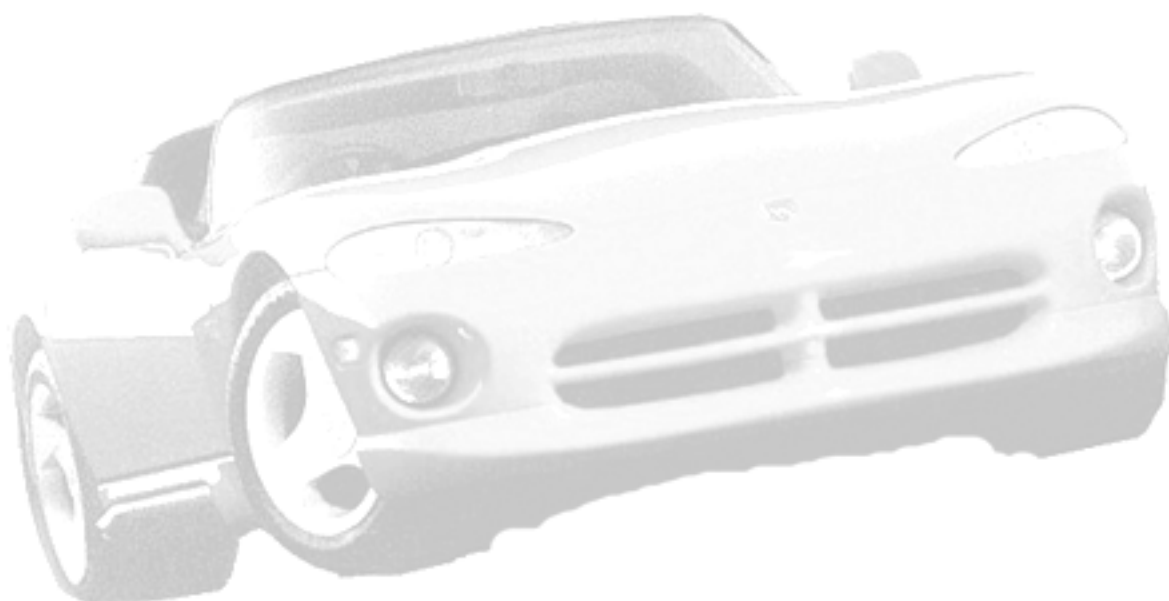


MODERN
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MPI_TUNER



Windows Manual

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1 INTRODUCTION

Congratulations on purchasing your own “piggy-back” fuel-injection unit. The Windows Software Manual has been created to assist you with both the installation and use of the software. All the information and steps in this manual are based on Microsoft® Windows 2000 Operating System. However, the software does operate on Operating System Windows 98 and up.


In this document, wherever you see the reference to “Demo”, please bear in mind that your own company name will replace this description in your software. If you see any reference to a company or product name, please note that your company and product name will appear in your personalised tuning software.

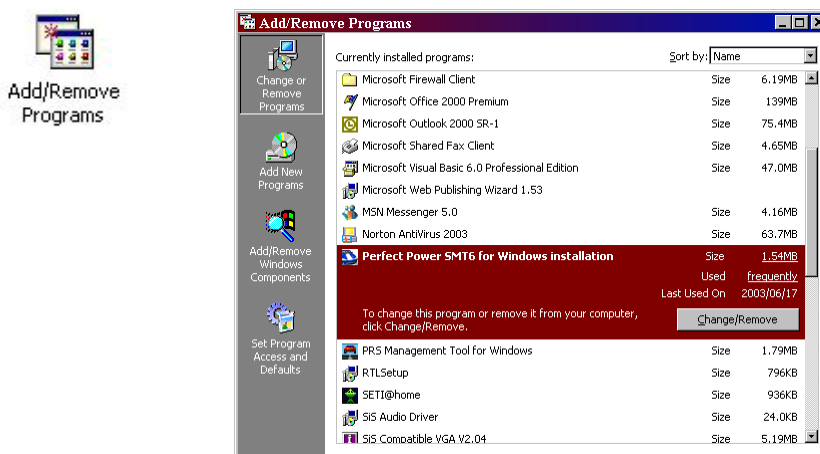
The pictures in this manual are used as a guideline only.

2 SOFTWARE INSTALLATION

2.1 UN-INSTALLING PREVIOUSLY LOADED SOFTWARE

If you have Perfect Power’s SMT6 software loaded, it is advisable to un-install this software prior to installing your new personalised software. If ever you have any software loaded and you need to update this software with a later version, you will need to un-install the previous version first.

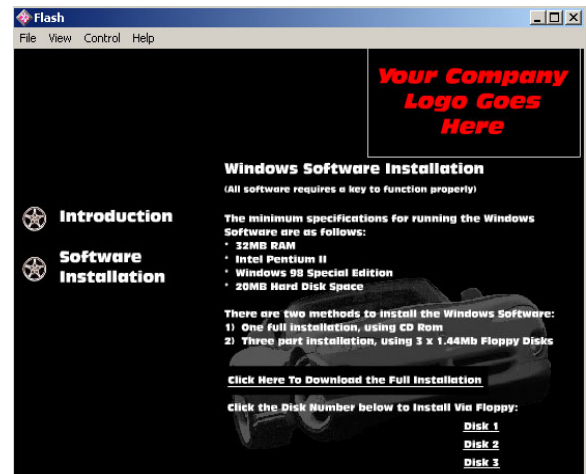
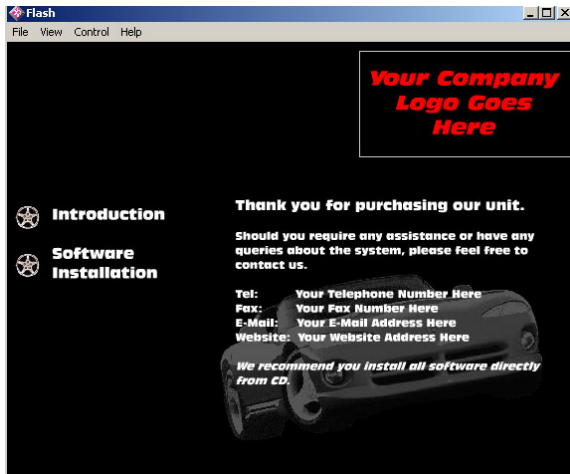
To un-install the current tuning software, click on , then select “Settings” and select “Control Panel”. Once in “Control Panel”, select the icon “Add/Remove Programs” and click on the “Change/Remove” button under the relevant software name, e.g. “SMT6”.



