DATA LOGGER INSTRUCTIONS

CONTENTS:

1.0 Data Logger Overview

Holley HP and Dominator systems come standard with powerful data logging capabilities. There are two main types of data logging: **PC Data Logging**, which is performed directly with a laptop computer, and **Internal Data Logging**, which is stored inside the ECU and later retrieved with the software. Every channel is always logged with both types of logging.

PC Data Logging – the sampling rate is fixed to approximately 30 samples per second and logging is started and stopped by simply clicking an icon in the software.

Internal Data Logging – the sampling rate is adjustable from 1 to 100 samples per second. Trigger conditions are specified to begin logging. The ECU creates the datalog files and stores them for later retrieval. Internal logging also allows the user to record "system logs" which are useful for diagnosing crank and cam sensor synchronization errors.

Data can be reviewed numerically and plotted graphically. Two logs can be overlaid and compared together.   A zero start point can be established to further assist with tuning.

2.0 PC Data Logging

To start PC logging, simply select the logging icon at the top of the screen (appears as a clipboard). This icon will only be active when the ECU is powered and USB communications are established. To end logging, simply select the icon again. At this point you will be asked to enter a file name (and allowed to select or create the directory to store the data). There will be a default name, which includes the date and the time at which the log was started that can be used or changed.

3.0 Internal Data Logging

The HP and Dominator ECU's both feature 4 GB of internal logging storage. Multiple files can continue to be stored until the 4 GB of memory is exceeded. Once the internal memory is full, files must be deleted before new files can be saved. It is also advised to clear out the internal memory if more than 150 files are stored.

The internal logging can be set up to automatically record events that may be desirable to log even if not intended to be immediately reviewed. Some examples are that logging can be set up to start at every Wide Open Throttle event. If this is selected, a drag racer could record every pass of the season.   It may be set up to automatically start if oil pressure goes below a certain amount for example.

Setting up to log –To setup the ECU for onboard logging you select "Setup ECU Logging" from the "Datalog" section at the far right of the toolbar.
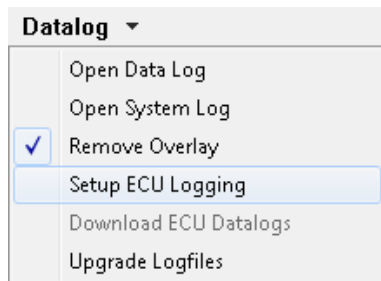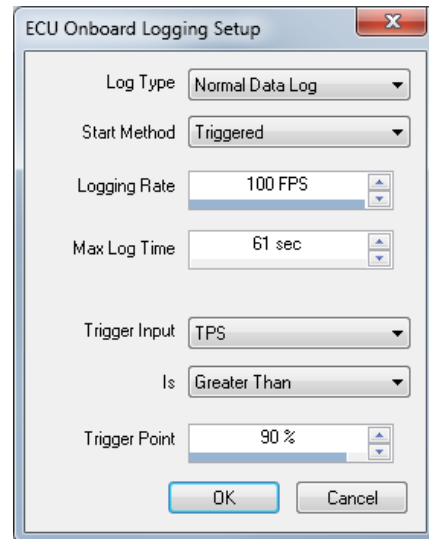

Figure 1

Figure 2

The first item to setup in the onboard logging is the general log type. Selecting "Normal Data Log" will create a datalog with the normal sensors (RPM, MAP, TPS, MAT, CTS, etc.) that will have an extension of DL or DLZ. Selecting "System log" will result in a file with the extension SL. Unless you are trying to diagnose a crank or cam sensor problem, leave it on normal data log.
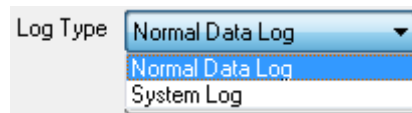

Figure 3

The next parameter to set is the "Start Method." Since it is doubtful that you will want to log all of the time, you'll most likely want to tell the ECU when you want the logging to begin. You have three main choices: Immediate, Triggered, and Deactivate **(Figure 4)**.
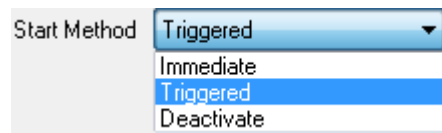

Figure 4

Deactivate is fairly straightforward - no logging. However, Immediate and Triggered will respond differently depending on whether or not you enable the predefined input for the internal logging. If you want to control when the logs will occur with a switch, you will want to check the box for "Enable Input for Internal ECU Log" that is found in the Datalog section of the Basic I/O tab of the System Parameters. See **Figure 5**.
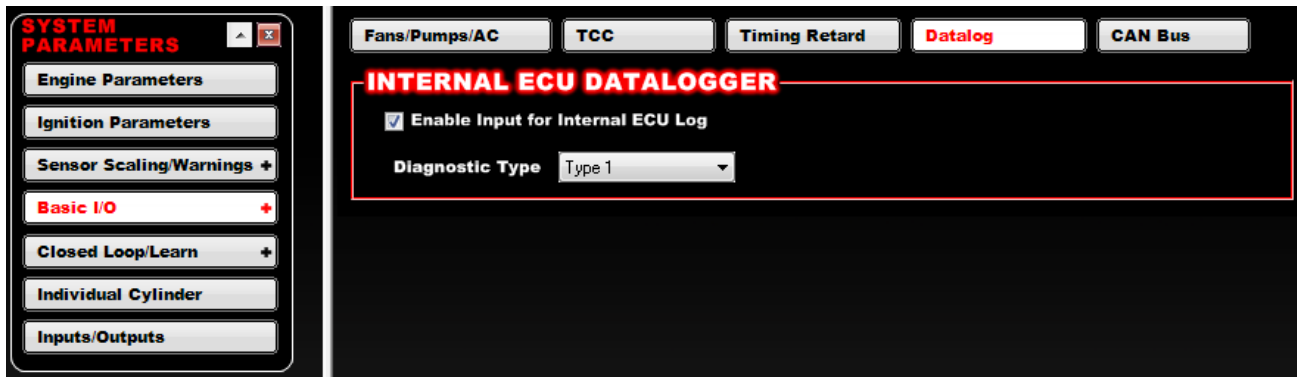
Figure 5

You set the logic of the "ECU Log Trig" input here- and it will show up as a new input to pin in the pinmap **(Figure 6)**.
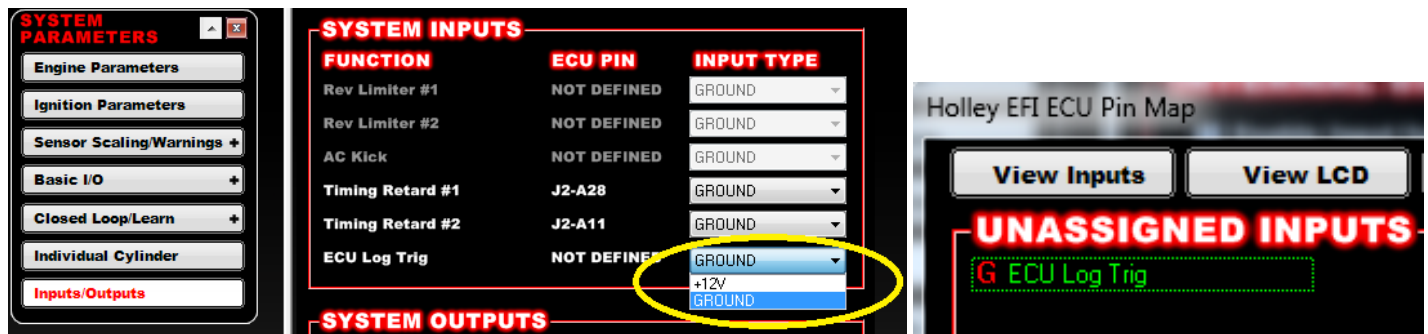

Figure 6

This is a predefined input. While you could create a variable in the IO ICF to accomplish a similar thing, it is highly recommended to use the predefined functionality to reduce confusion. To prevent confusion, do not create a variable in the IO ICF of the same variable.

With "Immediate" and "Triggered" start methods and an option to use the ECU Log Trig Input, there are actually four combinations. We will treat these separately:

Immediate Start Method with no ECU Log Trig – This combination results in logging as soon as the ECU is powered up and it continues going until the ECU powers down or you hit the "Max Log Time." If you hit the max time, then the ECU wraps up the file and immediately starts a new one. If you want to log all of the time (including uneventful key on time if the engine is not running) this one is for you. It would be advisable to set the "Logging Rate" rate very low or you will fill up the storage space in short order, and set the "Max Log Time" very high to avoid lots of little files.

Immediate Start Method with ECU Log Trig –This combination results in starting the log based exclusively on the ECU Log Trig input. That is pretty simple. The length of the log will be a function of the kind of switch you use and what you enter for "Max Log Time." If you are using a momentary switch it is pretty simple. The momentary ECU Log Trig Input starts the log, and the length of the log is set by the "Max Log Time." It essentially ignores the switch input until it finishes the log. If you are using a toggle switch the log will go at least for the time specified in the "Max Log Time" but will continue beyond this time if the switch is still active. Beyond this time as soon as the switch is turned off the log stops. So really for this combination the "Max Log Time" is actually specifies the minimum log time.

