ProECU Mazda MX-5

## Live Data Guide

2005-onward Model Year

v1.06

Live Data

Live Data Display

ProECU Mazda MX-5 can offer real time exceptionally high speed data display and the ability to log this displayed data (*note: there is no real time editing as the maps are stored in **R**ead **O**nly **M**emory*).

To start live map access, connect to the car and click on the 'Map Access' button. Ensure that the ROM you are viewing is the same one as that within the ECU.

Note: It is also possible to change the columns by right-clicking on a column and then selecting or deselecting a column name. We have enabled the Minimum and Maximum, as shown on the right:
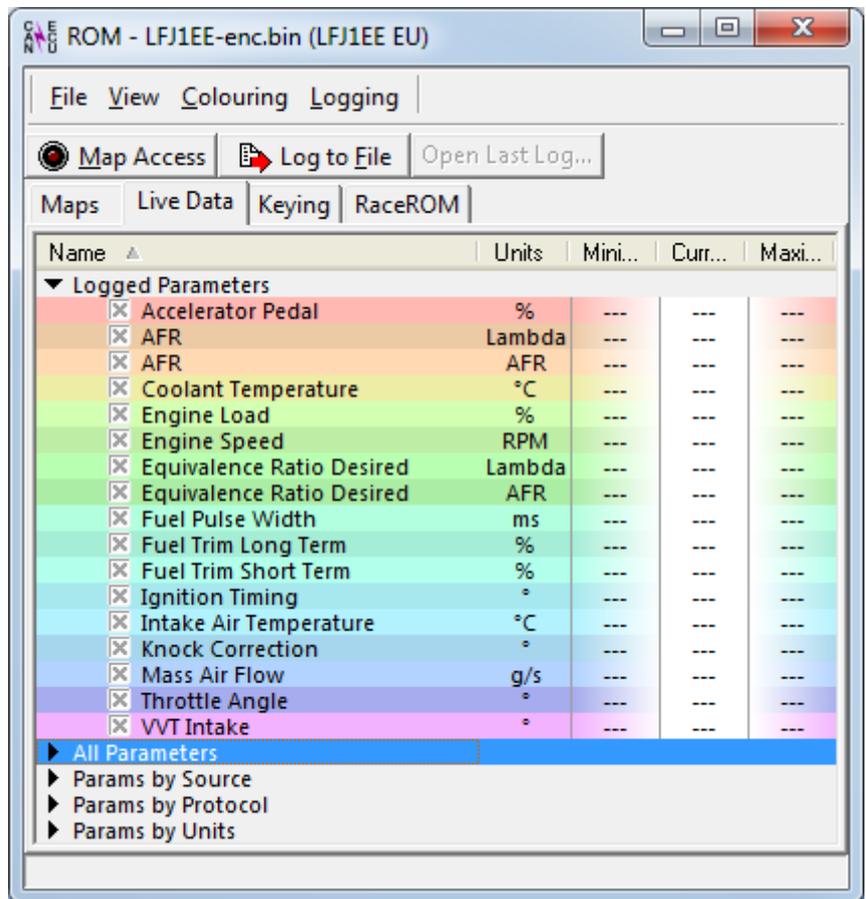
Accelerator Pedal Position (%)

Position of the accelerator pedal from 0 – 100%

AFR (AFR / Lambda)

Shows the actual AFR calculated from the AFR Sensor (V) from the factory AF Sensors before the Catalytic convertor. AFR readings should always be calibrated with your own trusted wideband sensor as normal. In our experience the factory wideband sensor reads a leaner AFR on full load than the actual AFR.

There is a separate data parameter for displaying Lambda or AFR.

Coolant Temperature (°C)

Current coolant temperature; value is shown in °C.

Engine Load

Engine load is one of the primary inputs used in the 2D and 3D map lookups.

On many older ECUs and aftermarket ECUs this would be manifold pressure. However, the Mazda ECUs meters mass air flow to determine load (V.E.) by calculation against RPM.

This method of metering load is very useful, since it is highly resilient to changes to other components in the system, such as exhausts, turbos and intercoolers, as well as changes in air density.

However, its weakness shown when induction kits are fitted, if airflow through the sensor element is changed (for example: lead length of tubing before sensor or open filter element), then the MAF calibration is typically no longer accurate. This will cause the ECU to apply inappropriate fuel and timing changes that are based off a (now) incorrect airflow measurement. The uncalibrated sensor can either read high or low or both across the entire voltage range.

Engine Speed (RPM)

The current speed of engine rotation.

Equivalence Ratio (AFR / Lambda)

The desired closed loop AFR the ECU is trying to meet. This only referenced in closed loop mode.