Follow the prompts and make sure that the software has been removed. You will now be ready to install the latest Windows Software.

2.2 INSTALLING THE SOFTWARE

The Windows software has been supplied on the CD with a black label entitled "Windows Software". Once you load the CD, an auto start screen will appear. Select "Windows Software" from the menu items and then select the installation suitable for you. Follow the prompts that will initially "unzip" the files and then install the software.



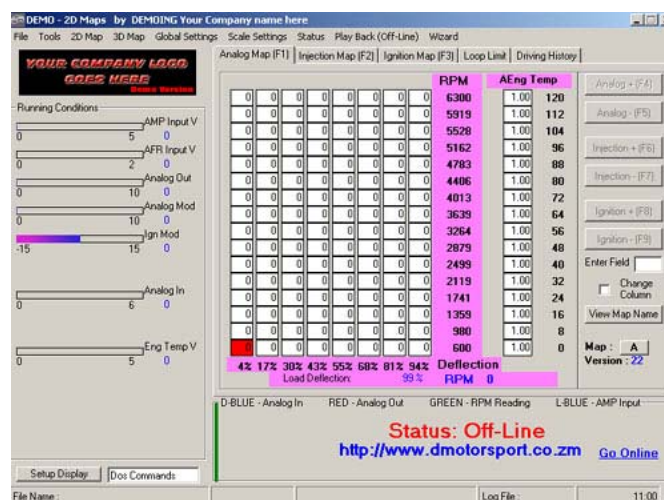
If you use the 1.44MB Floppy disk option, you can save each section to your PC's hard drive or to a floppy in your PC's floppy drive.

Note: This Windows tuning software was developed for the your unit only. You can use this software with an SMT6 (black box) unit. If you do this, the SMT6 will no longer work with the current SMT6 software. Your personalised software will not work with any other Perfect Power product that has been developed up to this point.

Once the software has been loaded, it will require a security key to operate. The following message will appear:



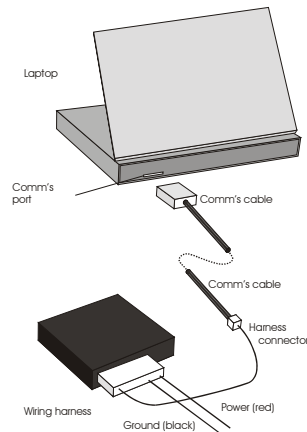
You will need to insert the Floppy Disk entitled "Security Key – For Dealer Use Only" into your PC's floppy disk drive and click on "Load Security Lock from Drive A:". Once the software has been unlocked you will first see the dialog box indicating "On Line" or "Off Line" and then you will see the main screen:



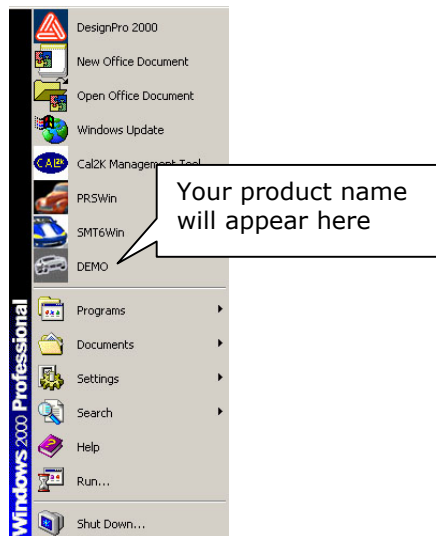
3 GETTING STARTED

When setting up the tuning software with a unit, follow the steps below:

- 1) Take your unit and connect it to its wiring harness.
- 2) Supply 12V power to the red and black wires of the unit. Red is positive, black is negative.
- 3) Connect the comms cable supplied with the unit, to the comms port of a laptop or desktop computer.
- 4) Connect the other end of the comms cable to the wiring harness of the unit, as depicted below:



- 5) Run the tuning software. The tuning software can be executed from the  menu.



The first dialog box that will be displayed gives you the option of selecting the "Communication Mode" being "Off Line" or "Online". Select "On Line", as you will be connected to a unit and click on the button "Continue >>". If you don't click on the button "Continue >>", it will automatically take you to the software main screen.



The software should automatically "communicate" with the unit. In the case of no communications, a "NO COMM'S" message will be displayed on the bottom of the screen:



If this occurs, check the following:

- 1) Confirm that the power supply you are using is 12V and correctly connected.
- 2) Ensure the comms cable is the one that was supplied with the unit and that it is connected securely to the PC/laptop and the wiring harness.
- 3) Check that the comms cable is not faulty and that the pins inside the connectors have not been bent or pushed in.
- 4) Make sure you are using the correct comms port, the software defaults to "com1". Comms port changes can be made under "Tools" on the Menu Bar in the tuning software.