Triggered Start Method with no ECU Log Trig –This combination is useful if you know you always want to record data at a certain condition without having to worry about a switch. You can specify what condition will trigger the start of the log (like TPS>50, RPM>3000, or MAP>110 for instance) and then the log simply goes for the time you specify in the "Max Log Time." Meeting the trigger conditions again during the log will not prolong the log, but of course meeting the trigger conditions again after a log is finished will start a new log. Many people choose to setup the trigger conditions based on things you would see at the burnout for instance and then set the log time long enough to capture the run.

Triggered Start Method with ECU Log Trig –This combination is the strictest in that you have to have the ECU Log Trig input active in combination with meeting the trigger condition based on the variable and threshold you selected. BOTH must be active at the same time for the logging to start. While you can do this with a momentary switch input, you have to be confident that the trigger condition will be met at the time you hit the switch. It might make more sense to use a toggle switch for the ECU Log Trig input when using this combination. After being triggered the log will run for at least the length of time set in the log time, and will continue to run so long as the ECU Log Trig input is active. What you do not have to do is select "ECU Log Trig" as the trigger input. That is already taken care of as a predefined system input and can actually cause confusion and problems if you use it as a trigger condition as well.

Creating a Switched Input for the Internal Logger – A switched input can be created for the internal logger (+12V or ground). Its function is described below in the start methods. It is created by selecting the System Parameters ICF and Basic I/O – Datalog. Select the "Enable Input for Internal ECU Log" to create this input.

Note: If you trigger a log within 60 seconds of a previous log, the previous log may be overwritten, as the log filename may be the same.

Logging Rate – The logging rate can be set up to log between 1 and 100 frames per second. Logging rate determines how many snapshots per second are in the log. In other words 10FPS means that you'll have 10 frames of data per second. 100FPS means 100 per second. Be aware that high rate logs use up space more quickly and take longer to download, although sometimes they are necessary to capture fast transient events. Using a lower rate does not mean that the data is sampled at a high rate and averaged over the specified period. Each point is a snapshot. If you want to do smoothing then take the data at a higher rate and then apply smoothing after the fact in the DL viewer. You do not have to specify a logging rate for the system logs since they are event based. You will get a snapshot every crank or cam edge, which may very well be much more than 100 FPS. So when the engine is running the SL files get large pretty quickly- particularly with high tooth count wheels.

Downloading ECU Data logs – This can only be done when on-line with the ECU and the engine not running. From the main tuning interface, select "Datalog" and "Download ECU Datalogs".
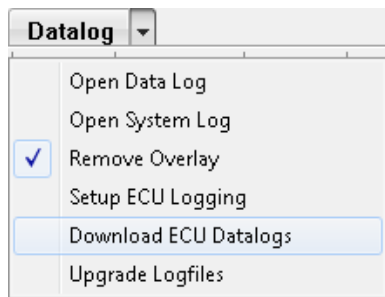

Figure 7

You must have the key on but be offline in order to access the onboard data logs. This graphic illustrates an example of the type of files you will see in the onboard memory:
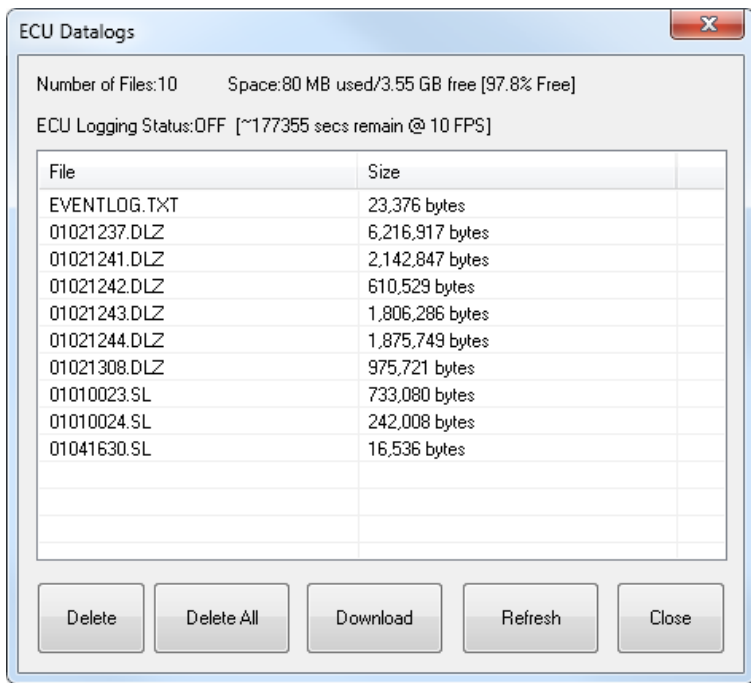

Figure 8

The "EVENTLOG.TXT" file is a history of critical events. This will include a record of things like power on and off events, firmware upgrades, TPS autosets, etc. This file should always be at the top of the list. The files that end with DLZ or DL are normal datalogs and the files that end with SL are system logs. The DLZ is simply a DL file with rudimentary data compression applied so that the download speed is faster. The DLZ files can be opened directly with the datalog viewer, which will first convert them to the expanded DL format.

File Naming Convention – The internal logs have a date/time stamp naming convention as follows:
MMddhhmm
MM = Month   dd = Day   hh = Hour (military time)   mm – minute

That is one reason why it is important to set the ECU's internal clock when going online by clicking the box below **(Figure 9)**.

Figure 9

If you click on a file and hit download, the file will be transferred from the ECU to your computer. You can find it by navigating to your HEFI Data Logs directory, which will usually have a path like this:

\Documents\Holley\HEFI\Data Logs

You can also select multiple files by holding control while clicking the files you want to include. You can then download or delete them as a group.

"Delete All" is a special case which actually clears everything including the EVENTLOG.TXT file. It can take 10-15 seconds to perform a delete all operation. Avoid using this unless the number of files gets out of hand since it will clear your history file. The exception to this is when taking major steps in firmware (from V1 to V2 for example) where performing a delete all is highly recommended.

Since you cannot download or delete a file that the ECU is actively writing, refresh is also useful to see if the active log is finished before trying to get it. You know when the ECU is writing a file because the "ECU Logging Status" will be ON and if you hit "Refresh" the file that is being written to will be increasing in size.
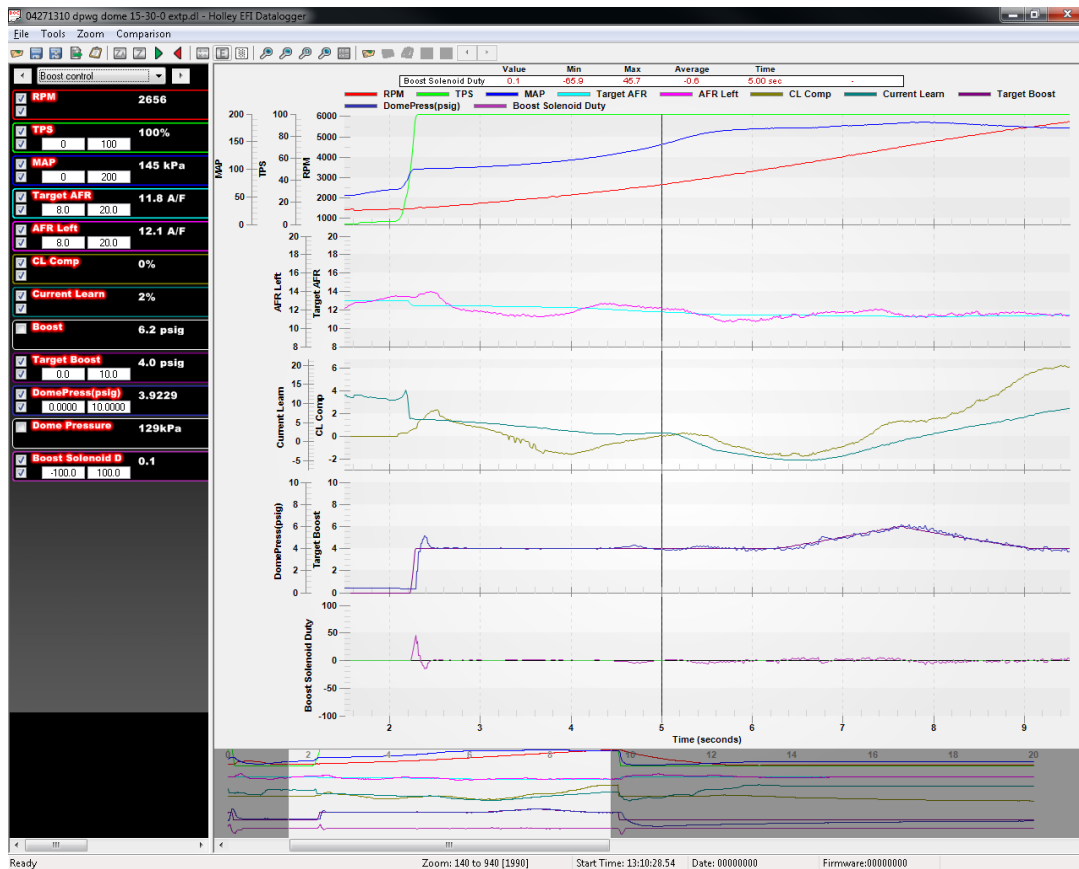
4.0 Basic DL Viewer Operation