Fuel Pulse Width (ms)

The opening period for each injector.

Fuel Trim Short Term & Long Term (%)

This is the percentage of fuel trim that the ECU adds or subtracts from the injector open time to reach the Target AFR shown in the Fuel Map.

Ignition Timing (°)

The actual Ignition timing angle the ECU used after Knock Correction was applied.

Air Intake Temperature (°C)

This value is the current Air Intake temperature as measured after the Air filter in the Mass Airflow Sensor assembly.

Knock Correction (°)

The amount of ignition retard in degrees removed due to engine knock.

Mass Airflow (g/s)

This shows the Mass Air Flow in Grams per Second (g/s) that the ECU is currently using for all calculations.

Throttle Angle (°)

Throttle butterfly opening angle in degrees, a maximum value of 80 - 85 deg is normally seen with a few degrees reserved for Idle Speed Control.

VVT Intake

This shows the Inlet Variable Valve Timing angle in degrees.

Live Data Logging

It is possible to log the data shown in the Live Data window simply click the **'Log To File**' button.

Once 'Log To File' is enabled (button is pressed down), press the button again to stop logging.

The log file will be saved in the default logging folder **C:\EcuTek\MapAccessLogs**. The full path and filename will be shown when you hover the mouse over the 'Log To File' button.
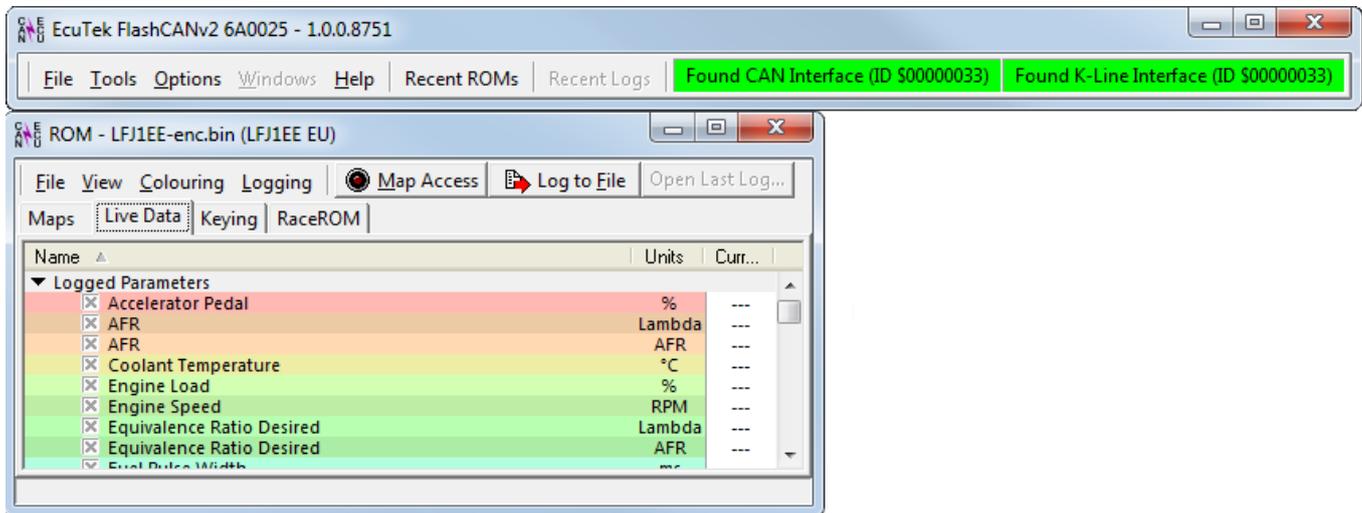

You can specify the location the log files will saved by choosing the 'Logging' menu and 'Choose Logging Directory'.

NOTE: The logging location will reset to the default **C:\EcuTek\MapAccessLogs** location once the ROM file is closed.

Open a log file

Click on the 'Open Last Log...' button to open the last log that was created.

You can drag and drop the log file onto the ProECU window or click on the **Recent Logs** button (or choose **Open Log File** from the **File** menu).
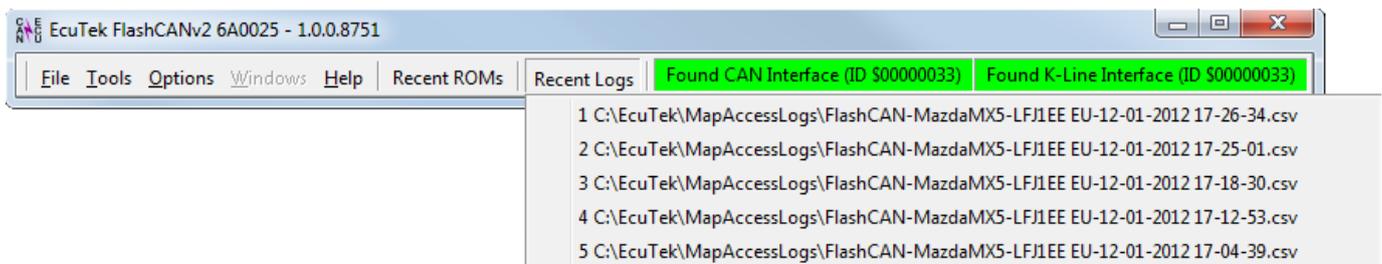

