mouse over a single cell in question it will change to a blue colour () then click with the Left mouse button. This will bring up the adjustment screen.

Changing Multiple Cells

4.4	4.5	4.6	4.7
5.0	5.2	5.3	5.4
5.7	5.9	6.0	6.1
6.4	6.6	6.7	6.9
7.1	7.3	7.4	7.6

To select multiple cells, go between the cells (in this example between the 4.4, 4.5, 5.0 and 5.2). While holding down the left mouse button, drag across the desired cells. You will now see a black outline of a box. You will also see that any time that that box touches a cell, that cell changes both the background and text colours. Once the desired cells have been selected, release the mouse button.

4.4	4.5	4.6	4.7
5.0	5.2	5.3	5.4
5.7	5.9	6.0	6.1
6.4	6.6	6.7	6.9

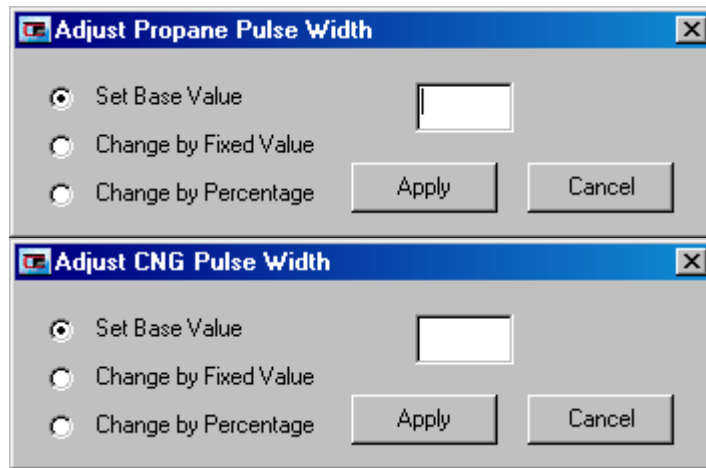
Now, if you move the mouse over one of the selected cells, it will change colour again. This indicates that you will be changing the selected cells by clicking on it.

5.0	5.2	5.3	5.4	5.5	5
5.7	5.9	6.0	6.1	6.3	6
6.4	6.6	6.7	6.9	7.0	7

Note: If you click on a cell outside of the selected ones, it will only change the current cell (as the 6.3 in this example).

To de-select a group of cells, click in-between the cells (when none are highlighted).

The Adjustment Screen



Once you have selected and clicked on the cells you want to change, the Adjustment screen comes up.

Valid injector times are 0mSec., and 1.7mSec. to 25.5mSec. in 0.1mSec. increments. The injectors don't react to anything less than 1.7mSec. and have a maximum duration of 25.5mSec.

There are three different ways to make adjustments.

- **Set Base Value:** This setting adjusts by changing the cell (or group of cells) to the desired time. A number above 25.5 is automatically put in as 25.5. Anything 0 or less (a negative number) is input as a 0, and any number between 0.1 and 1.7 will result in 1.7mSec.
- **Change by fixed value:** This adjusts the cell (or group of cells) by a fixed number. If you want to decrease the selected cells by a fixed time, enter a negative number (ie: if the cell current has a time of 3.5mSec., entering a -.4 will change it to 3.1mSec.)
- **Change by Percentage:** This will adjust the cell (or group of cells) by a percentage. Again to decrease the number, enter a negative percentage. (ie: again to adjust the 3.5mSec. cell to 3.1mSec., enter a -11 or -12)

Once a number is entered, either press "Enter" on the keyboard, or the "Apply" button to apply the changes to the selected cell(s). Pressing the "Esc." key or the "Cancel" button cancels the changes and returns you to the Map Screen.

The changes made to the map must be uploaded (by clicking the Upload button) before they take effect.

Live Data/Indicators

Not Connected

Engine RPM	Boost	Pulse Width	Gas Pressure	Reducer	EGT1	EGT2	TPS
Lockoff	Brake	Cruise Mode	EGT1 Status	EGT2 Status	Decel Mode	DTC	

Connected

Engine RPM	Boost	Pulse Width	Gas Pressure	Reducer	EGT1	EGT2	TPS
2075 RPM	5 Psi.	8.5 mSec.	12 Psi.	42 °F	798 °F	142 °F	0.5 V.
Lockoff	Brake	Cruise Mode	EGT1 Status	EGT2 Status	Decel Mode	DTC	
Disabled	Disabled	Standby	Disabled	Disabled	Disabled	Disabled	Disabled

These show the current state of the controller. If the controller isn't connected then there is no Live Data to display.

Live Data

These numbers are what the controller is reading and sending (or what the log file is playing back)

- Engine RPM: Current engine RPM
- Boost: Boost Pressure (Bar if Metric, PSI if in Imperial)
- Pulse Width: The current pulse width being sent from the controller
- Gas Pressure: The pressure of the LPG/CNG from the Reducer.
- Reducer: The current temperature of the LPG/CNG Reducer (controlled by coolant flow)
- EGT1: The exhaust temperature measured by the first EGT Sensor
- EGT2: Displays the exhaust temperature if there is a second EGT Sensor enabled, otherwise it just displays as "0"
- TPS: The current voltage the controller is receiving from the TPS sensor

Indicators

These are indicators that the software receives from the controller. These are either the current settings or states that each indicator is related to.

- Lockoff: On/Off status of the LPG/CNG lockoff solenoid
- Brake: The state of the brake switch according to the controller
- Cruise Mode: Whether Cruise mode is Deactivated, Active or currently Off
- EGT1 Status: The status of the EGT1 input
- EGT2 Status: The status of the EGT2 input
- Decel Mode: The status of Deceleration Mode
- DTC: If there are any DTC (Diagnostic Trouble Codes) in the controller. (Note: You can click here to access the DTC Screen)

Configuration Screen

This is the screen that adjusts all the settings for the controller. The controller comes with the following default settings:

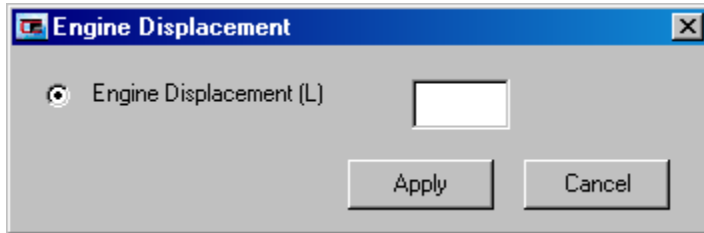
- Reducer Temp : 35C (95F)
- EGT Warm Up : 100C (212F)
- EGT Shut Down : 700C (1292F)
- Low Gas Pressure : 0.8 Bar (11 PSI)
- Idle Mode : Enabled
- Counts/Revolution: 4
- Cruise Mode : Disabled
- Decel Mode :Enabled
- Turbo : Enabled
- 1 EGT Sensor
- LPG
- Imperial
- Post Turbo