When ready to use the software, make sure the unit is "On Line". If a unit is "Off Line" it will be displayed on the bottom of the screen as shown below. To go online, click on the "Go Online" hyperlink in blue, shown below:



4 SOFTWARE FEATURES

4.1 INSTALLATION WIZARD

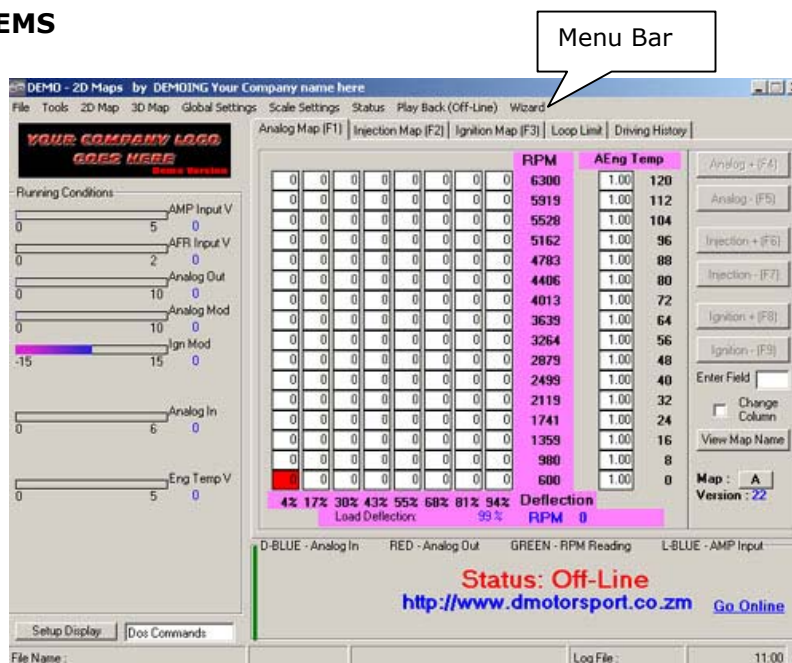
The software includes an Installation Wizard. This wizard will assist you to set up a new configuration (global settings) for your new tuning application. However, this means that when you use this wizard, your tune map will be changed. **It is recommended that you first save your current tune map before using the Installation Wizard.**

Click on "Wizard" on the Menu Bar to get the following screen:



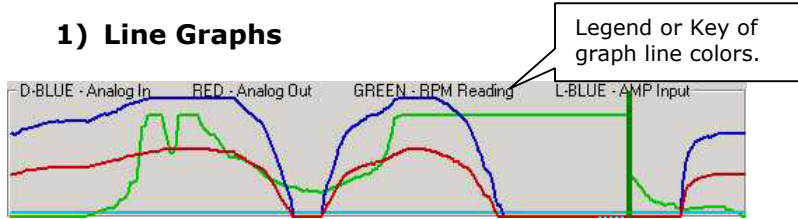
Make sure you have saved any tune maps that you were busy with then, click on the button "Continue >>" and follow the screens that will be displayed.

4.2 DISPLAY ITEMS



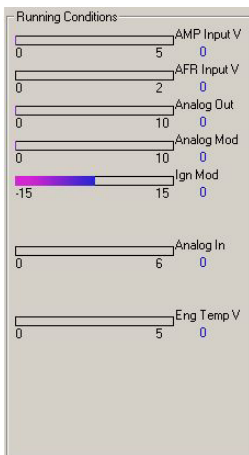
Sensor status is monitored on screen by the following displays:

1) Line Graphs



The line graph display feature on the bottom of the screen is able to display four different sensor indicators or channels. The legend or key, at the top of the graph indicates which color belongs to which sensor. This display is effective for determining trends and tracing bug problem signals.

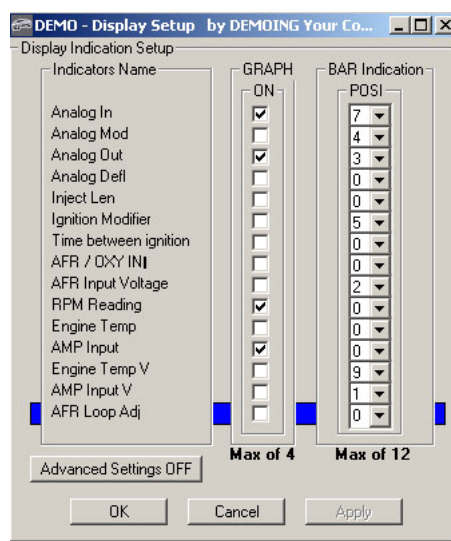
2) Bar Graphs



The bar graph display feature, shows fluctuating bar graphs representing the status of user defined indicators. This is useful for readings that are used when you can only keep one eye on the tuning screen.

4.2.1 DISPLAY SETUP

You can change the layout of the main screen by clicking on the "Setup Display" button found on the bottom left hand side of the screen. The following dialog box will then be displayed:



The Display Setup is divided into four columns, as detailed below:

Indicators Name

Analog In	:	Displays the voltage of the analog input wire.
Analog Mod	:	Displays the map modification value made to the analog signal.
Analog Out	:	Output analog signal with its modification displayed in volts.
Analog Defl	:	Displays the analog deflection value as a percentage.
Inject Len	:	Shows the extra injector open time in milliseconds.
Ignition Modifier	:	Ignition map modification to ignition signal in degrees.
Time between ignition:	:	The time between ignition pulses.
AFR / OXY IN	:	AFR reading, read as AFR.
AFR Input Voltage	:	AFR reading, read as voltage.
RPM Reading	:	Incoming RPM reading.
Engine Temp	:	Engine temperature reading displayed in calibrated value i.e. Kelvin or Celsius.
AMP Input	:	AMP sensor reading, shows the AMP reading in terms of the calibrated sensor scale i.e. bars or level of boost.
Engine Temp V	:	Voltage reading of the engine temperature sensor.
Amp Input V	:	Voltage reading of the AMP sensor input.
AFR Loop Adj	:	The modification value made by the lambda sensor in closed loop mode.

