ENHANCED MOD GENERAL INFORMATION

General Overview

Enhanced Mod is based on existing factory code, the enhanced features are extra code or modified code integrated into the factory code.

The main goal of Enhanced Mod is to remove the limitations of the factory system explained below.

MAF based Factory System has a limit of:

(MAF)Software Limit of 10082hz or 256Gram/Sec of airflow.

(CYLAIR)Software Spark and Fuel Table Tuning limit of 850Milligrams/Sec of Cylinder Airflow

Enhanced MAF based Factory System has a limit of:

(MAF)Software Limit of 16226hz or 510Gram/Sec of airflow.

(CYLAIR)Spark and Fuel Table Tuning limit of 1650Milligrams/Sec of Cylinder Airflow

Additional Features

In Addition to the Base Airflow modifications depending on Model you may have some of the following extra features.

Extra PCM Inputs Enabled

Realtime V2 NVRAM Support

Knock Active Loops Monitor

Injector Multiplier Monitor

Adaptive Spark Retard Monitor

Wideband Vs AFR Target

End of Injection Vs RPM

(EEI)Extra ECU Inputs:

Current only available on VS-VY Memcal Based PCM's
Pin A5 & B10 are enabled with a 0-5volt range 0-255 count range
Once the ADX has been loaded into tunerpro you can edit the adx values and change each pins item values and conversion calculation to suit your input item, EG Wideband, MAP sensor for boost monitoring, fuel, oil sensor anything that has a 0-5v output.
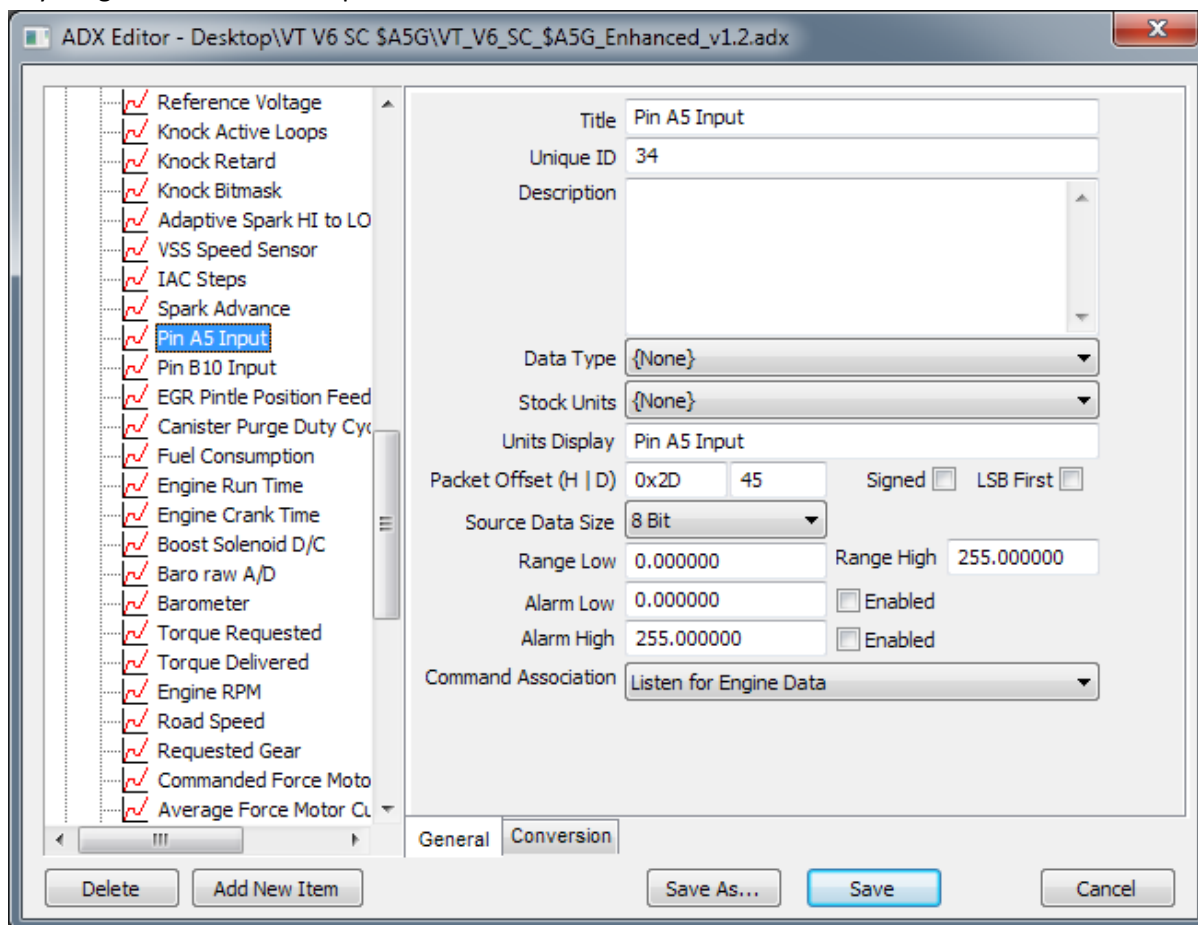
Wideband Calcs:

Innovate (((22.39-7.35)/255)*x)+7.35
14point7 ((20.00-10.00)/255*x)+10.00

Realtime V2 Nvram Support:

Nvram support is available for VS-VY Memcal Based PCM's

Realtime tuning in Tunerpro RT is supported by using OSEPlugin.
Links below for Nvram information, purchasing and OSEPlugin download and Setup Instructions.

http://pcmhacking.net/forums/viewtopic.php?f=14&t=166

http://pcmhacking.net/forums/viewtopic.php?f=3&t=590

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(KAL)Knock Active Loops Monitor:

Knock Active Loop monitoring is a rolling counter from 0-255, every time the knock code is run the number will increase by 1, by default if the code is run 2 times consecutively and knock is still present or increasing then timing will start to be taken out, given ignore/addon time has runout.

This is a handy feature for a few reasons, being able to see valvetrain or other vibration noise preventing spark advance increase, Not receiving a knock active bitmask or Knock Retard degrees but knock being present, also handy to help tuning for Maximum Brake Torque without a dyno.

In this Example Below, Fully Zoom IN of KAL triggering twice Circled in Red, at the same point Knock Retard is shown to Pull 1 Degree of timing.
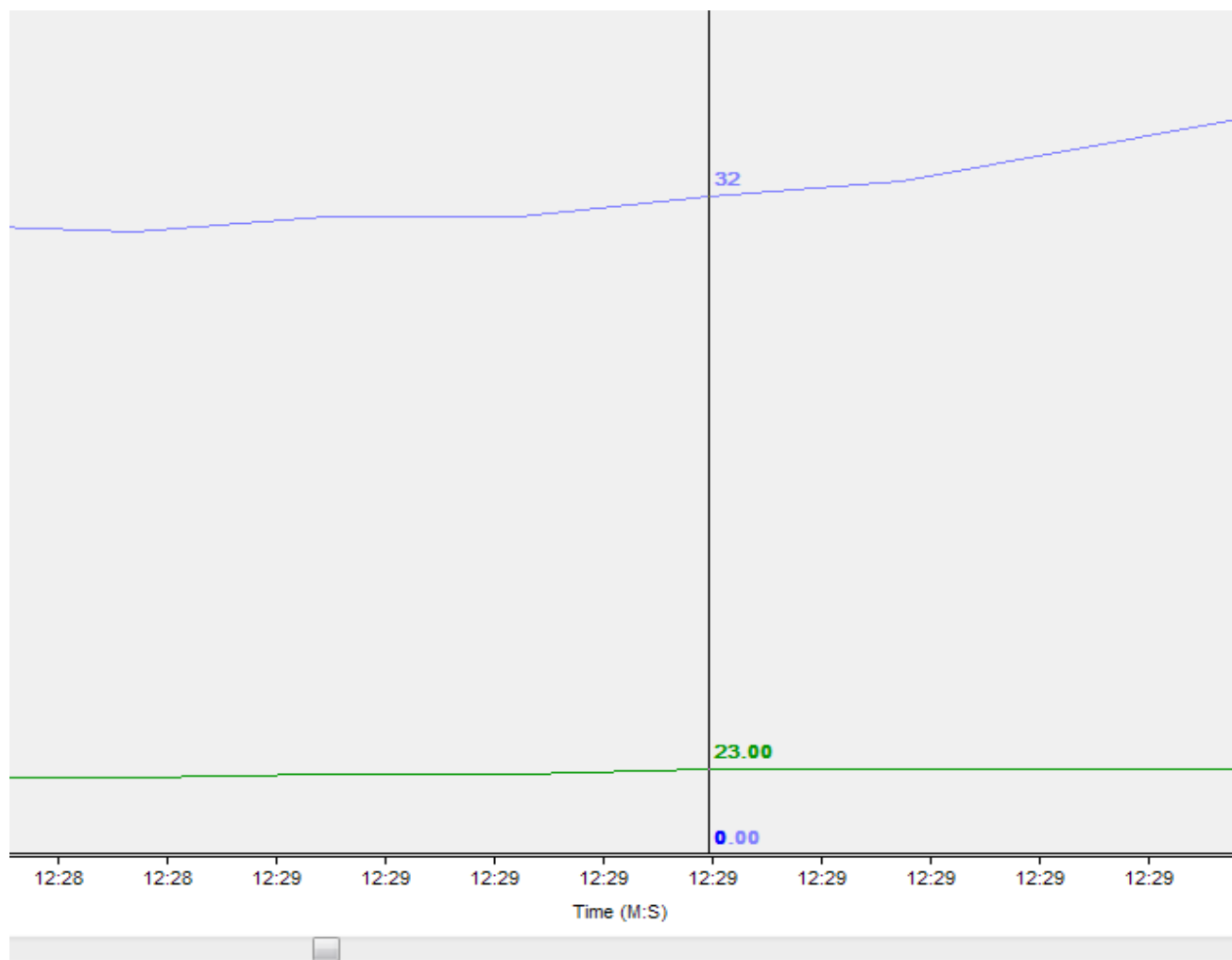
Spark Advance = Light Blue
KAL = Green
Knock Retard= Blue
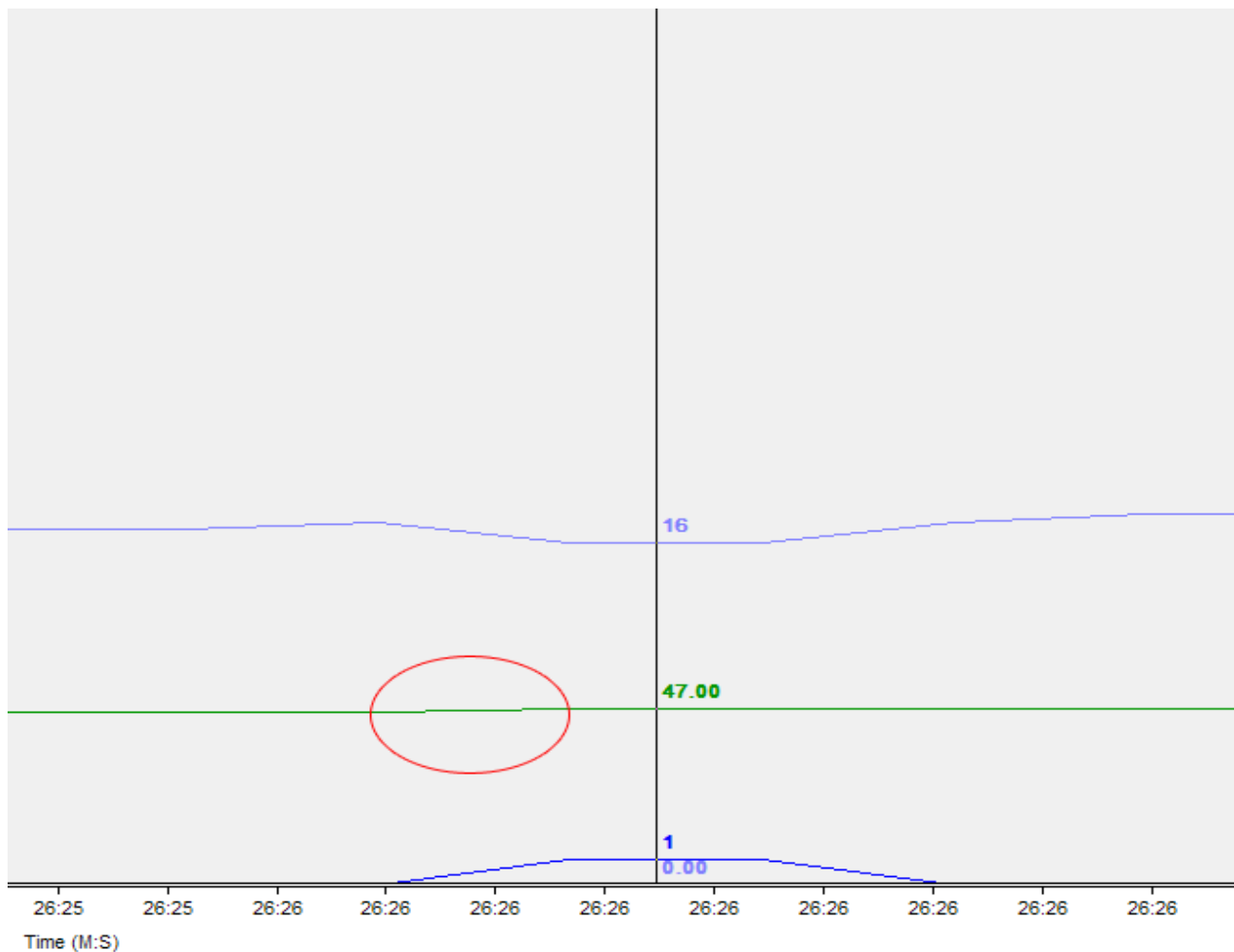
Second Example you can see KAL trigging numerous times yet no knock or knock retard items are shown but if we look at spark advance no timing has been removed either, this would then suggest that this activity is within the ignore time settings of the Knock Tables.