Screen Layout

The screenshot shows the 'EcoDiesel System - Configuration' window. The interface is organized into several sections:

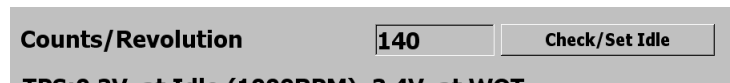
- Engine Information:** Engine 5.9 L, 6 Cyl.
- Temperature Settings:** Reducer Warmup Delay Temp (35 °C), EGT Warmup Delay Temp (100 °C), EGT Shutdown Temp (700 °C), Low Gas Pressure Shutdown (0.8 BAR).
- Performance Settings:** Counts/Revolution (140), with a 'Check/Set Idle' button.
- TPS Settings:** TPS:0.3V. at Idle (1000RPM), 3.4V. at WOT. Includes buttons for 'Set TPS Voltages' and 'No TPS'.
- Operational Modes:** Idle Emissions Mode (Enabled), Cruise Mode (Enabled), Decel Mode (Disabled).
- Configuration Options:** Turbo, 1 EGT Sensor, LPG, Metric, Post Turbo.
- Footer:** Installed Date: N/A, OK, Calculate Map.

Settings



All setting adjustments use a similar screen. Enter the applicable value by clicking on the setting you wish to adjust. (ie: as in the above, left click on the “5.9L” box, now enter the litres of the engine.)

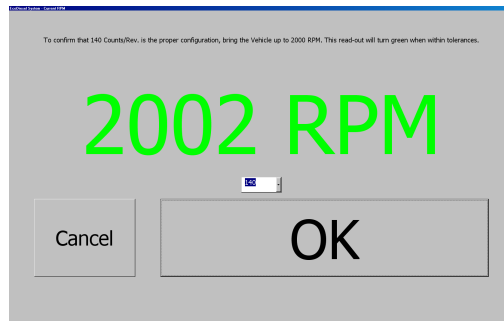
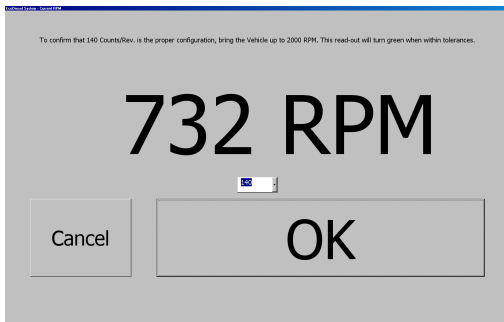
- Engine:
 - First box (L): This is the size of the engine (in Litres)
 - Second Box (Cyl): This is the Number of Cylinders the Engine has
- Reducer Warmup Delay Temp: The system will remain off until the Reducer has reached this temperature. This is either in F or C, depending on the Metric/Imperial Setting.
- EGT Warmup Delay Temp: The system will remain off until both (if 2 are selected) are above this Temperature. This again is entered in either F or C, depending on the Metric/Imperial Setting.
- EGT Shutdown Temp: The Temperature that the system will shut down at to try and prevent a serious problem. Again, this can be entered in F or C depending on the Metric/Imperial Setting. Make sure to adjust to vehicle specifications.
- Low Gas Pressure Shutdown: At or below this pressure the system will shut down, basically there is a problem, it might simply be that you are out of LPG/CNG. This pressure can be in Bar or PSI, depending on the Metric/Imperial Setting.
- Counts/Revolution: This is the number of points/revolution of the engine that the RPM pickup detects. The maximum number is 256, with the minimum is 2. It is recommended to find a point that has more than 18 counts/revolution.



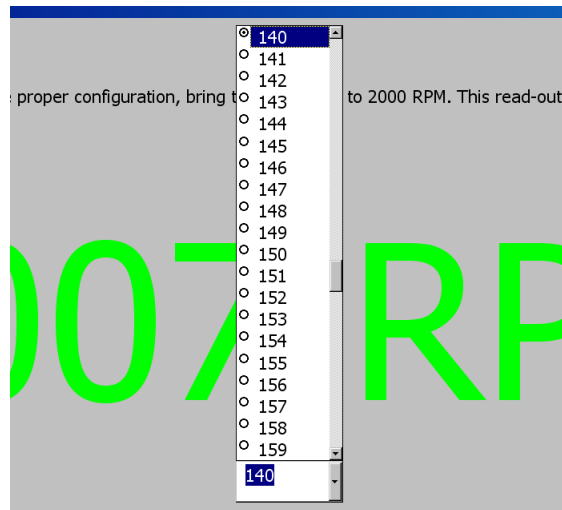
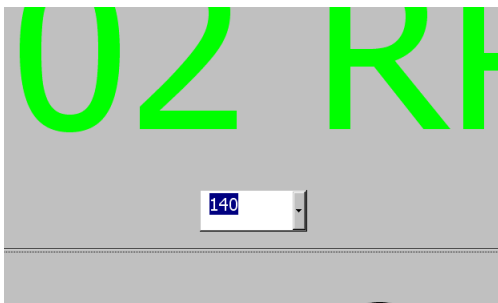
Counts/Revolution

To continue the controller must be connected, once connected click the “Check/Set Idle” button. A screen to confirm that controller is reading the proper RPM and to set the Idle RPM will open. If the controller is disconnected this window will close.

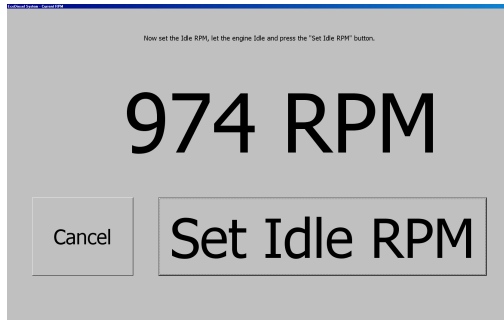
Set Counts/Rev & Idle RPM



This screen helps to make sure that the correct Counts/Revolution has been selected. Start the engine and bring it up to 2000 RPM. Confirm that the computer and the in-dash Tach are within tolerance (± 50 RPM). The readout on the screen will turn Green when the computer is reading within tolerance.