Figure 10

This is a screenshot of the DL viewer in action. You can see in the left pane there is a list of variables from the ECU. This list can be defined and ordered to your choosing. See the section on **Setting Up Log Views** for more detail. You can select which list you would like to see by either scrolling through them with the left and right arrows or by selecting it directly with the view selector dropdown.
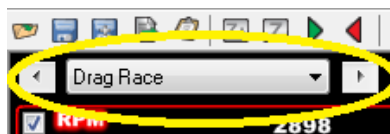

Figure 11

Each variable in the list has parameters to let you control how you see the data. To see the parameters for a given variable, click the variable name in the list.
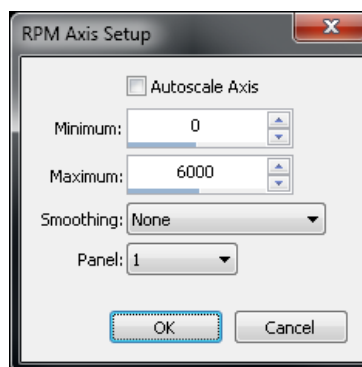

Figure 12

The option for "Autoscale Axis" will let the software automatically set the axis for that variable so that it is "zoomed in" to the range of data for the given DL. This is good and bad. It is good in that you always have favorable visual resolution for a given DL. It is bad in that you do not get a consistent perspective and the feel that comes with that. Sometimes it is desirable to lock the axis values so that it is easy to tell at a glance if a parameter is in a reasonable range or to force consistent axes between variables that should lie atop one

another (setpoint vs. feedback for instance). In that case you can uncheck the option for autoscaling and specify the axis values explicitly in the "Minimum" and "Maximum" fields.

You also have the option to apply smoothing to noisy data after the fact when examining data logs. For instance consider these two traces of BARO:
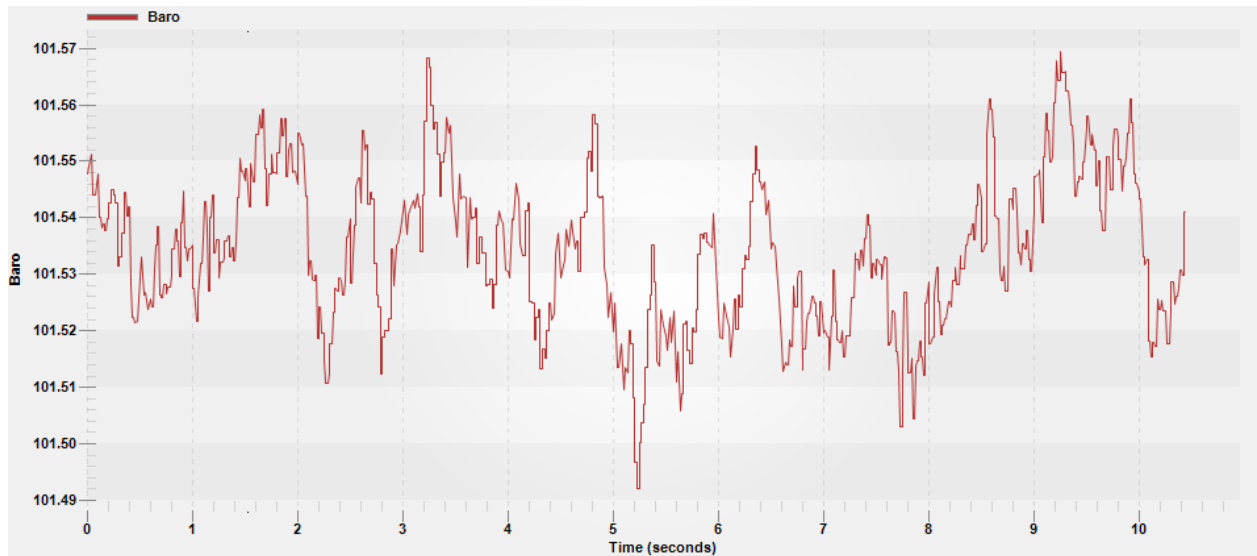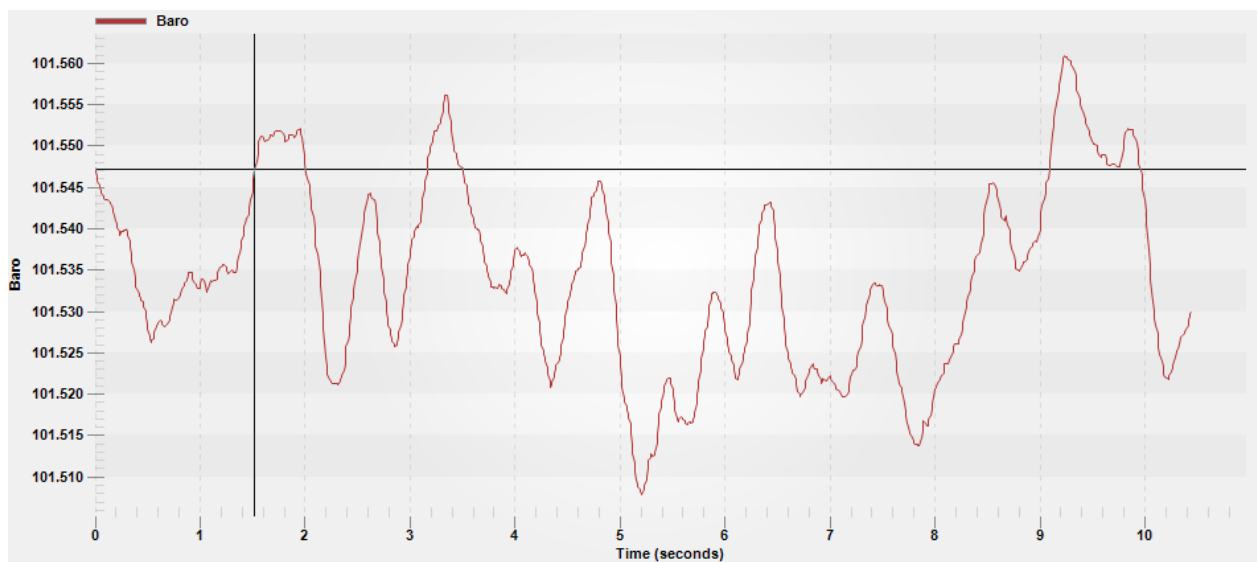

Figure 13 - No Smoothing

Figure 14 - Smoothing

You have the option of five different levels of smoothing, or of course none at all.

The last parameter in the setup for a given variable is the panel selection. You do not have to use panels at all. You can customize multiple views to switch between to accomplish this, but using panels lets you group variables by function and plot them on one screen so that the traces do not overlap. You can use up to five panels per view. The panels are referred to as 1-5 but are not labeled in the graph pane. For instance, you can be using panels 1, 3, and 5 and it may be mistaken for 1, 2, and 3. You just have to remember which ones you are using or click on a variable name to see to which panel it belongs.
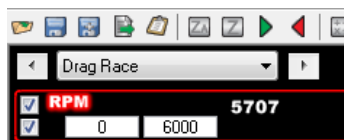

Figure 15

In addition to the parameters available by clicking on the variable name, there are also a few options directly accessible in the box with the variable.

7

The checkbox immediately to the left of the variable name lets you turn the trace on or off for that variable. If you "hover" over the checkbox you will see that it is called "Graph Channel." This is the main on/off switch for the trace. If you turn it off the corresponding trace in the right pane will disappear along with any axis settings below the variable name.

The checkbox below the "Graph Channel" control is the "Display Axis" control. This is the on/off switch for the axis label, which includes the variable name and the numeric axis labels. It may not be immediately obvious why you would ever want to turn an axis label off, but it is very useful for things that share the exact same axis. For instance, assume you have eight widebands or eight EGT channels. Chances are you will want to plot them on consistent axes, but there is no reason to see all eight once you reconcile them. The axis labels do consume screen real estate after all.

The boxes with numbers that are displayed directly under the variable name are only displayed when the axis is using user defined min/max values. They are not displayed if autoscaling is enabled for that channel. They will still show up if you turn the axis labels off so that you can see the axis min/max values are what you think they are. They are also useful for quick reconciliation if you are trying to keep multiple variables on consistent axes.