Third Example you can see KAL triggering Twice but we receive no knock or knock retard indication and timing has been removed, this is due to the fact timing retard and knock bitmask is only offered on the data bus for a small amount of time and we may miss picking up the packet, this is the big advantage of KAL you can clearly see that knock was present.
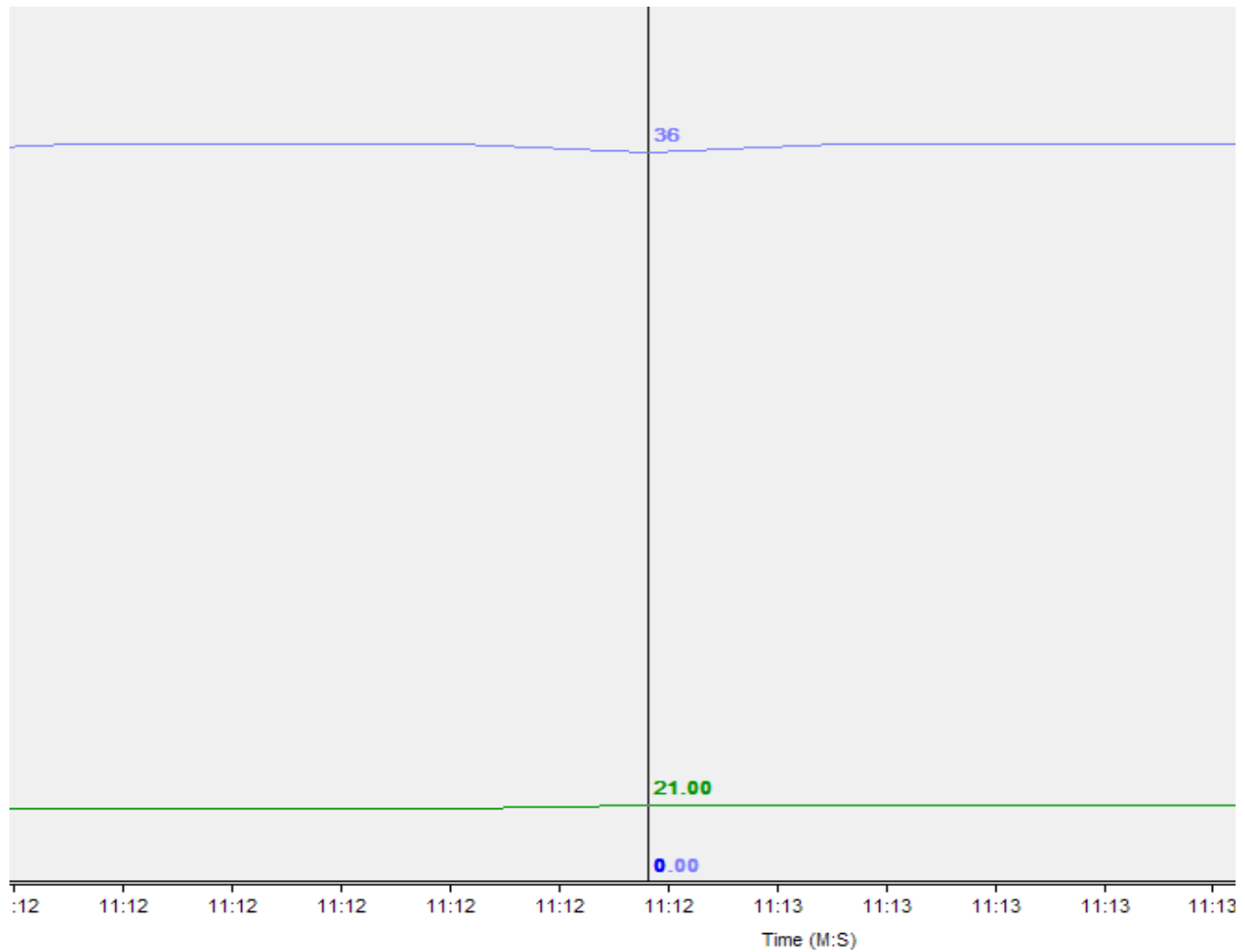
(IMM)Injector Monitor Multiplier:

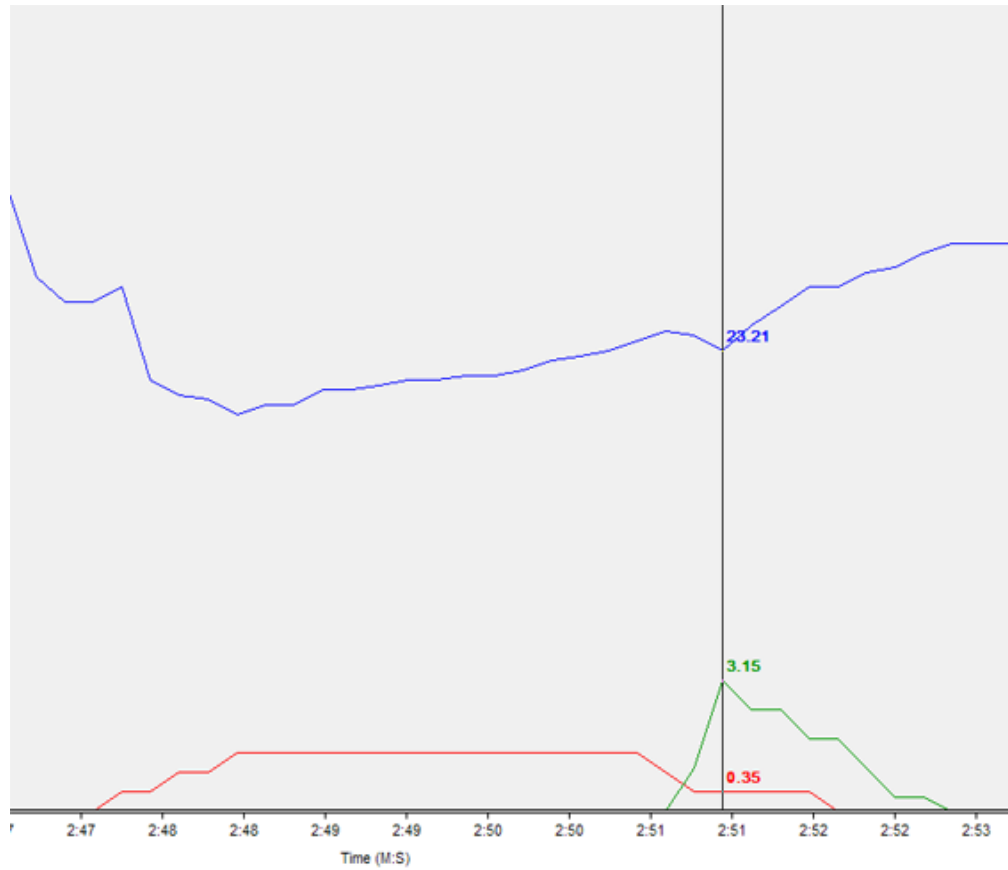Simply shows the current Multiplier value being applied from