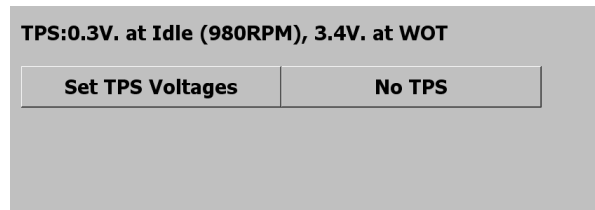
If the RPM is not within tolerance, there is a pull down menu above the "OK" button. This allows for adjustment to the controller from this screen. If the computer was displaying a higher RPM than the engine was really turning then lower the count number. Inversely if the computer was displaying a lower number, increase the number of counts. When the RPM is within tolerance, click the "OK" button.



The screen changes to the “Set Idle RPM” Screen. Let the vehicle Idle, in neutral, with A/C off, press the “Set Idle RPM” Button.

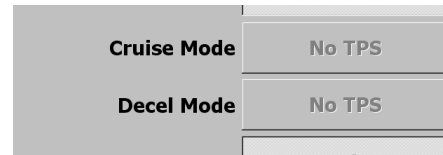
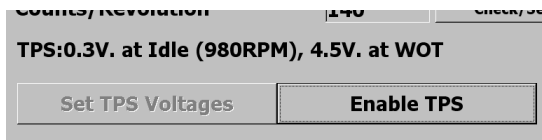
The current setting for the Idle is indicated in the TPS line of the Configuration.

TPS



There are two buttons that directly involve the TPS.

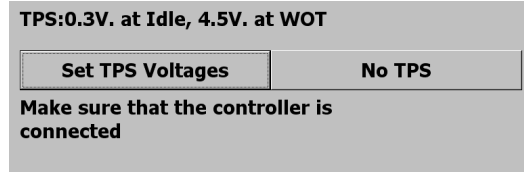
Disabling the TPS



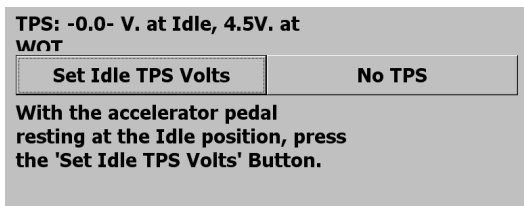
If there is no TPS sensor on the engine, press the “No TPS” button, this will also disable the Cruise and Decel Modes, as they require a TPS input to function. Also this sets the TPS Idle and WOT settings to 0.3V and 4.5V respectively as defaults. To re-enable the TPS, push the “Enable TPS” Button (it previously displayed “No TPS”).

Setting the TPS

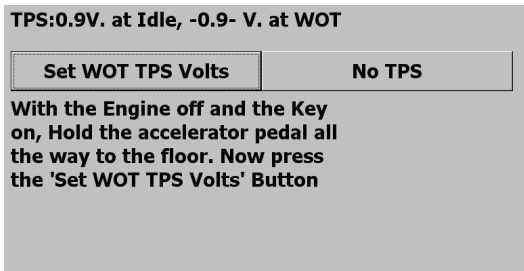
The controller must be plugged into the computer and the key turned on, but the engine should not be running. If there is a communication issue you will see:



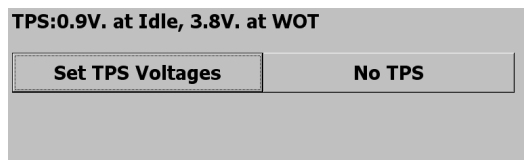
Once the controller is plugged in, the message should change to:



In the line above the “Set Idle TPS Volts” it says “TPS: -0.0- V. at Idle, 4.5V. at WOT”. The number between the dashes (- X.X -) is the current reading from the TPS. The engine should be off, but the key on right now. If you press the accelerator pedal down you will see those numbers increase. Leave the pedal at rest (with your foot all the way off) then push the “Set Idle TPS Volts” button.



As you press the accelerator to the floor you should see the WOT (Wide Open Throttle) V. changing. Once you have the pedal all the way to the floor, press the “Set WOT TPS Volts” button.



Upon completion you should see the screen again at rest with the new settings.

Mode Settings

Idle Emissions Mode	Disabled	Idle Emissions Mode	Enabled
Cruise Mode	Disabled	Cruise Mode	Enabled
Decel Mode	Disabled	Decel Mode	Enabled
	Non Turbo		Turbo
	1 EGT Sensor		2 EGT Sensors
	LPG		CNG
	Metric		Imperial
	No Turbo		Post Turbo

Cruise Mode	No TPS
Decel Mode	No TPS

Imperial
Pre-Turbo

The Mode settings are on the right side of the screen. These enable/disable or set the parameters.

- Idle Emissions Mode
 - Enabled: The system is active while Idling to lower idle emissions
 - Disabled: This feature is disabled and the unit delivers no gas during the idle values
- Cruise Mode
 - Enabled: This feature is enabled allowing the system to operate while the vehicle is under cruise control (most cruise controls will show idle TPS values during operation, this feature detects this and allows operation)
 - Disabled: This feature is disabled
 - No TPS (Greyed out): The “No TPS” button has been selected. This function requires a TPS to work, so this option has been automatically disabled.
- Decel Mode
 - Enabled: This feature is enabled and shuts off gas injection during deceleration (braking) to save on fuel.
 - Disabled: This feature is disabled
 - No TPS (Greyed out): The “No TPS” button has been selected. This function requires a TPS to work, so this option has been automatically disabled.
- Turbo/Non Turbo: Select whether the vehicle is Turbo charged or not. If there is no turbo, then the Map is set to look at TPS %.
- 1 EGT / 2 EGT Sensor(s): Select if there is only 1 or if 2 EGT Sensors have been wired up
- LPG/CNG: This controller can be used for either CNG or LPG injection.
- Metric/Imperial: Metric – °C and Bar, Imperial – °F and PSI
- LPG/CNG Injector Location
 - No Turbo: The Turbo/Non Turbo selection has been set to Non Turbo
 - Pre-Turbo: The LPG/CNG Injector has been put prior to the turbo.

- Post Turbo: The LPG/CNG Injector is between the Turbo and the Head

Installed Date

This is located at the bottom left side of the screen and indicates the date that the controller was first connected to a computer.