The numbers in white immediately to the right of the variable name is the value of the variable at the time defined by the cursor position. The cursor is positioned by clicking on a trace or using the left/right arrows- not by mousing over alone. The graph trace does not have to be turned on to be able to see the numeric value. The value that you see immediately to the right of the variable name is "raw" in that the smoothing/filtering is not reflected in this value. Instead if you want to see the numeric value of the "smoothed" trace you look here:

|	Value	Min	Max	Average	Time	
Baro(Filtered)	101.5 kPa	101.5 kPa	101.6 kPa	101.5 kPa	3.17 sec	-

Figure 16

As you can see it will say "(Filtered)" after the variable name to differentiate it from the raw numeric value.

Below this box in the top of the right pane is the graph legend which maps out the colors for the different traces. As a visual cue, the box around the variable name in the left pane is the same color.

Zooming in on a time region with the mouse is an often used and very useful feature. To do this you highlight the area to which you want to zoom by clicking and dragging (not on a trace) the mouse. While dragging the area to be zoomed to will have an inverted color set to let you visualize what you are selecting.

When zooming in to a window of time that is just a part of the whole log a new pane will appear at the bottom of the screen. The point of this is to let you visualize what fraction of the entire log you are zoomed to and when it happens within the log. The extent of the active zoom is defined by the white background while the part of the log that you cannot see is defined with a grey background. The scroll bar at the bottom will adjust to the zoomed region as well, with the "thumb" of the scroll bar assuming the same width as the area of white background. You can then click and drag the thumb to move back and forth through time.

A quick way to unzoom is to use the "Zoom All" control in the toolbar. These zoom buttons are further explained in the toolbar section.
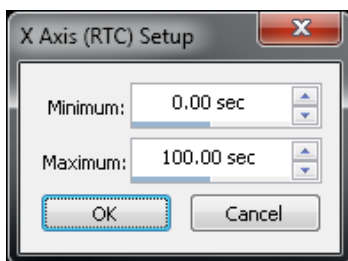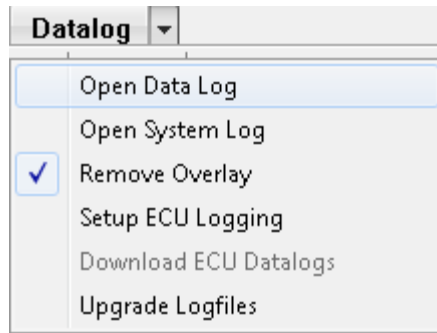

Figure 17

You can also click on the x-axis to explicitly set the zoom limits if you want to set a window by numbers instead of by clicking and dragging. Be aware that there is an x-axis at the bottom of every pane in a multi-pane configuration even though you don't see the numbers. So if you are getting this dialog by accident it might be because you are clicking too close to one of the x-axes.

To scroll through the data, move the cursor over one of the graphed items. The mouse cursor will turn into a "hand" when hovered over a line. At this point click on the line and use the arrow keys to scroll left or right.

5.0 Toolbar Features

Data logs are simply files that contain a record of operating conditions that you can review or compare with previous logs. They have the extension DL or DLZ and are viewed with an integrated data log viewer utility. You can launch the data log viewer by clicking "Open Data Log" under the "Data log" entry of the menu bar in the main Holley software. Clicking on the DL or DLZ files in "Windows Explorer" or similar utility will not launch the data log viewer.

Figure 18

This will prompt you to specify the path and filename of the DL that you want to view. The default path for DLs is \Documents\Holley\HEFI\Data Logs, which will be where internal data logs are copied to and the default location for PC based data logs.

Once the data log viewer opens you can see that it has a text based menu bar at the top and an icon based toolbar directly below. Most features can be accessed in either place. If you are unsure what an icon means you can "hover" over it with your mouse and a context sensitive description will appear.

Because the logs are file based, there are a few features that are common to other programs that store data in files; "Open," "Save," and "Save As."

Figure 19

Opening a new datalog will close any DL currently open (which may result in a prompt to save) and bring the data from the specified file into the viewer. Ctrl+O will not actually launch the DL open dialog box. Since you can perform operations on the files when they are open (like deleting data after a specified point or specifying a new zero time), you have the option of saving what you have done. "Save" will store the modified datalog to the original file name. This overwrites the original DL and is effectively irreversible. "Save As" will prompt you to specify a new file name so that the original remains preserved.

Figure 20

The next icon in the toolbar is for exporting data in the log to a standard CSV (comma separated variable) format. You can use this if you need to do more advanced processing of the data in a tool like Excel or MATLAB. If you do not know if you need to export a file, you do not need to worry about it. Clicking this will prompt you to specify the name and location of the CSV file that the data log viewer will generate. Very large files can take a bit to export. There is a progress bar, but sometimes Windows can proclaim the Holley software is unresponsive while it is busy exporting.

Figure 21

The icon that looks like a small clipboard launches the "Data log Properties" editor. Every DL has a header that can store notes about the particular log. Some fields, like the Global Folder name and firmware version, are automatically populated when the DL is created. There are predefined places to put common notes like 60 ft times or weather conditions as well as space for user defined notes. The Drag Race tab will also automatically calculate time splits. Remember to "Save" or "Save As" after entering DL notes.
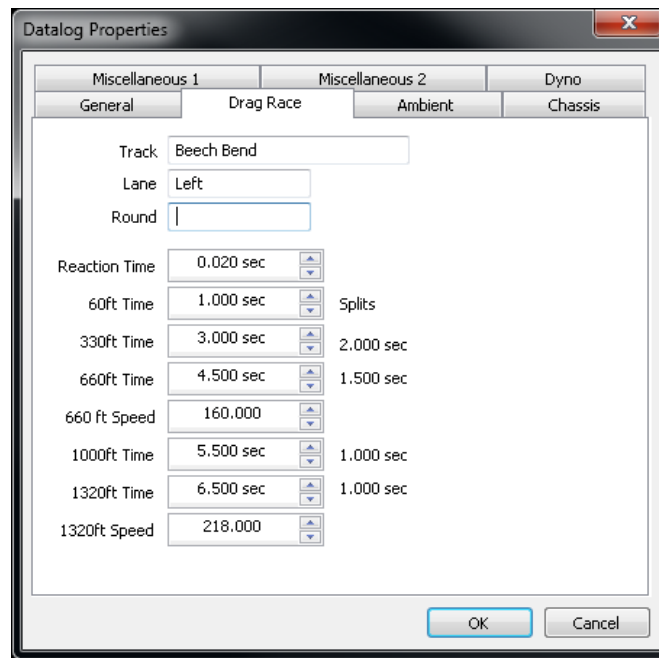
Figure 22

Figure 23

In order to have a convenient basis for comparison you have the option of being able to reset the zero time to a point of your choosing. For instance you may want to find the point of transbrake release to use as a zero time reference. This doesn't throw any data away. Data that is recorded previous to the assigned zero time is simply shifted into the negative time region. The icon with the Z allows you to manually select the zero time. It is easy- you click on the point in the log you want to correspond to t=0 and you click the Z icon. You also have the option to setup conditions to automatically set the zero time. When you hit the icon with the ZA you will be prompted to define a condition by which the zero will be set. After you specify the condition, the software will look for the first time the condition is met and establish this as the new zero time. It will then remember the condition you specified so the next time you hit ZA with a different DL you can just hit OK. If it does not find a point where the condition is met it will tell you. If the condition is met before you want it too, you can always trim the beginning of the log where the false trigger occurred. This will be covered next.

Figure 24

Many times there is data before and after the main event of interest that you'd rather just toss to save space or to isolate a particular problem in a long log. That is where it is very useful to trim the DL by setting the start and end points. To throw away data before a certain point in the log simply click the first point you want keep and click the green right arrow to "Set Start Point." To throw away data after a point click on the last point you want to keep and click the red left arrow to "Set End Point." By nature these functions will result in a loss of data, so it is advised to save the new DL as a different name to preserve the original data. Remember to save the DL before you start trimming if you have entered notes in the properties box so the notes will be saved with the original data.