the Injector Multiplier tables.
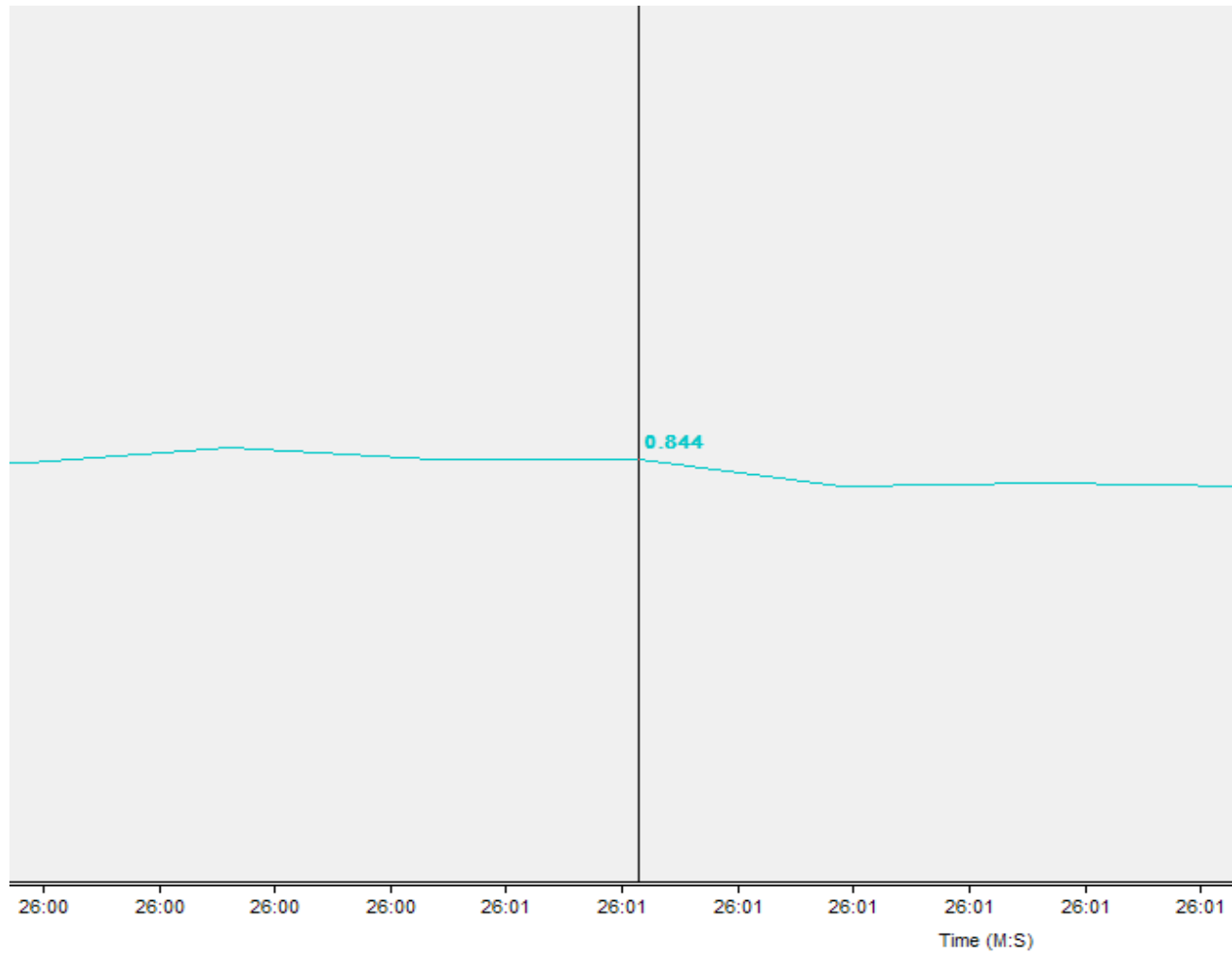
(ASR)Adaptive Spark Retard:

Shows the amount of Retard in Degrees from the HI Octane Spark Table towards the Low Octane Spark table. It can be less aggressive than knock retard.
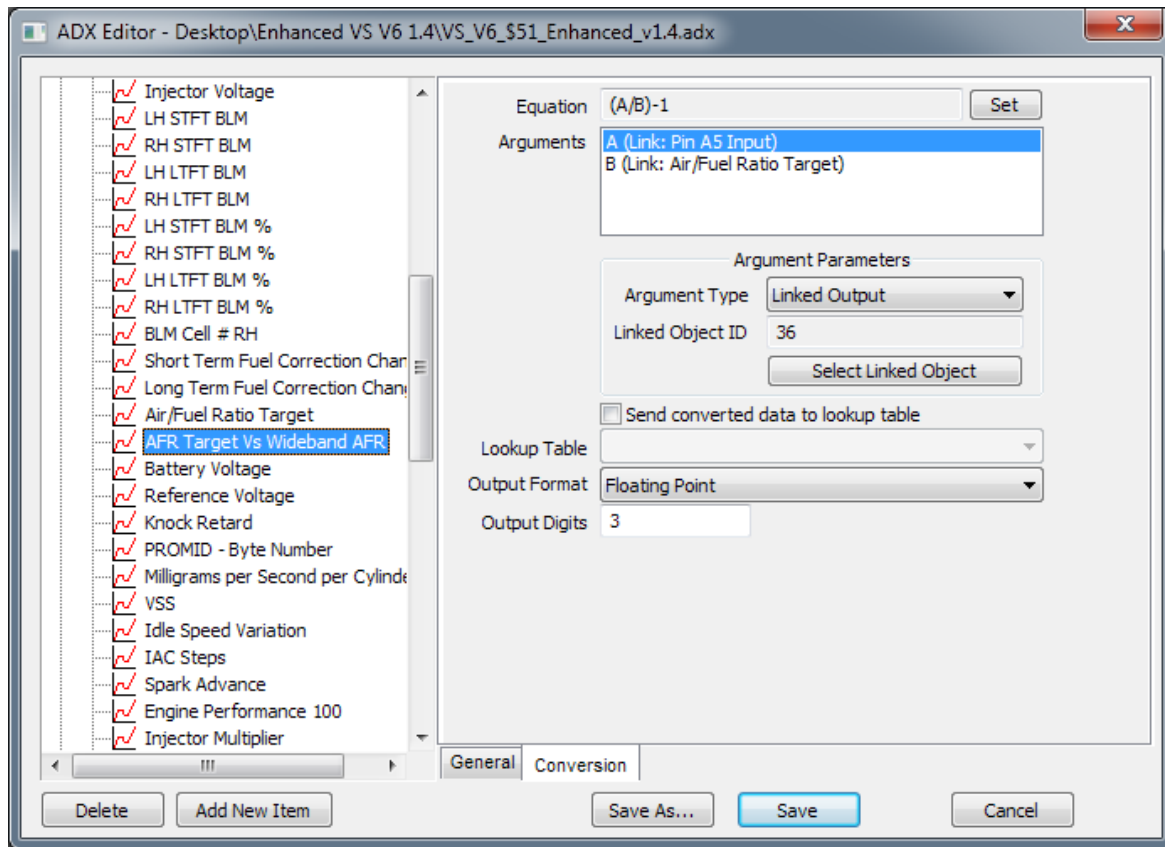
Adaptive Spark = RED