Ok/Calculate Map

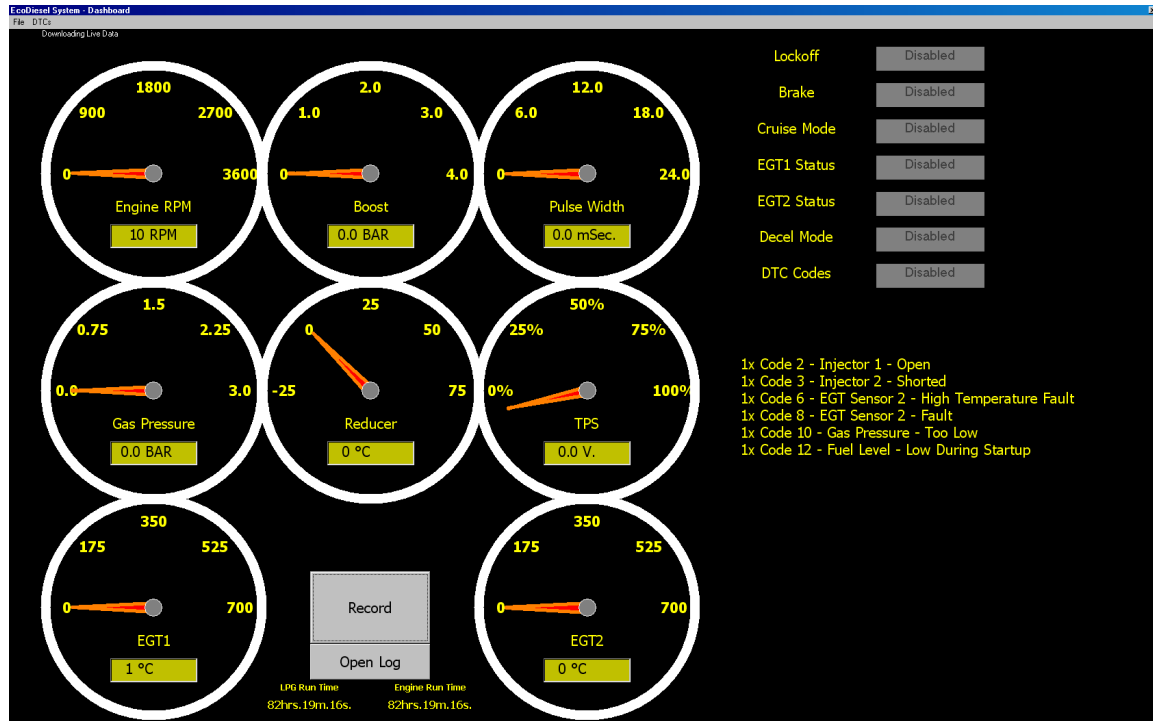
Pressing OK closes the configuration screen and uploads (if connected) to the controller.

Pressing the Calculate Map closes the Configuration Screen, and uploads the configuration data to the controller; it also re-populates the map with calculated values based on some of the parameters entered.

Dash Board

The Dash Board screen is a method of watching and recording what the controller is doing.

Screen Layout



Menus

File (Alt-F)

- Open: Opens a Log File for Playback
- Open Log Viewer: Opens the Log Viewer Screen
- Exit: Closes the Dash Board screen

DTCs (Alt-D)

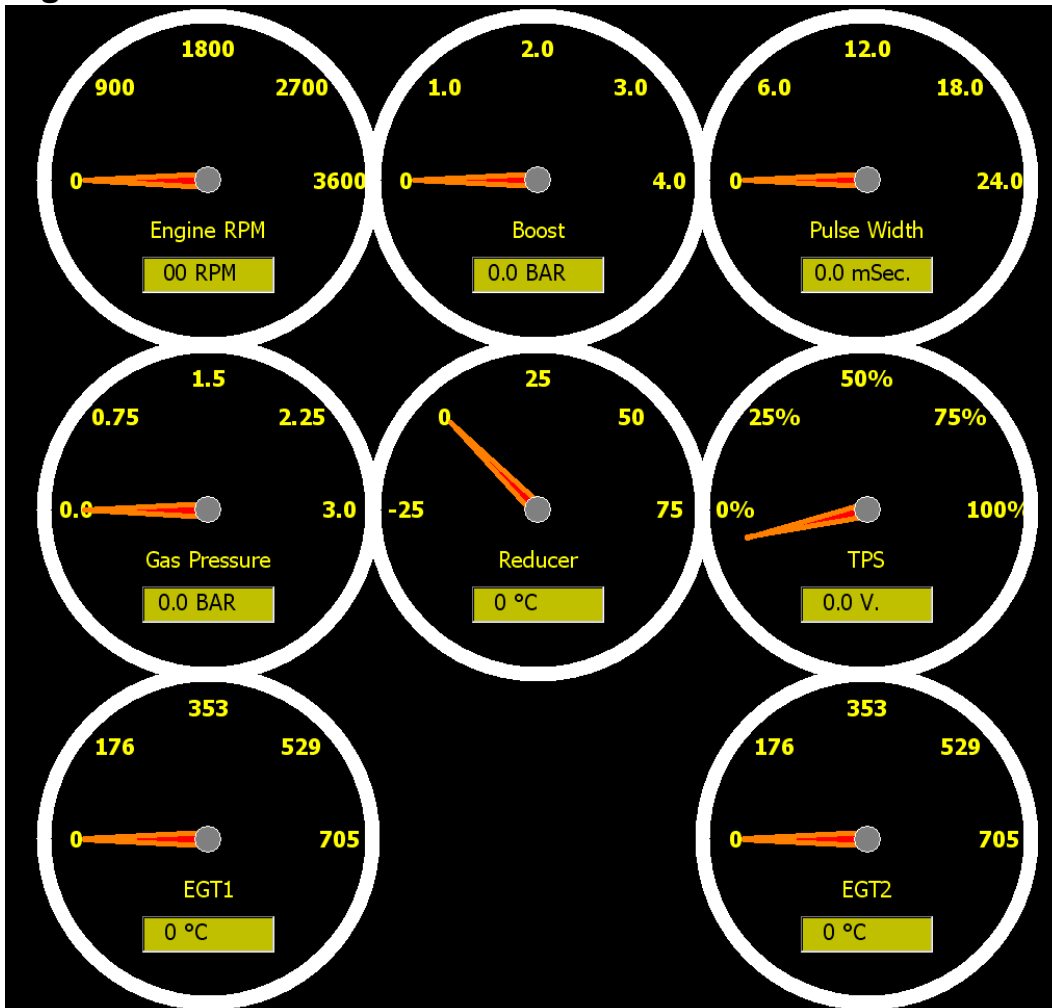
- DTC Screen: Opens the DTC Screen
- Clear Codes: Clears the current DTC's (Key must be off)
- Clear User Timer: Resets the User Timer (Key must be off)

Status Indicator

The Status Indicator here lists the same information as the Status Indicator on the Map screen. It will display the same messages:

- Controller not Connected: The program hasn't detected the controller
- Downloading Live Data: The program has been connected to the controller and is currently downloading the Live Data information.
- Live Data Paused: This indicates that a Log File has been loaded and is waiting to run.
- Playing Back Log File: The loaded Log File is in the process of running.