Figure 25

There are often things that you will regularly want to calculate when looking at data logs that don't have to be calculated real-time for engine operation. That is when the math channels come in handy. To launch the "Math Channel Setup" box you click the icon that has the math operational symbols in it. Here you can define ten formulas using the ECU variables to the left in combination with constants of your choosing and the fundamental grouping and math operations. While this looks very much like a drag and drop operation similar to setting up the data monitor, it requires a different touch. Instead if you want to insert an ECU variable into the formula you are typing, you simply double click on the variable name and it will appear bracketed where you were typing. You cannot type the variable name since you can actually have more than one parameter with the same name. You also need to use the backspace key instead of the delete key for cleanup work. Be very cautious with copy-paste in conjunction with the formula definitions: it does not always do what

you would expect. The calculation formulas are actually stored with the Data Log Config file, so you can have multiple sets of calculations by saving different Data Log Config (.graph) files. The results of the calculations are inserted into the place for the last ten inputs (Input #71 through Input #80), but these will not show up in the live data monitor. The calculations are performed only when a DL is opened in the viewer and only exist in the viewer. So you cannot use them for real-time calculations or setup outputs based on them. Moreover the calculated channels "behave" slightly differently in the DL viewer (reverting to autoscaled axes for instance after config changes) that can make them seem quirky.
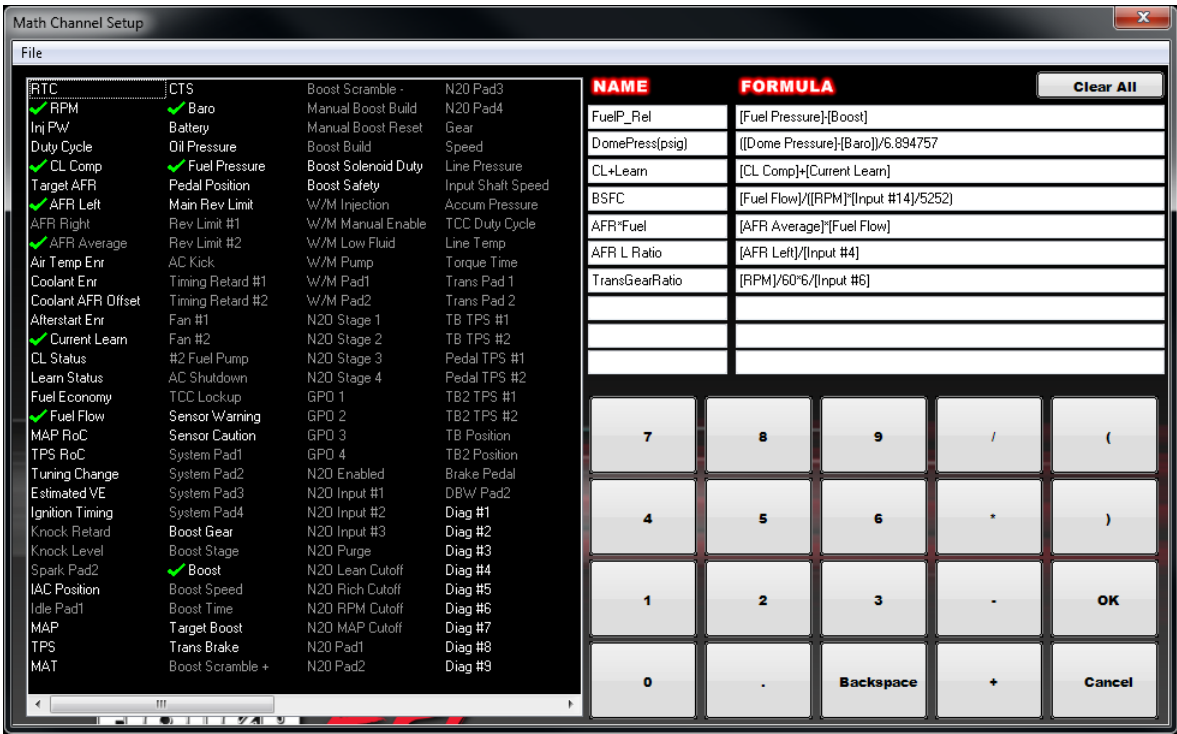
Figure 26

Setting Up Log Views – Similar to the Data Monitor Views, the user can set up custom data log configs. Eight views can be customized, each with 16 parameters. There are a two ways to edit the variables that will be in a given view. First, you can click the icon in the toolbar that has the letter E **(Figure 27)**.

Figure 27

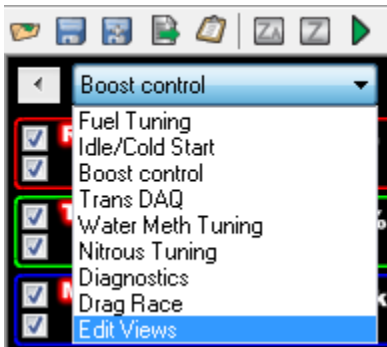You can also select "Edit Views" from the view selector dropdown **(Figure 28)**.
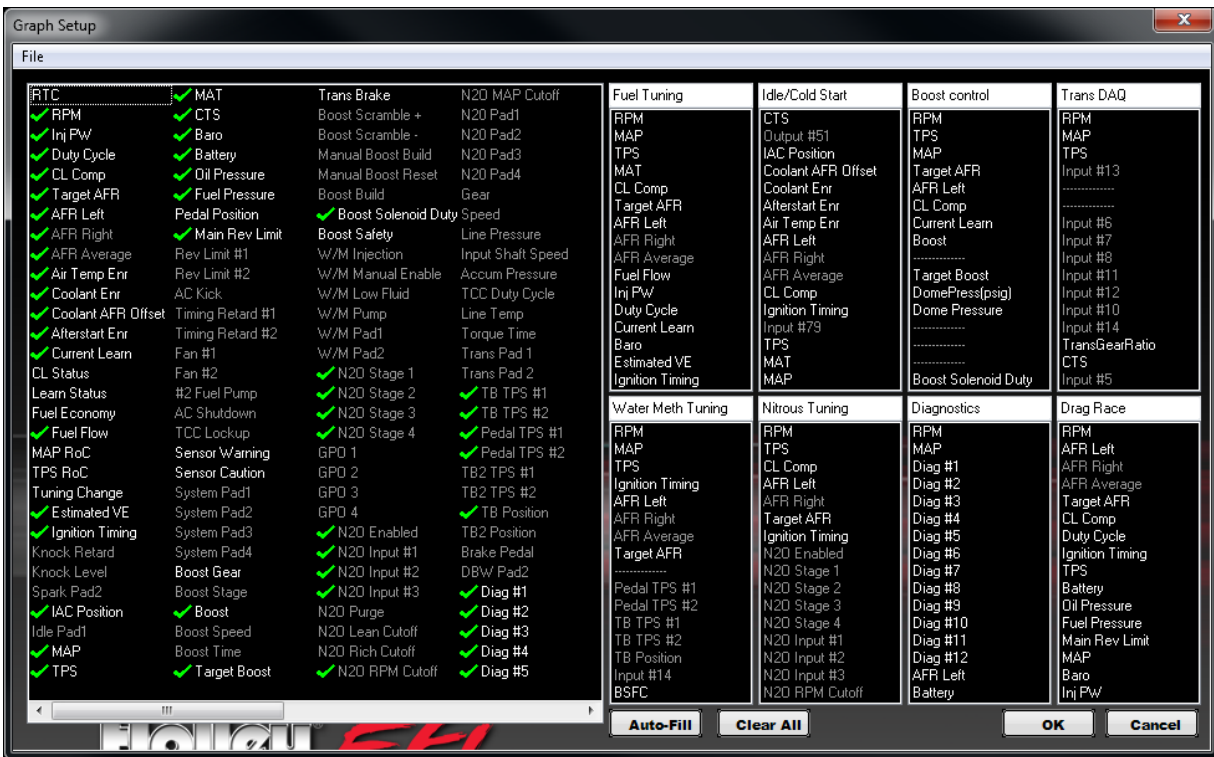

Figure 28

11

Figure 29

Either one will launch the "Graph Setup" **(Figure 29)** from which you can name and populate views (groups of variables) of your choosing.This you do with a drag-and-drop. In the left pane you can see the defined variables (note that it scrolls at the bottom.) The variables in white text are the ones that are available to view while the ones in grey text do not have valid data associated with them. While you can drag either type to a view list, only the ones in white will be graphable. The variables with green checkmarks beside them are ones that are represented somewhere in a view list. You can have the same variable in multiple view lists (RPM in every one for instance) but a variable can only be in a list once. Although there can be up to 16 variables per view, you do not have to use all 16 slots if you want to keep a given view simple. To remove a variable from a view simply drag-and-drop it somewhere over into the left pane. You don't have to put it back where you got it. After you customize this to your liking you can save the data log configuration via save or save as. Multiple Data Log Configs (.graph files) can be saved for different calibration tasks. Being files they are also "portable" in that you can send a favorite DL config to a friend or vice versa. The default location for storing the DL config .graph files is: \Documents\Holley\HEFI\Data Log Configs.