GRAPH ON

This feature selects an indicator for the line graph to be displayed.

It consists of a check box, which you need to "check/tick" to select the indicators you want displayed. You can select a maximum of four graphs.

This section can display up to four graphs

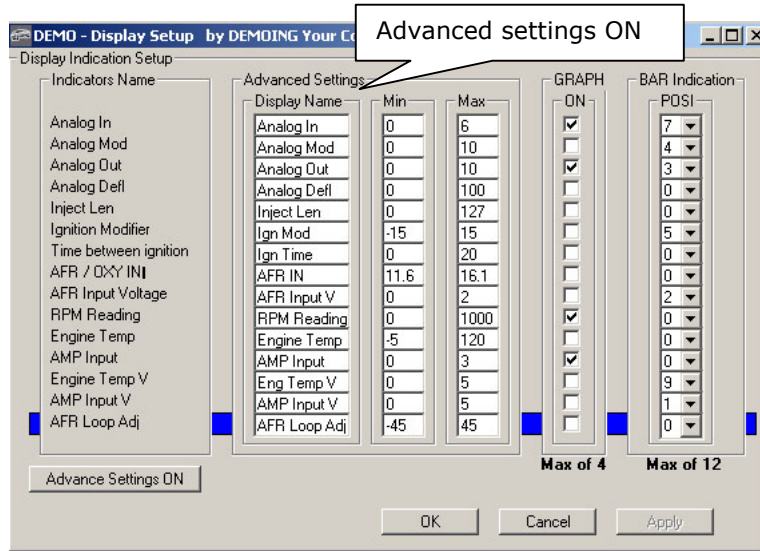
BAR Indication POSI

This feature enables the bar graphs to be displayed and their position. Click on the drop-down menu and select a number. The number indicates the position of the graph in the bar graph display section, on the main screen. Selecting zero will disable the graph, i.e. it will not appear on the bar graph section. For example: if you had selected "1" as the "POSI", this graph would appear at the top of the bar graph section.

This section can display up to twelve graphs.

4.2.1.1 Advanced Settings in Display Setup

On the "Display Setup" dialog box, you have the option of "Advanced Settings". Click on the "Advanced Settings" button to switch on the section called "Advanced Settings". This will be displayed between the "Indicators Name" and "GRAPH ON" columns.



Display Name

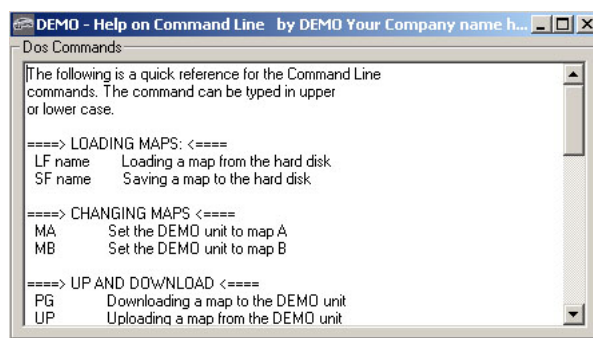
This feature allows the User to configure his/her own name for the selected indicator.

Min Max

The Min and Max values, allow you to change the scale of the maps. This is particularly useful for the line graph indicators.

4.2.2 DOS COMMANDS

The DOS Commands box is available for certain commands that were applicable to the previous DOS software versions. There is no DOS software available for the "Private Label" unit. Type in the relevant command and enter. A list of DOS Commands can be found by clicking on "DOS Commands Help" under "Tools" on the Menu Bar.

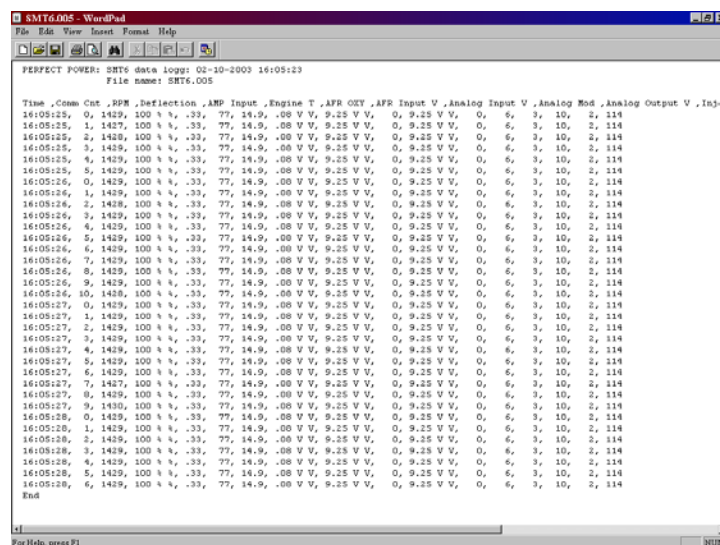


5 TOOLS MENU

The "Tools" Menu item, controls some of the basic operations of the tuning software. It has a few options, as depicted below:



- Upload from unit : Uploads files and settings from the unit to the screen.
- Download to unit : Downloads the screen to the unit.
- Unit hardware version : Displays the unit's firmware version. The firmware version is also on the main screen under "View Map Name". The default number is "22". When you are connected to a unit and are "OnLine", this number will automatically be updated to the correct firmware version on your unit.
- Start logging unit : Logs data to a file stored on the tuning PC. This file can be accessed using any text reader and is programmed to save on your hard drive, with the following path: C:\Program Files\XXXX Directory\Folder as XXX.ZZZ where ZZZ is a number from 000 to 999. The following is an example of such a file:



This feature also logs data in a raw format so that it can be played back in the "Off Line" mode

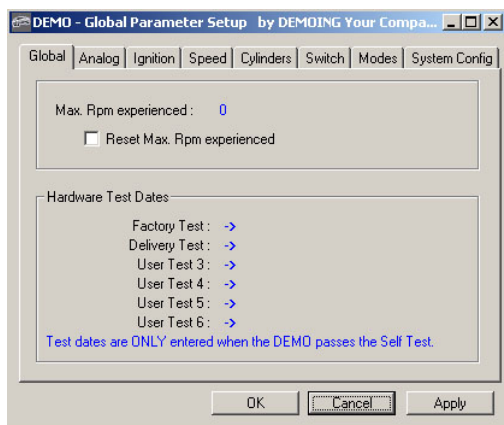
- DOS Commands Help : Lists a summary of all the DOS commands (hotkeys) that can be placed in the DOS commands box.
- Unit MAP A/Unit Map B : Switch between map pages.
- Comm Port 1 - 4 : Select required comms port from 1 through to 4.
- Reset unit hardware : Click here to re-set the unit's hardware.

6 GLOBAL SETTINGS MENU

Global settings are the main settings in the unit that allow the user to set the unit to work on a specific car or application.

To view and change the global settings, click on "Global Settings" on the Menu Bar. The "Global Parameter Setup" dialog box will then be displayed. It is made up of eight different sections indicated by the relevant tab, e.g. "Analog".

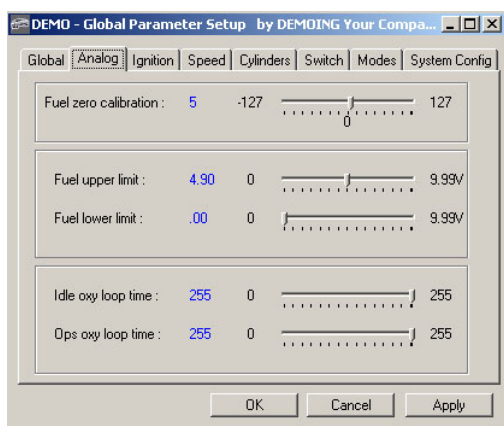
6.1 GLOBAL



Max RPM experienced : Displays the maximum RPM recorded by the unit. To reset this value, click in the check box "Reset Max. RPM experienced" and then click on "Apply".

Hardware Test Dates : Shows the serial number from the factory as well as delivery and user tests.

6.2 ANALOG



Fuel zero calibration : This is the global calibration for the analog input. Each value of "1" on this bar increases or decreases the analog output value by 39mV.

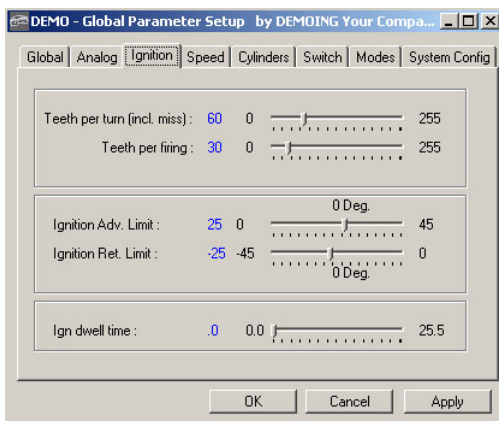
Fuel upper limit : Limits the analog output voltage so that it cannot go above this value.

Fuel lower limit : Limits the analog output value so that it cannot drop below this value.

Idle oxy loop time : Adjusts loop time when the cursor is in the first column of the "Loop Limit" map.

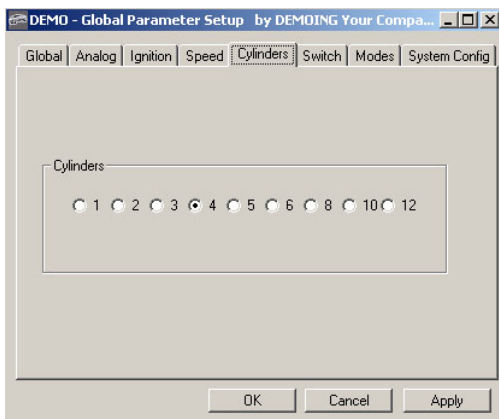
Ops oxy loop time : Adjusts the loop time for all columns on the "Loop Limit" map other than the first column.

6.3 IGNITION



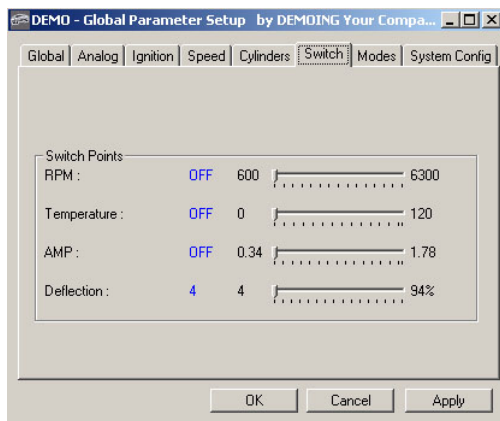
- Teeth per turn (incl. miss) : Number of teeth on wheel for one single turn of the crank.
Teeth per firing : Number of teeth on the crank between every firing.
Ignition Adv. Limit : Maximum amount of advance of the ECU signal that the unit will allow.
Ignition Ret. limit : Maximum amount of retardation of the ECU signal that the unit will allow.
Ign. dwell time : Stand alone ignition application of the unit, which will allow you to change the dwell of the output signal, mainly used with distributor and 4 cylinder wasted spark applications.