Gauges



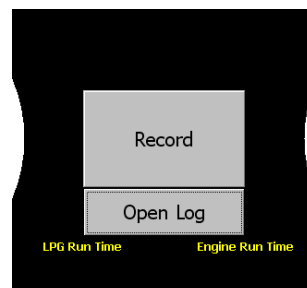
The gauges provide an easy visual indicator platform for the live data. They give both a dial type gauge to give a sweeping representation of the parameter, while a digital readout is shown in the yellow box below the needle.

If one of the readings is out of the specified ranges, the label for the gauge will turn red to indicate a problem with that reading.

There are 8 different gauges:

- RPM: Shows the RPM from 0 to 3600
- Boost: Shows the Boost Pressure from 0-50PSI. (0-4Bar.)
- Pulse Width: Shows the current Pulse Width of the Injector from 0 to 24mSec.
- Gas Pressure: Shows the Gas Pressure going into the Reducer from 0 to 40PSI. (0 to 3 Bar)
- Reducer Temp: Shows the current Reducer Temperature from -20 to 200°F (-25 to 75°C)
- TPS: This shows the TPS information in 2 ways. In either case the Digital gauge show the actual Voltage from the TPS
 - If the TPS information in the Configuration Screen looks good, then this gauge goes from 0 to 100%
 - If the TPS information is still at default, then this gauge goes from 0 to 30V
- EGT1: This show the current temperature that the first EGT is reading. This also will show in different scales. If the EGT Shutdown has been configured in the Configuration Screen, then the maximum value on the gauge should be your shut down. If it isn't configured, then it goes to the default of 1000°C (1832°F)
- EGT2: This gauge works on the same principle as the EGT1 Gauge, as long as there is a second EGT Sensor.

The Playback/Record controls

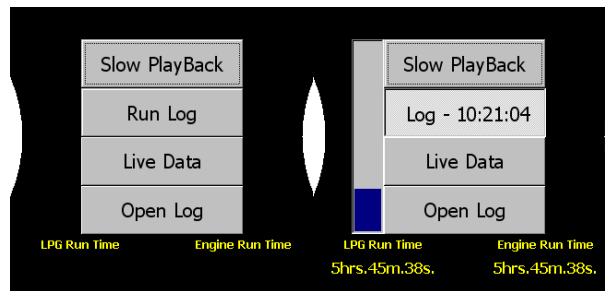


These controls are located on the bottom in between the two EGT gauges. When you first open the Dash Board it will look like this.

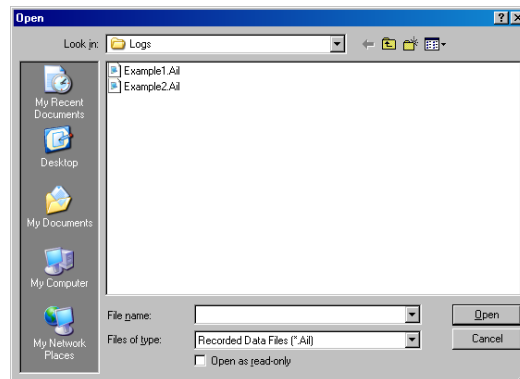
Recording a Log File

To record a log file push the record button. The program will automatically name a file under the Logs Directory in this format: Year-Month-Day, Hour-Minute AM/PM
As it is recording, there will be a time displayed in the recording button. This is the current system time. While this is happening you will see a grey bar to the left of the Record and Open Log buttons. As the recording progresses this bar starts to fill from the bottom with Blue. When the whole bar is blue you're out of time and if you want to keep recording you must start it again. This should record for around 3 Minutes. If you want to stop the recording early, push the record button another time. The Blue/Grey line should disappear and the Recording button should return to normal.

Playing Back a Log File



The next button is the “Open Log” selection. This does the same as the going to File > Open. Either opens a Log File. It will default to the same location that the Log Files are saved. Log files are automatically saved with an .ail extension.



If you push cancel at the file selection screen when you return to the Dash Board screen the “Run Log” button will be disabled.

Once a Log File has been opened, pressing the “Run Log” button will replay the selected log file on the gauges. As the playback proceeds, the “Run Log” button will show the Log is running and also display the time of the recording. You will also notice that the

grey/blue line is back showing the progress of the Log File, and if you click on this you can jump to a point in the recording.

You can also push the “Slow PlayBack” button; this will slow the playback to about a quarter of real-time.

Once you are finished with the playback, you can return to live data by pressing the “Live Data” button, this will return you back to current live data from the controller.

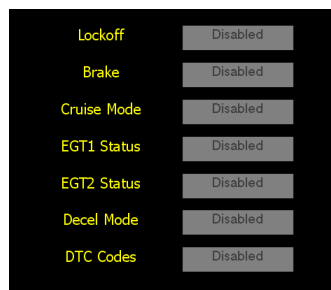
Current User Runtimes



This feature is located at the very bottom right below the Log File controls, it displays two different times. One is the length of time the controller has seen an RPM signal (presumably the length of time the engine has been running), the other time is the length of time the LPG/CNG system has been running (based on the lockoff operation). These times are either read from the controller or the Log Files.

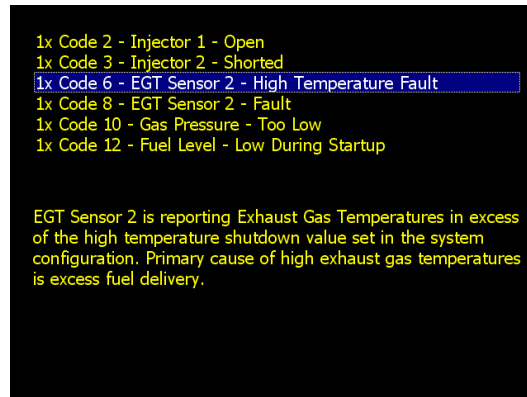
These can be reset by going to the menu DTCs > Clear User Timer.