Figure 30

New to this software version is some X-Y plotting functionality, frequently called a scatterplot. Often when you are scrutinizing data logs, it is helpful to visualize the response of a variable as another variable changes. In other words, instead of plotting everything as a function of time (with the time on the x-axis), it is sometimes useful to plot things as a function of RPM or something like that. Instead of plotting lines as a function of time, you are plotting points and the location of the points is determined by what you select for the "X Axis" and "Y Axis." The shape of the collection of points can give insight into the meaning of the data. For instance if you look at the plots of "TB TPS #1" and "TB TPS #2" vs. time in the normal DL viewer, it is not immediately obvious if things look good **(Figures 31 & 32))**. However, if you do a scatterplot of one versus the other, it is very obvious that there should be a tight correlation and outliers will be obvious.
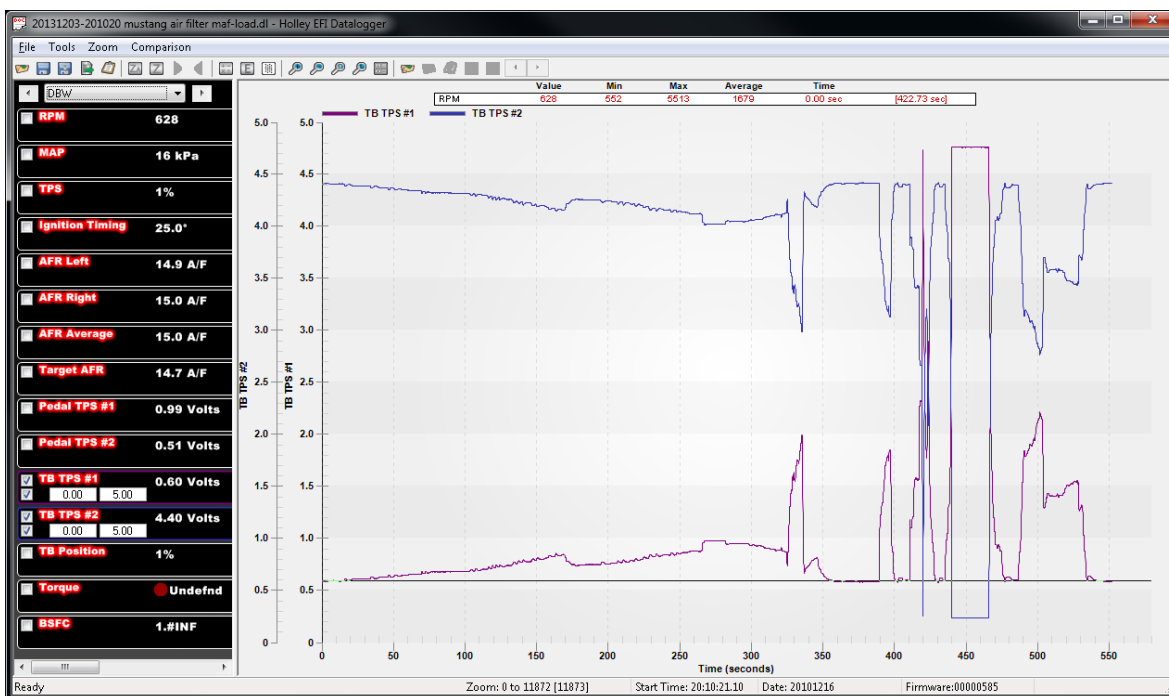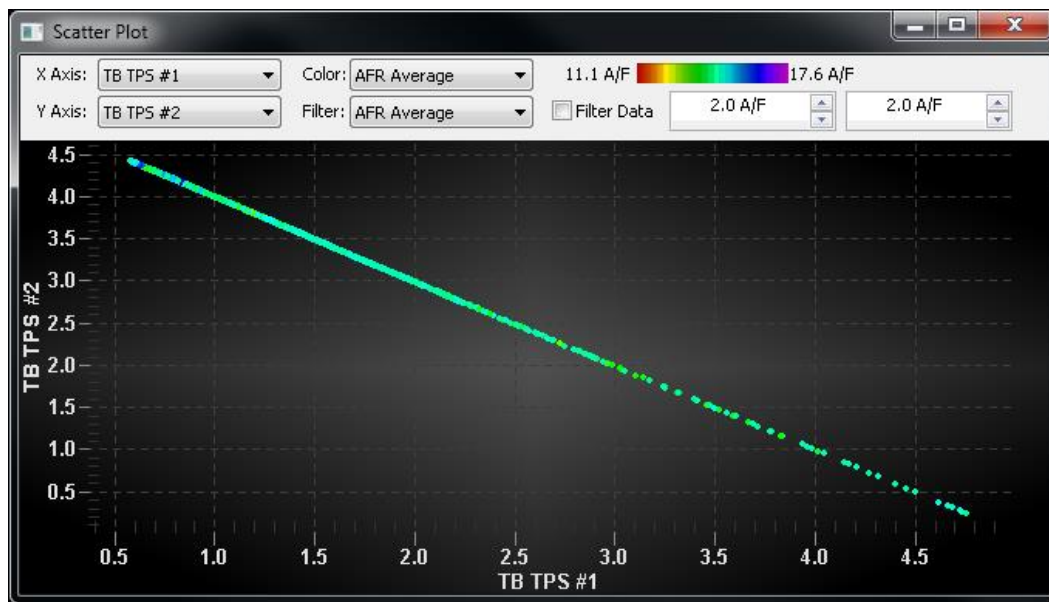

Figure 31

Figure 32

In addition to the location of the points, you can select a variable to specify the color of the points. This can be helpful for identifying problem areas at a glance. For instance, you can use the overlay functionality to visualize where in the maps the engine has operated, but it doesn't give you an idea of the state of things at that point. The example below is a plot of MAP vs. RPM (like you would see in an overlay) during a mapping exercise. In addition, the color of the points is determined by a calculated channel that is the sum of the closed loop compensation and the magnitude of the learn table at that instant. In other words, the color gives you an idea of how far the base map is off. You can see that during this mapping process, the ECU was pulling reducing fuel at low loads and mid speed/high load, but adding some at high speed/high load and low speed/high load.
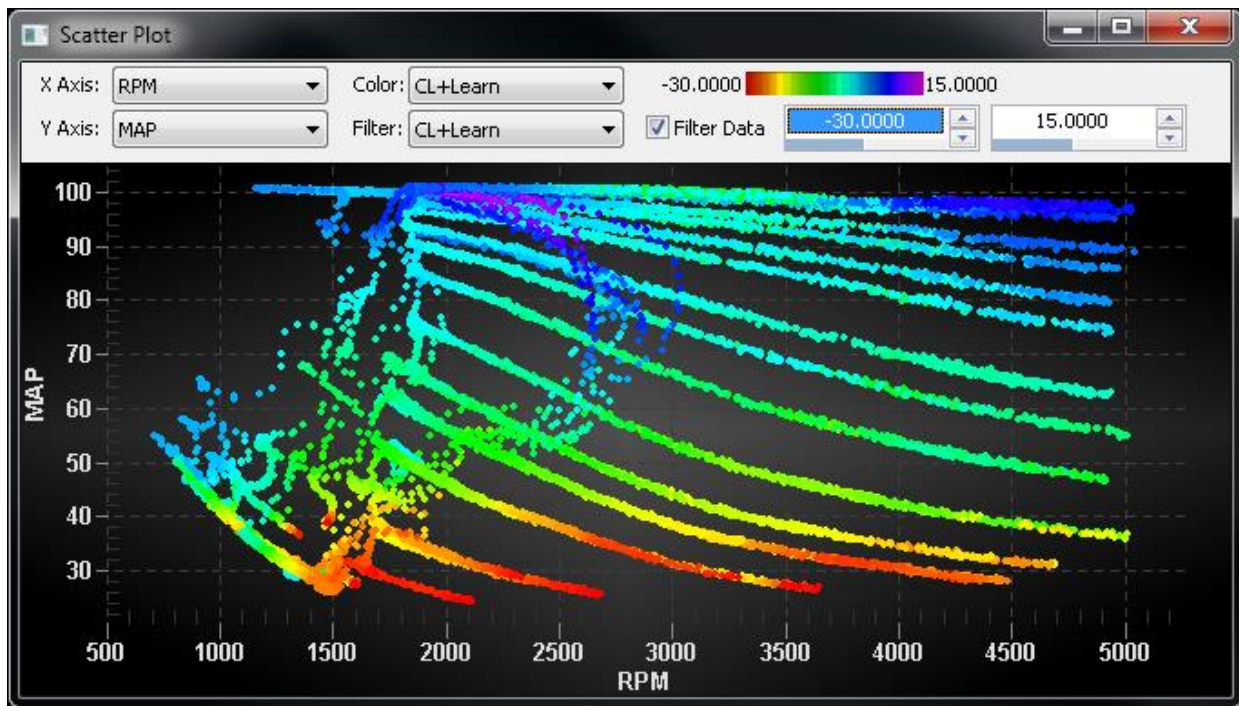
Figure 33