6.4 CYLINDERS



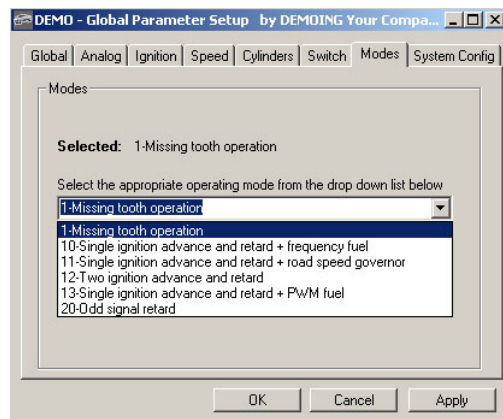
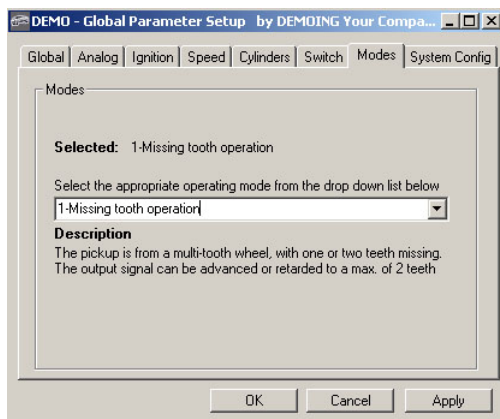
- Cylinders : Select the number of cylinders the engine has.

6.5 SWITCH



Switch Points : Switched output connected to the orange wire of the unit and can be switched according to the following set points: RPM, Temperature, AMP and Deflection.

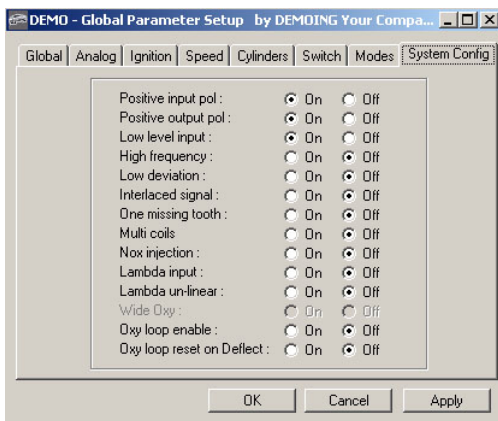
6.6 MODES



The unit can be set to run in 6 different modes. These modes are used for different crank signals.

- 1-Missing tooth operation** : Missing tooth crank signal, balanced mode on the digital signal.
- 10-Single ignition advance ...** : Standard crank signal, frequency based and retard and frequency fuel. airflow meter signal.
- 11-Single ignition advance ...** : Standard crank signal, road speed governor on digital line.
- 12-Two ignition advance ...** : Twin ignition signals.
- 13-Single ignition advance ...** : Standard crank signal, PWM signal out.
- 20-Odd signal retard** : Non-standard crank signals, can only retard.

6.7 SYSTEM CONFIG



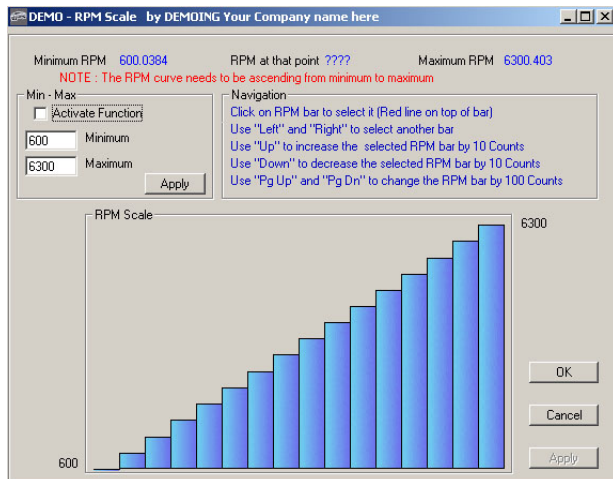
The system configuration screen contains "On" and "Off" settings that enable or disable respectively, some of the features of the unit. They also determine the configuration of the incoming and outgoing crank signal.

<u>Positive input pol</u>	:	Positive input polarity
<u>Positive output pol</u>	:	Positive output polarity.
<u>Low level input</u>	:	Low level trigger level, trigger level is set to 100mV for low level on and to 2.5V for low level trigger off.
<u>High frequency</u>	:	Adjusts the bandwidth of the frequency inputs from 10Hz – 3.3kHz on off to 80Hz – 80kHz when turned on.
<u>Low deviation</u>	:	Divides map changes by 4.
<u>Interlaced signal</u>	:	Divides the RPM display value by half (uses two inputs and results in 1 RPM reading).
<u>One missing tooth</u>	:	For missing tooth wheels with 1 missing tooth.
<u>Multi coils</u>	:	For multi coil stand alone applications
<u>Nox injection</u>	:	Injector cycle time is switched away from RPM to a stable 38Hz signal.
<u>Lambda input</u>	:	Redirects analog input to the lambda input.
<u>Lambda un-linear</u>	:	Fuel modifications on map make changes according to a non-linear curve.
<u>Oxy loop enable</u>	:	This is where you can switch the oxygen sensor to "ON" or "OFF".
<u>Oxy loop reset on Deflect</u>	:	This is where you reset the throttle position for the oxygen sensor.