Indicators



These indicators work just like the ones on the bottom of the Map Screen.

DTCs (Diagnostic Trouble Codes)



The bottom right side of the screen is where the current DTCs are displayed.

The top list indicates the current codes. Each code displays the number of times it has been triggered since the last reset. The number of times is the first number in the line.

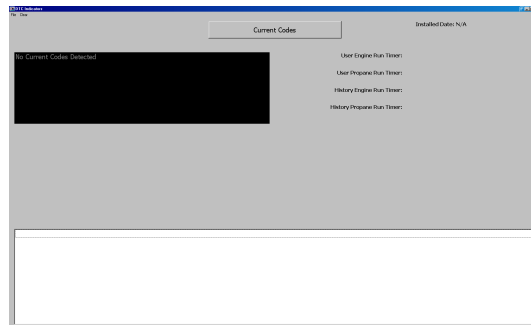
If you click on the code, it is then highlighted and a brief description of that code is displayed below.

You can reset the current DTCs by either going to the DTCs Menu > Clear Codes, or by going to the DTCs Screen (either by the DTCs Menu > DTC Screen or by clicking on the “DTC Codes” indicator).

DTC Screen

This screen is used to view the current as well as the History DTCs. It can be accessed by either clicking on the “DTC Codes” Indicator on either the Dash Board or the Main Map screens or by clicking on “DTC Codes” under the Controller menu of the Main Map Screen, or DTC Screen under the DTCs menu of the Dash Board Screen.

Screen Layout



Menus:

File (Alt-F)

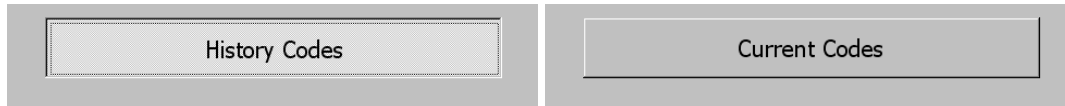
- Exit: Closes the DTC Screen and returns to either the Dash Board or the Main Map Screens.

Clear (Alt-C)

- Current Codes: This option clears the current DTCs out of the Controller; it does not clear the History Codes.
- User Timer: This option resets the User Timers to zero. This doesn't affect the History timer.
- History: This is password protected and will clear the History Codes as well as the History timers, this feature is reserved for use by the manufacturer
- Controller: This is also password protected and will reset the controller back to factory defaults, this feature is reserved for use by the manufacturer.

Note: The vehicles Key must be Off while Clearing any of the Codes or Timers.

Current/History Code Selector

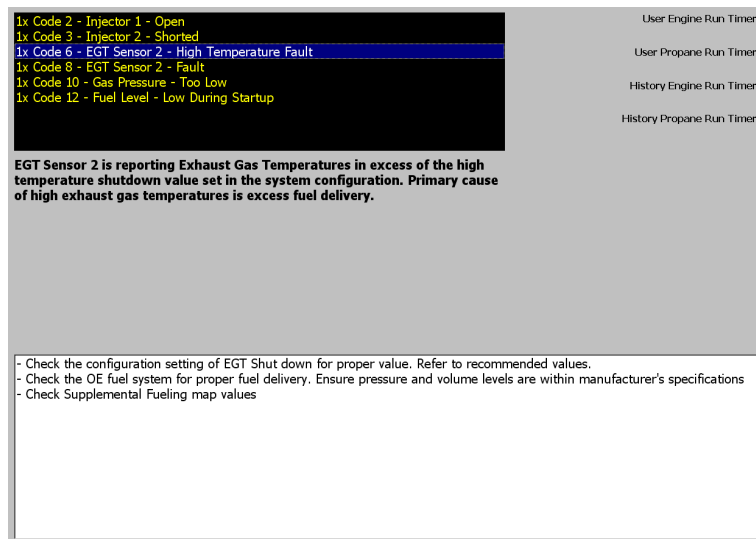


This button toggles between displaying the Current DTCs and the History DTCs. Going to the Clear menu can reset the current codes and user timers. History Codes and Timers require a password to reset.

Installed date

The installed date is located in the top right corner of the screen. As with the Configuration screen, it indicates when the controller was first connected to a computer. Since this data is read from the computer that is connected, the computer's correct time and date settings are important.

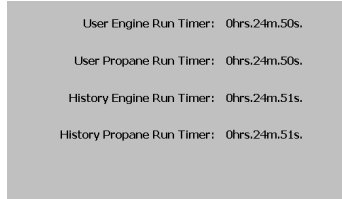
DTC Code Displays



The DTCs are on the Left side of the screen. The Black Box indicates which and how many times each code has been triggered (as with the Dash Board Screen, the first number indicates the number of times it's been triggered since the last reset.)

You can select any code by left clicking on it. This will bring up a brief description of the code, it will also show at the bottom section of the screen a few common reasons and trouble shooting advice for these codes.