Knock Retard = Green

Spark Timing= Blue

(WBAFRT)Wideband Vs AFR Target:

You will need to set this up against the input pin you are using A5 or B10 for your wideband.

This will then just calculate the change needed to be made for the injector multiplier table to correct the fuelling compared to what is commanded, for EG 14.7 Commanded, 15.84 via Wideband so 7.76% Richer is needed.
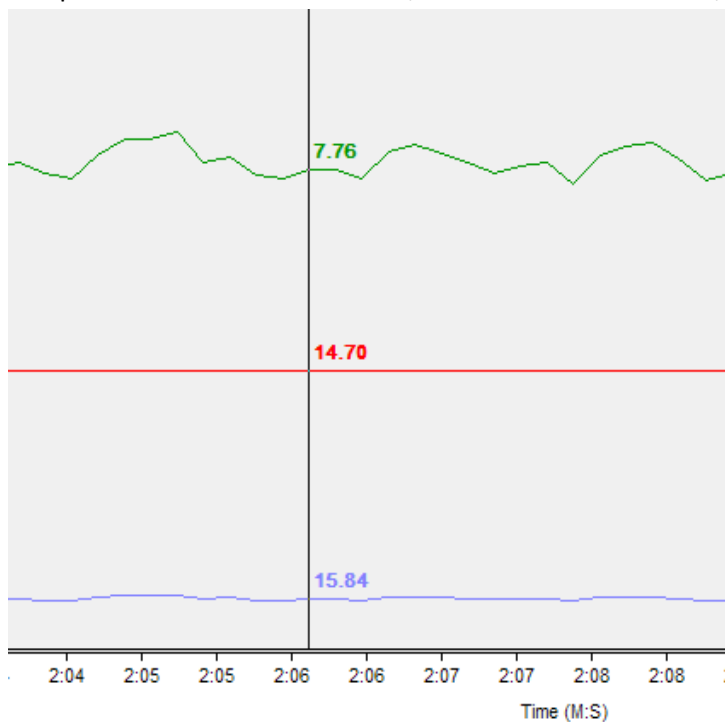
(EOI)End of Injection:

This Setting controls when the fuel is injected into the intake. Specifically the point at when it will finish and it is set via Crank duration.

There is a spreadsheet available in the Enhanced Forum Section to be able to find the crank duration when your intake valves starts to open based on your camshaft specs, this will then give you a base value to start tuning from.

Simply enter your Intake Valve Duration 0.050" Spec into the yellow box, then find your Intake Valve Open Degrees 0.050" in the right hand column, then the corresponding figure in the middle column will be the crank degrees, starting from this figure and working earlier you will find the point where it goes richer meaning you are getting more fuel into the cylinder, this is your desired EOI.

http://pcmhacking.net/forums/viewtopic.php?f=27&t=2518&p=24673#p24673

Compatible Hardware:

Stock MAF

Range upto 10,000hz ~

ACDelco 15900023 (With Honeycomb) 15900024 (Without)

Range upto 12,000hz ~

F = (MAF) Sensor Signal
+ = +12V
- = Ground
I = Ground

I = Intake Air Temperature Sensor Signal

Genuine Item will have ACDelco Logo Stamped onto the plastic and also both part numbers, this item has 2 identical sensor wires on one side only. This MAF is compatible with stock frequency range, your fueling will need to be adjusted across the board to bring it back into range.

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Delphi 25168491

Range upto 12,000hz – 14,000Hz ~

F= (MAF) Sensor Signal

+= +12V

-= Ground

I = Ground

I = Intake Air Temperature Sensor Signal

Genuine item will have Delphi Siliver Badge, below the badge embedded into the plastic case will be the part code 25168491, this MAF has 3 identical sensor wires. This MAF is compatible with stock frequency range, your fuelling will need to be adjusted across the board to bring it back into range.

ACDelco 15865791

Range 15,000 – 16,000hz

A = (MAF) Sensor Signal

B = Ground

C = +12V

D = Ground

E = Intake Air Temperature Sensor Signal

This MAF has a completely different Frequency Range to a Stock MAF, therefore full custom tuning will be required, bottom end and top end freq range is extended. This MAF is for experienced tuners or setups that already exceed the other MAF's capabilities.

These are average figures for all of the MAF's tested on the bench and in vehicle samples in the range of 0-5 units were tested, some may handle higher airflow some less.

Further Information:

For Further Information or Questions please seek the Enhanced Forum thread below.

http://pcmhacking.net/forums/viewtopic.php?f=27&t=2518