7 SCALE SETTINGS

RPM and Analog deflection scales are used to calibrate the limits of the RPM and Analog deflection. Click on "Scale Settings" on the Menu Bar and select either RPM or Deflection.

7.1 RPM SCALE



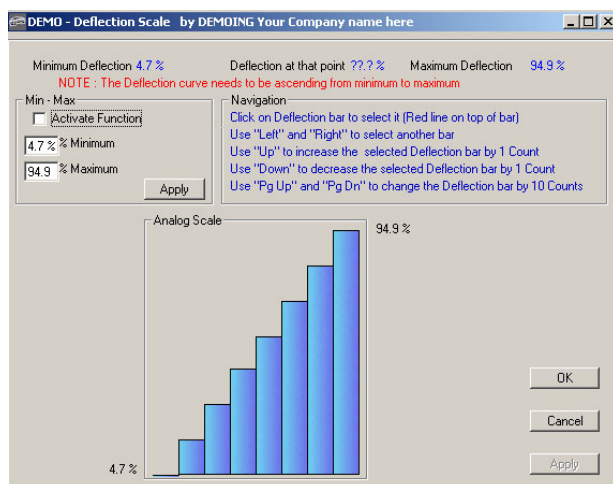
To make a linear scale from minimum to maximum place a numerical value in the minimum and maximum block. Click the "Activate Function" check box and then click on "Apply". This will update the bar graph to the new maximum and minimum values.

There are 16 bars in the bar graph and each bar represents a single step on the map. To modify a single bar, use the keys as described under "Navigation" in the dialog box. Once you have made the necessary changes, click on the bottom "Apply" button for the changes to take effect. Once all changes have been made, click on "OK".

To change the RPM, use the "Page Up" and "Page Down" keys on your keyboard. The bar will move up and down respectively. The RPM of the red bar is displayed on RPM at this point on the top of the screen. Click on "Apply" to keep your changes. Click on "OK" to exit the dialog box.

Note: When setting the RPM column you should not make it lower than 600 RPM. It is advisable to get it to idle on the second row and not the bottom row.

7.2 DEFLECTION (THROTTLE)



The analog "Deflection Scale" works in the same way as the RPM scale setup. The only difference is that there are only 8 steps in the scale instead of 16.

The AMP and Temperature scales can only be set up using the DOS commands. A detailed description is given in the Technical Manual.

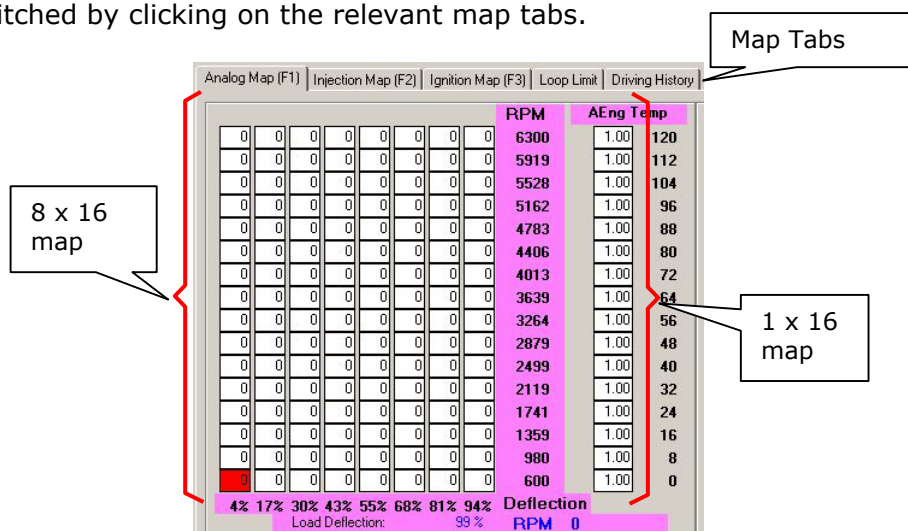
8 MAPS

Maps is where the tuning is done. Values in the maps are used to modify the signals going into the unit and allow you to specify the amount of change at set levels.

The Windows software is capable of displaying 2D and 3D maps.

8.1 MAP DISPLAY

Maps can be switched by clicking on the relevant map tabs.



The map is made up of one 8 x 16 map (vertical movement is RPM, horizontal movement is deflection) and one 1 x 16 map (linked to the AMP or engine temp sensor).

8.2 2D MAPS

Although there is a Menu item called "2D Maps", you can select the map you want by clicking on the relevant tab on the Main Screen.

Selecting from the Menu

Selecting from the Tabs

2D Map 3D Map Global

Analog Map F1
Injection Map F2
Ignition Map F3
Loop Limit

Analog Up F4
Analog Down F5

Injection Up F6
Injection Down F7

Ignition Up F8
Ignition Down F9

Analog Map (F1) Injection Map (F2) Ignition Map (F3) Loop Limit Driving History

RPM AEng Temp

0	0	0	0	0	0	0	0	0	0	6300	1.00	120
0	0	0	0	0	0	0	0	0	0	5919	1.00	112
0	0	0	0	0	0	0	0	0	0	5528	1.00	104
0	0	0	0	0	0	0	0	0	0	5162	1.00	96
0	0	0	0	0	0	0	0	0	0	4783	1.00	88
0	0	0	0	0	0	0	0	0	0	4406	1.00	80
0	0	0	0	0	0	0	0	0	0	4013	1.00	72
0	0	0	0	0	0	0	0	0	0	3639	1.00	64
0	0	0	0	0	0	0	0	0	0	3264	1.00	56
0	0	0	0	0	0	0	0	0	0	2879	1.00	48
0	0	0	0	0	0	0	0	0	0	2499	1.00	40
0	0	0	0	0	0	0	0	0	0	2119	1.00	32
0	0	0	0	0	0	0	0	0	0	1741	1.00	24
0	0	0	0	0	0	0	0	0	0	1359	1.00	16
0	0	0	0	0	0	0	0	0	0	980	1.00	8
0	0	0	0	0	0	0	0	0	0	600	1.00	0