Timers



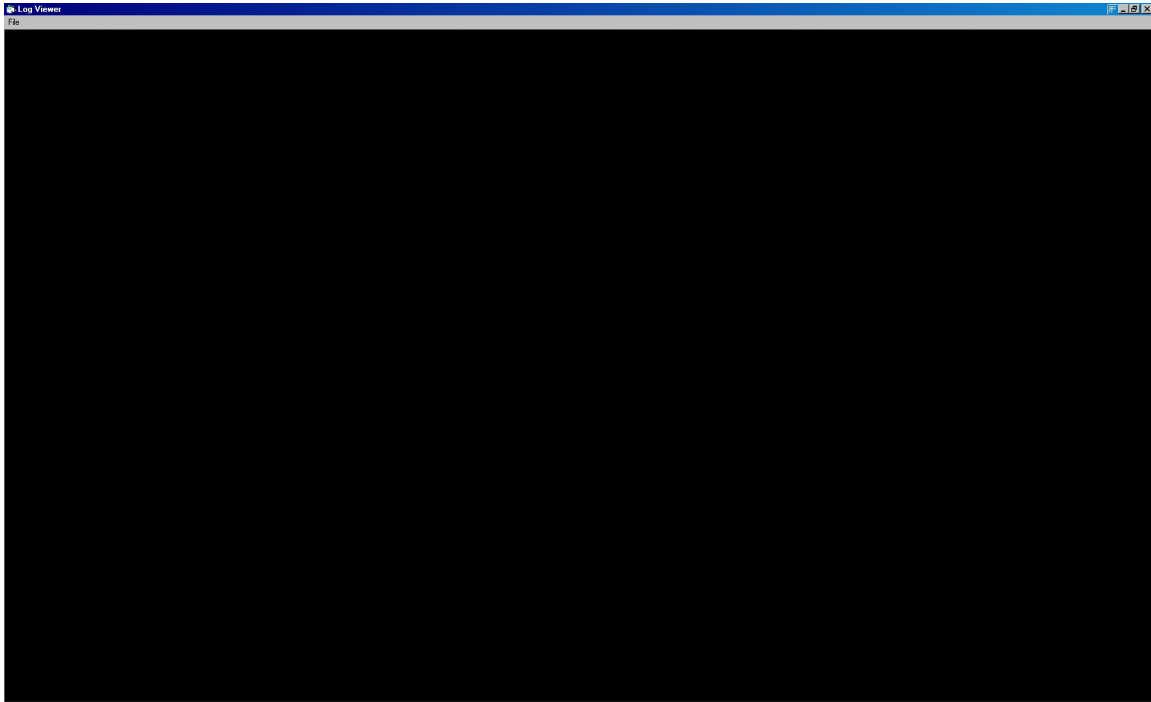
These timers indicate both the User resettable timers and the History Timers. The History timers require a password to reset, were the User timers don't.

There are two different timers for each function.

- The first is the Engine Run Timer (the length of time the controller has seen an RPM signal).
- The second timer indicates how long the system has been supplying LPG/CNG.

Log Viewer Screen

The Log Viewer is a screen that gives a graphical representation of a recorded log file. It is accessible either by the Menu on the Main Map Screen, or by clicking File > Open Log Viewer in the Dash Board Screen. When it is first opened the screen is blank.

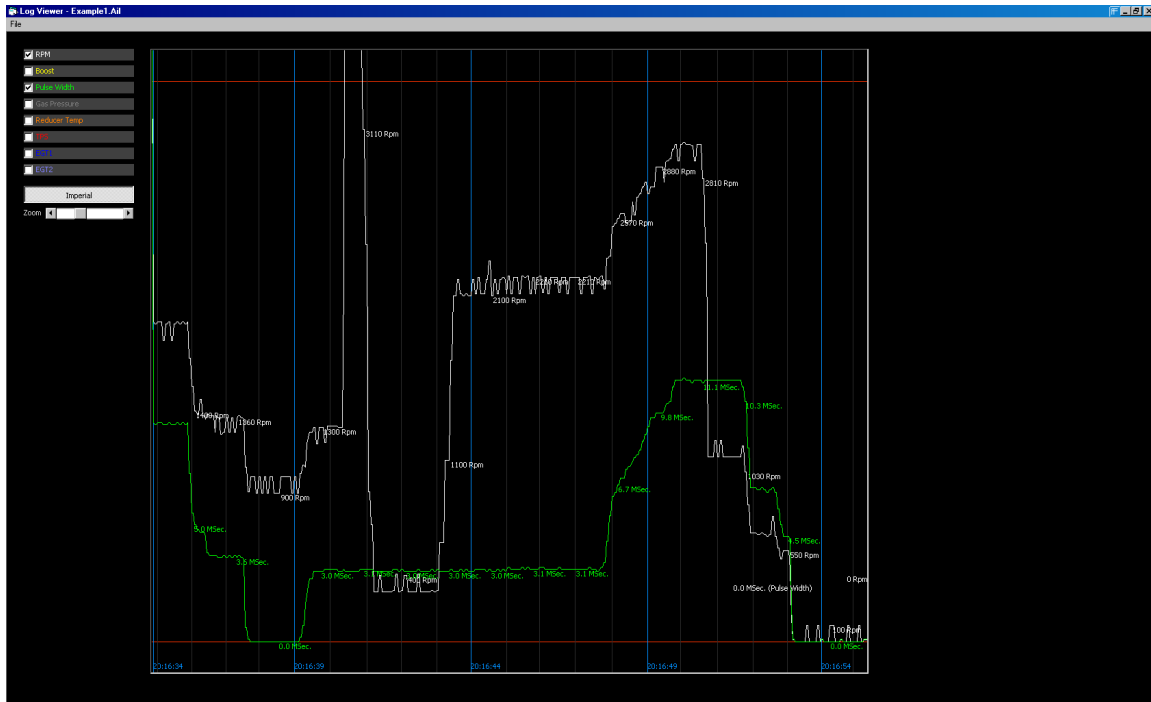


Menu

File

- Open: Opens a Log File for viewing. This works the same as Opening Log Files in the Dash Board. When the Open screen comes up it should be at the default location.
- Exit: Closes the Log Viewer Screen

Opened Log File Screen

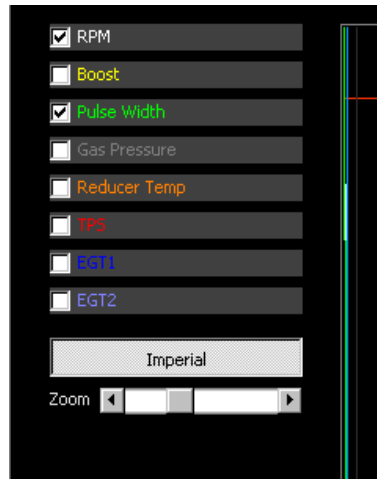


File Name



The current filename is right on the title bar of the window in the top left corner