You can also choose which points to plot based on the range of a variable by applying a filter. You specify the filter variable and the range of the filter variable for which you want the points to be plotted. For instance you can setup a calculation AFR*Fuel as a surrogate for airflow. If you plot the product of AFR*Fuel vs. MAP, it may not be too meaningful. Applying a filter however lets you see how the airflow changes as a function of MAP for a given RPM window. In the plots below, the one on the left is with no filtering while the one on the right is only showing the points where the engine speed is between 1950 and 2050 RPM. By being able to visualize the shape of the curve with filtering, you can easily estimate what the AFR*Fuel product would be even at a MAP value for which you do not have data. By extension, you can divide that by your AFR target to estimate what the fuel flow should be.
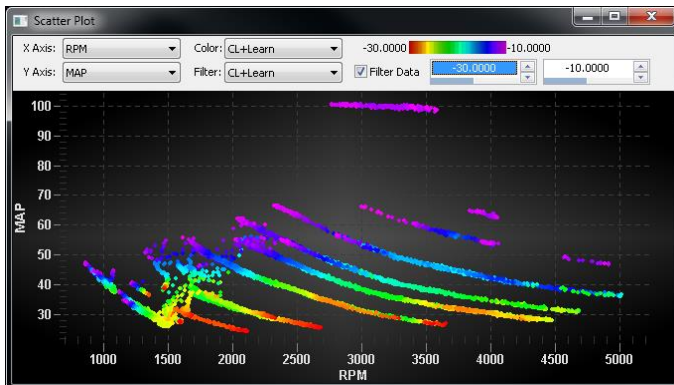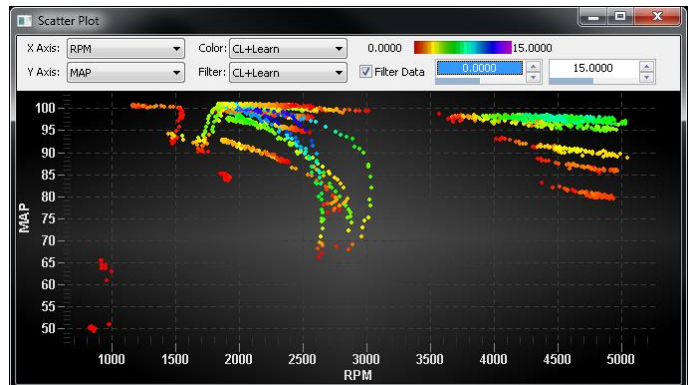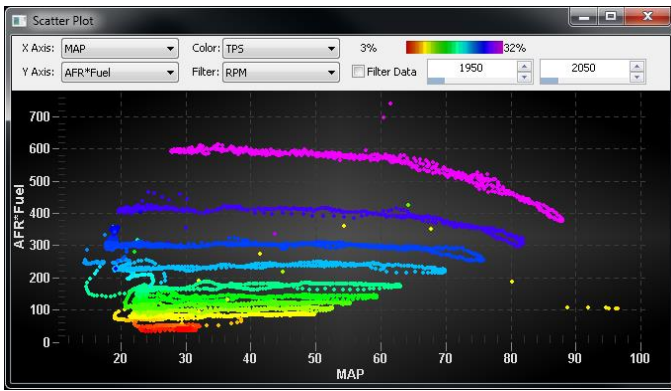

Figure 34

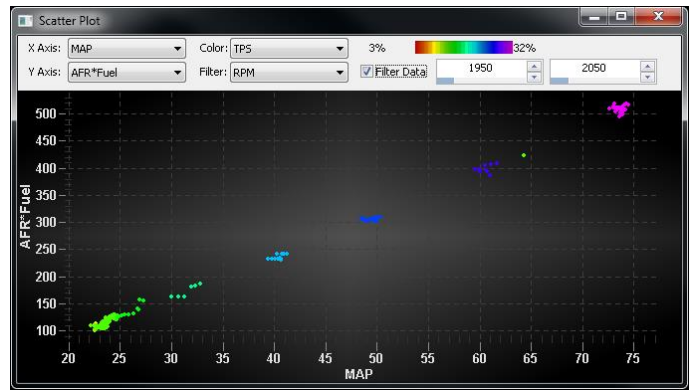**Figure 35**

Figure 36

Figure 37

This is a similar set showing AFR*Fuel vs. RPM with no filter followed by the same data with a 48-52kPa filter applied on MAP.
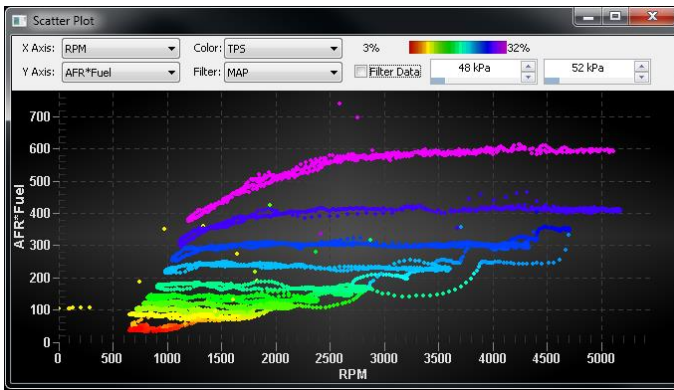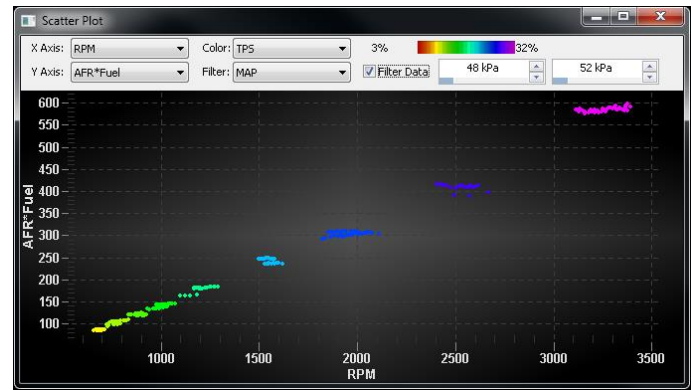

Figure 38

Figure 39

Scatterplots with filtering also help you visualize if the data makes sense based on known relationships. For instance independent of the engine the throttle body will have a certain flow vs. position response under high vacuum conditions (choked flow). The distribution with all of the data is quite thick and does not show a high degree of correlation. However when you limit the data to be plotted to the range for which you would expect choked flow (based on MAP) you can see a much better correlation between flow and TPS.
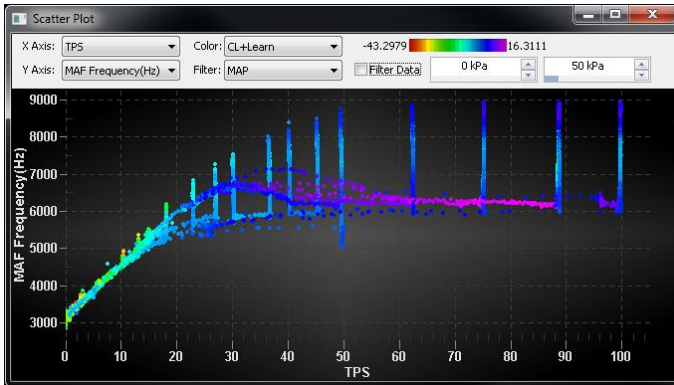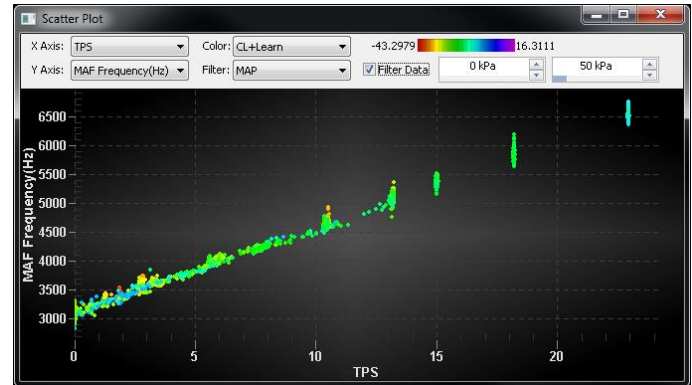

Figure 40

Figure 41

15

Figure 42

There are four very useful zoom controls represented by magnifying glasses on the toolbar. From left to right they are: ZOOM IN, ZOOM OUT, ZOOM ALL, and ZOOM LAST **(Figure 42)**.

1) ZOOM IN (+) – This takes the current axis range and zooms in to the 20% around the current cursor value. This is an alternative to the click-and-drag zooming.
2) ZOOM OUT (-) – Perhaps more useful than that is the ZOOM OUT feature. Frequently you might zoom in too far with the click-and-drag zooming and you find that you need to "back up" to get a little better perspective of the event under scrutiny, but you don't want to go all the way back to viewing the whole log. When you click the ZOOM OUT icon, it basically doubles the x-axis range, keeping the same center point.
3) ZOOM ALL (A) – This feature simply zooms out until you can see the entire datalog. This is the frequent successor of the ZOOM IN episode. You might find it quicker to right click on the background in the right pane and select "UNDO ZOOM." Contrary to the way it sounds, that does not undo the last zoom maneuver- instead it does the same thing as ZOOM ALL.
4) ZOOM LAST (L) – There is in fact a control to revert to the last zoom window. It is the rightmost zoom icon in the toolbar and has an L in the icon to represent last. This is useful to remedy the "oops, too far" or "I didn't mean to zoom" situations. Unfortunately, the results of this can be counterintuitive if you have recently done a ZOOM ALL or a manual x-axis edit.

Figure 43

One "hidden" feature revealed when resizing the left pane (hover over the divider for the pane resizing icon) is some basic statistics on the values defined by time window displayed. So if you zoom in to a time region of interest and click the "Update Stats" icon, the software will evaluate the minimum, maximum, average, standard deviation, start value, end value, and slope of the population defined in the window. In order to not slow down normal zooming and scrolling the statistics are only calculated on demand and are therefore no longer valid when you change the time axis.