Log files can be opened by "Drag & Drop" where you simply drag the file onto the main ProECU window and it will open automatically. This can also be done for ROM files.

You can also use EcuTek DeltaDash to open and view the log file.

It is possible to customise the way the logged data are displayed using the Time Graphs, Data Table, Custom 2D Graphing, and Custom 3D Graphing tabs in the DeltaDash's Log Viewer.

As shown on the next page, you can highlight a specific point on the graph (shown as a red dot) to view the data values for all graphs at that point.
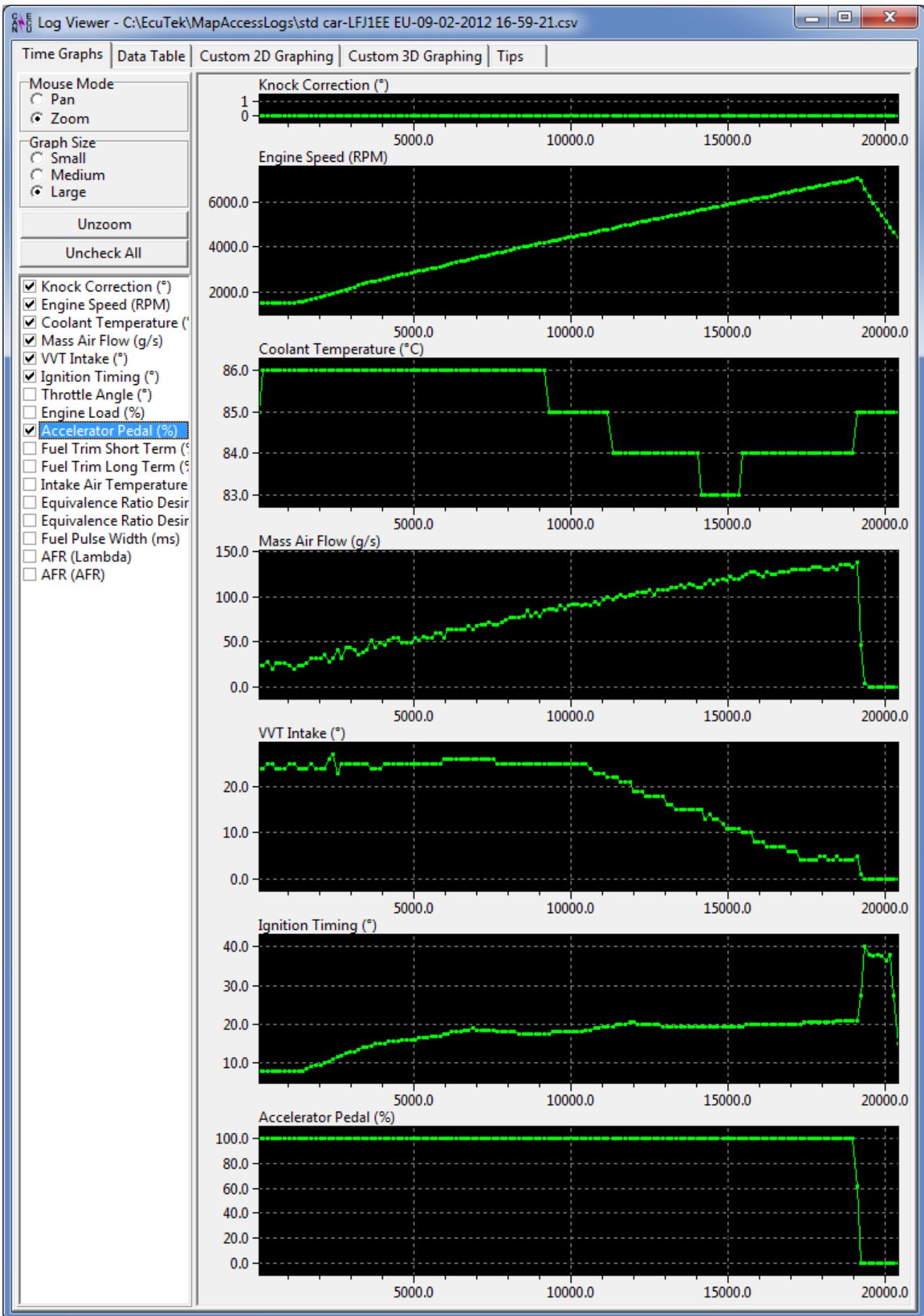
The Custom 2D Graphing tab allows for specific values to be displayed against a specific X Axis, as shown below:
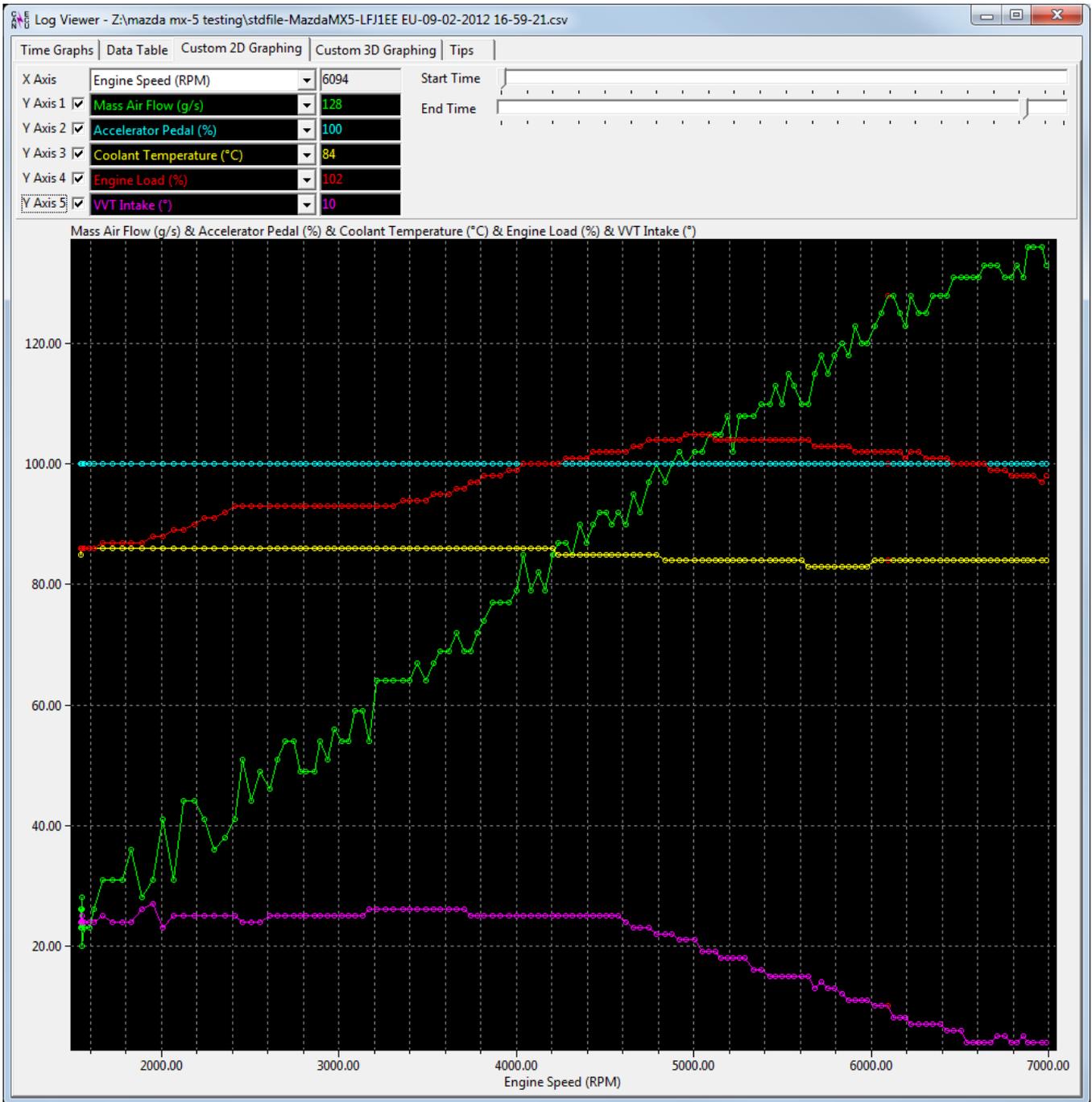
So as shown above at 6000 RPM the Mass Air Flow is over 120 g/s, the Accelerator Pedal is 100%, Coolant Temp is 84 °C, Engine Load is 102% and VVT Intake is 10%.