Data Options



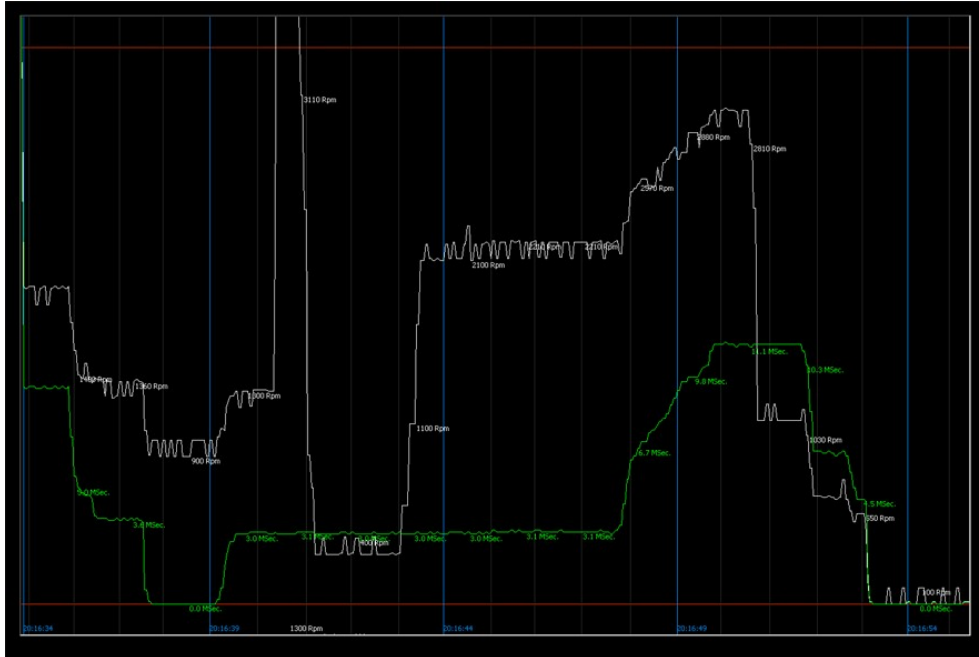
By default this screen has RPM and Pulse Width selected. To enable or disable a data field, click on the check box next to the title. There are 8 different fields, plus the option to display in Metric or Imperial measurements.

The Fields are:

- RPM: Displays the recorded RPM
- Boost: Displays the recorded Boost Pressure. This will either be in Bar or PSI. Depending on the Metric/Imperial selection
- Pulse Width: Displays the recorded Pulse Width. This will be in mSec.
- Gas Pressure: Displays the LPG/CNG pressure. This will also be in either Bar or PSI depending on the Metric/Imperial selection.
- Reducer Temp: Displays the recorded Temperature of the Reducer. This will be in either °C or °F depending on the Metric/Imperial selection.
- TPS: This will display the recorded TPS Voltage.
- EGT1: This is the recorded EGT for the First sensor. This will be in °C or °F depending on the Metric/Imperial selection
- EGT2 This is the recorded EGT for the Second sensor. If there isn't one, this it should display a Zero. This measurement should also be in either °C or °F depending on the Metric/Imperial selection
- + Metric/Imperial Button: This is where the selection of Metric or Imperial takes place. This only applies to this screen.
- + Zoom: This option allows the stretch/compress horizontally of the data, allowing more information to fit on the screen, or stretching it wider to be able to see better detail.

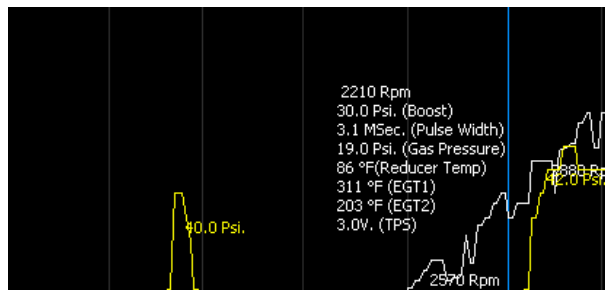
The Graph

Layout



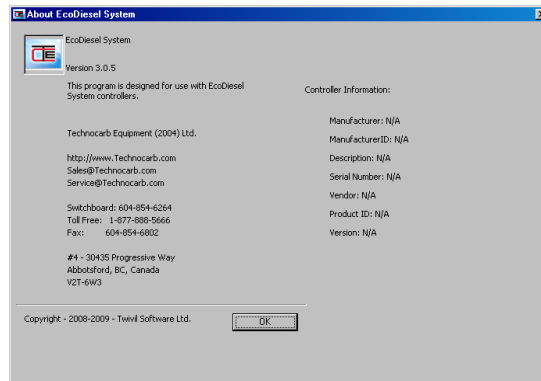
This is the graph itself. The red horizontal line at the bottom represents zero, and the red horizontal line at the top represents the recommended maximum. The light grey vertical lines represent 1-second intervals, while the blue vertical lines represent 5-second intervals. The recorded time is at the bottom of each 5-second interval (the blue lines).

Instantaneous Data



While the Mouse is over the Graph, it will display the instantaneous data at that vertical (time) location. It will only display the selected data information.

The About Screen



Accessed through the Main Map Screen. It displays the Software Version Number, the contact information for Technocarb Equipment and the Controller information.



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 Abbotsford, BC, Canada V2T 6W3
 Tel: 604-854-6264
 Fax: 604-854-6802
 E-mail:
 ecodiesel@technocarb.com
 Web: www.technocarb.com

***EcoDiesel System™* LIMITED WARRANTY POLICIES**

Technocarb Equipment (2004) Ltd. (TCE) located at #4-30435 Progressive Way, Abbotsford, B.C. Canada, V2T 6W3 warrants its' EcoDiesel System (except components specified in Sub-Part I or II) to be free of defects in material and workmanship for a period of 36 (Thirty Six) months from date of purchase or 5000 hours of running time (whichever shall first occur) – components in Sub-Part I carry a 90 day from date of purchase **or** 250 hours of running time (whichever shall first occur) warranty. Components in Sub-Part II are not covered by *TCE* Limited warranty, the sole obligation of *TCE* under the terms of this warranty is limited to replacing or repairing any *TCE* product or component, which, under normal conditions of use and service, proves to be faulty due to any defect in material or workmanship. This warranty does not cover labor costs incurred in the diagnosis of defects, removal or reinstallation of the equipment, shipping or handling costs, nor does it cover any other contingent or consequential expenses.

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Information in *TCE* catalogues or other documents is given after the exercise of due care in its compilation, preparation, and issuance; however, *TCE* DISCLAIMS ANY LIABILITY RESULTING FROM SUCH INFORMATION except for the obligation under the warranty provided above to replace or repair the product.

Sub-Part I - TCE EcoDiesel System components COVERED by 90 day or 250 hour Warranty

Fuel Vapor Hose	Hose Clamps
Coolant Hose	Hardware

Sub-Part II - TCE EcoDiesel System components NOT COVERED by Warranty

Resilient components (diaphragms, gaskets, etc.) damaged due to fuel contamination
Any component not originally supplied by TCE
Clearance or obsolete components sold as such

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