6.0 Comparison

Two files can be compared on top of each other. This is especially useful for drag racing. First, open a file. Then select "Comparison" and "Compare Data Log".   You will be prompted to open the second log file. Select it and it will be opened on top of the first file. The second compare file will have dashed lines on the graph.
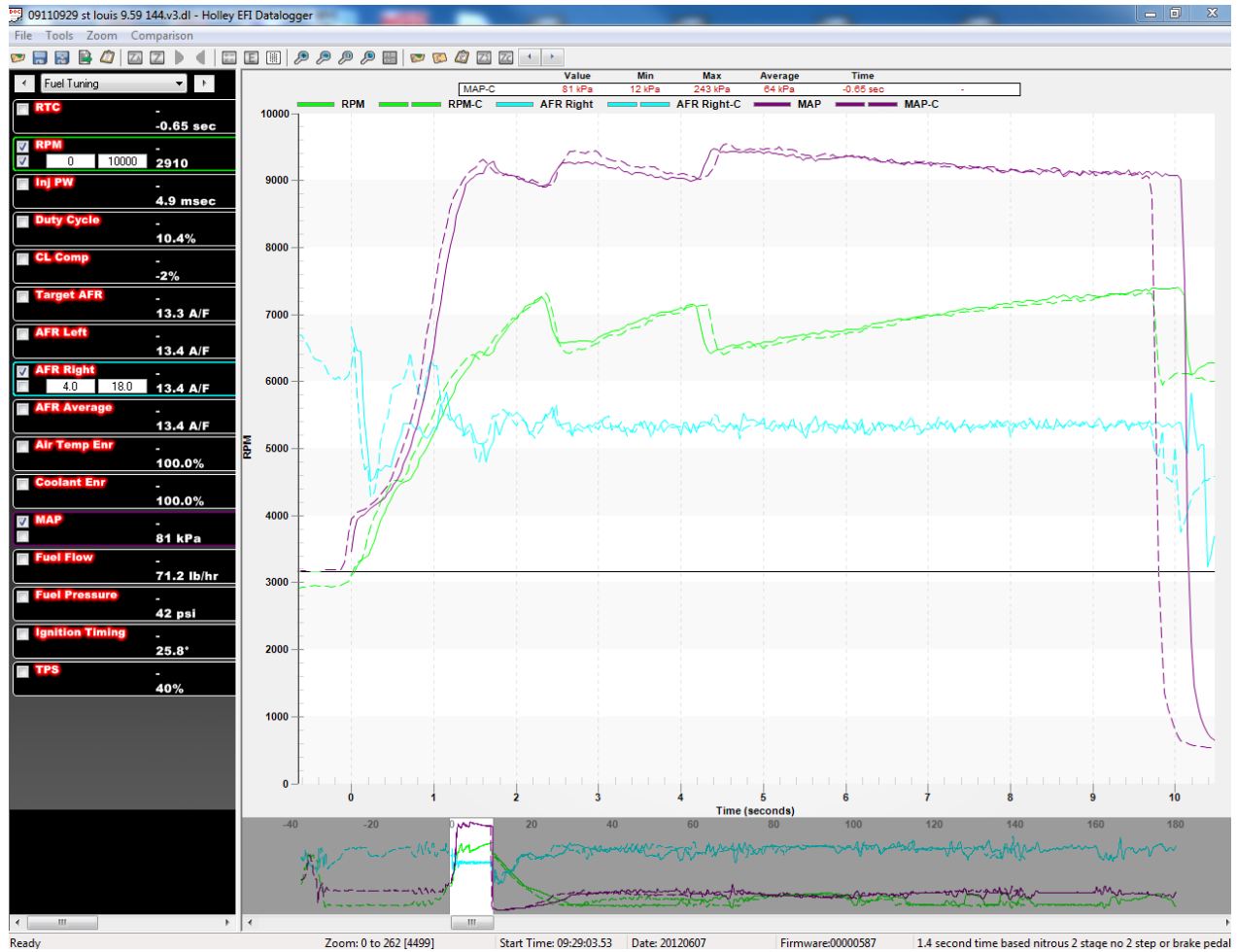

Figure 44

To align both files so they have a common starting point, click the blue left/right arrows at the top of the view and it will move one of the files. If both files don't have a common start time, use TPS, or trans-brake release to align files for a drag racing application.

"Close Comparison" will close the compare file.

7.0 Overlay

A very useful feature is the "Overlay" function. This allows for a data log to be "traced" onto the various tuning tables. To use this feature properly, open up the Global Folder that coincides with the data log taken. Then, open up the datalog. From the main tuning screen, select "Datalog" and "Activate Overlay". You will have to have both the datalog and the various tables open at the same time to perform this function. Move the cursor on the actual data log, and you can watch as to exactly what location this is on that table. To view both the log and file, minimize both views and move them so they can both be viewed. A laptop with higher resolution will work much better.

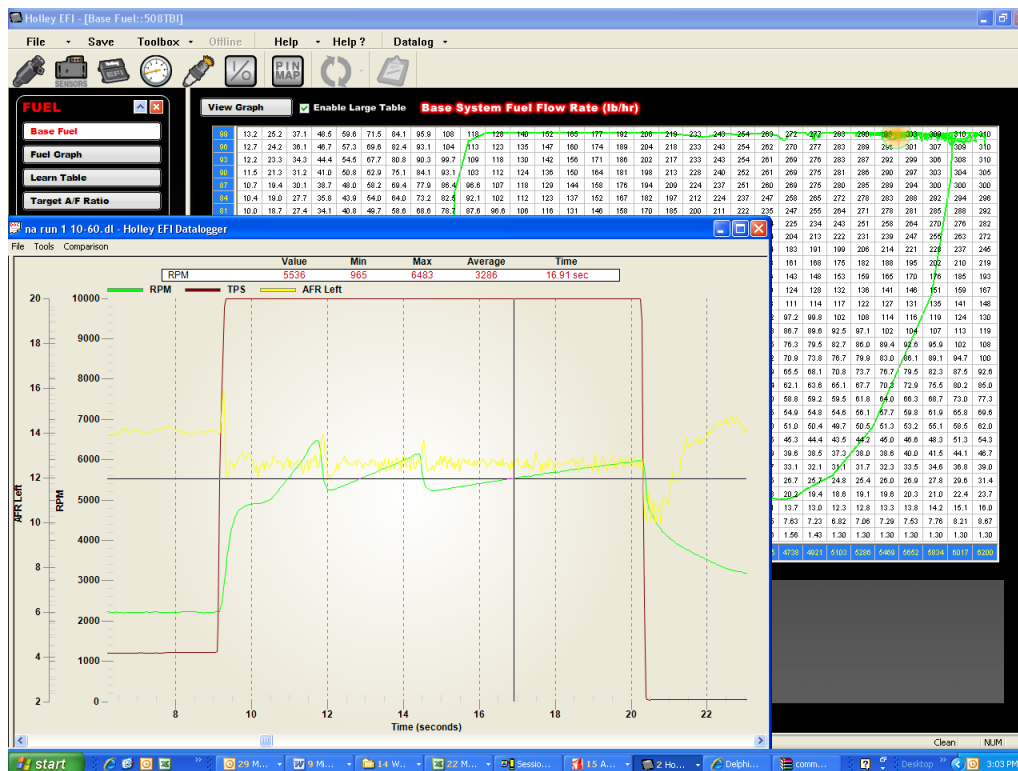To remove the overlay, select "Datalog" and "Remove Overlay".

Figure 45 - Overlay

8.0 Additional Tips

The DLZ files can be opened directly with the data log viewer, which will first convert them to the expanded DL format. For very large files this conversion will add some time the first time you open a DLZ and can feel like the software has experienced an error. Windows can even declare that the Holley software is not responding, but it may just be processing the DLZ in preparation of opening. If you go back to open a previous datalog and you have the option of opening the DLZ or the DL of the same name, remember the DL will open more quickly since it is already decompressed. If you are archiving data logs, you really only need the DL or the DLZ and compressing with a common PC "zip" tool will save quite a bit of space even when compressing DLZ files.

If you find yourself not being able to download files, delete files, or "delete all" because of active logging- you may need to temporarily disable the logging if your trigger condition is too lenient.

Although you have to be offline to download internal logs you can modify the logging setup (except for enabling or disabling the ECU Log Trig) while online or even with the engine running. You do not have to cycle the key. However, if you are modifying the logging setup while offline you obviously have to "Send TO ECU" in order for the changes to take effect, which can start a log or stop a log in progress upon synchronization.

If you notice that the space used as reported by the software is greater than the sum of the size of the logs, do not be alarmed. This is because the size of an allocation unit is a fairly sizable 8MB.

Try to adopt a strategy that records data only when you need it and try to keep the files stored onboard the ECU to a manageable number. This is particularly important with earlier ECU's with 2GB storage capacity. It is better to maintain stored data to less than 256 MB on these ECU's to maintain optimum performance.

Holley Technical Support
1801 Russellville Road, Bowling Green, KY 42101
270-781-9741
www.holley.com

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