4% 17% 30% 43% 55% 68% 81% 94% Deflection
Load Deflection: 99% RPM 0

Analog + (F4)
Analog - (F5)
Injection + (F6)
Injection - (F7)
Ignition + (F8)
Ignition - (F9)
Enter Field
☐ Change Column
View Map Name
Map : A
Version : 22

Enter numerical value here, so that it is entered in cell above

Map values are entered in the white box labeled "Enter Field" on the right hand side of the main screen. When you click in the map cell to change its value, the cell will turn green (see above). This cell can be selected either with the cursor keys or by clicking on the cell.

An entire column can be changed by clicking the check box "Change Column". The entire column will be highlighted in green on the map and any value entered in the white box will fill this area.

The red cursor on the map screen shows where the engine is running, you can increment values at this point by pressing F4 – F5 for analog, F6 – F7 for injection and F8 – F9 for ignition.

8.2.1 ANALOG MAP (F1)

The Analog map is responsible for changes made to the analog signal. The main 8 x 16 map modifies the analog signal according to RPM and analog deflection values. These changes are then multiplied by the values in the 1 x 16 row map, which is mapped according to the engine temp sensor. The values in the analog map range from -127 to 127, each value of 1, changes the analog out signal by 0.039V.

								RPM	AEng Temp
0	0	0	0	0	0	0	0	7017	1.00 120
0	0	0	0	0	0	0	0	6584	1.00 112
0	0	0	0	0	0	0	0	6168	1.00 104
0	0	0	0	0	0	0	0	5744	1.00 96
0	0	0	0	0	0	0	0	5303	1.00 88
0	0	0	0	0	0	0	0	4883	1.00 80
0	0	0	0	0	0	0	0	4456	1.00 72
0	0	0	0	0	0	0	0	4027	1.00 64
0	0	0	0	0	0	0	0	3595	1.00 56
0	0	0	0	0	0	0	0	3167	1.00 48
0	0	0	0	0	0	0	0	2738	1.00 40
0	0	0	0	0	0	0	0	2311	1.00 32
0	0	0	0	0	0	0	0	1884	1.00 24
0	0	0	0	0	0	0	0	1456	1.00 16
0	0	0	0	0	0	0	0	1028	1.00 8
0	0	0	0	0	0	0	0	600	1.00 0
7% 16% 28% 41% 53% 65% 77% 90%								Deflection	
Load Deflection: 58.8%								RPM 3602	

8.2.2 INJECTION MAP (F2)

The Injection map makes timing modifications to the ignition signal. Each value of 1 will change the ECU's original signal by 1 degree. The limits of this map are determined by the ignition retard and advance limits in the "Global Settings" (see "Global Settings" in the Menu Bar).

The Injection map controls the injector open time of the extra injector driver. Output timing is based on two modes; NOX Injection disabled and NOX Injection enabled.

The modes are changed by selecting "NOX Injection" to "Off", in "System Config" under "Global Settings". With "NOX Injection" disabled, the injector is turned ON for the time specified by the map after every pulse received from the CB1 signal. If the ON time exceeds the space between pulses, the injector remains ON the whole time.

When the "NOX Injection" mode is enabled by selecting "On", in "System Config" under "Global Settings". The one time is cycled according to a stable 38Khz timing sequence. This mode is more suitable for nitrous solenoids and is in proportion to nitrous activation.

A value of 1 on this map turns the injector on for 0.1ms.

Values in the 8 x 16 map are multiplied by values in the 1 x 16 map. This map is linked to the AMP sensor input.

								RPM	Fuel AMP
0	0	0	0	0	0	0	0	7017	1.00 1.00
0	0	0	0	0	0	0	0	6584	1.00 0.95
0	0	0	0	0	0	0	0	6168	1.00 0.89
0	0	0	0	0	0	0	0	5744	1.00 0.84
0	0	0	0	0	0	0	0	5303	1.00 0.79
0	0	0	0	0	0	0	0	4883	1.00 0.73
0	0	0	0	0	0	0	0	4456	1.00 0.68
0	0	0	0	0	0	0	0	4027	1.00 0.63
0	0	0	0	0	0	0	0	3595	1.00 0.57
0	0	0	0	0	0	0	0	3167	1.00 0.52
0	0	0	0	0	0	0	0	2738	1.00 0.47
0	0	0	0	0	0	0	0	2311	1.00 0.41
0	0	0	0	0	0	0	0	1884	1.00 0.36
0	0	0	0	0	0	0	0	1456	1.00 0.31
0	0	0	0	0	0	0	0	1028	1.00 0.25
0	0	0	0	0	0	0	0	600	1.00 0.20
7% 16% 28% 41% 53% 65% 77% 90%								Deflection	
Load Deflection: 58.8%								RPM 3602	

8.2.3 IGNITION MAP (F3)

The ignition map makes timing modifications to the ignition signal. Each value of 1 will change the ECU's original signal by 1 degree. The limits of this map are determined by the ignition retard and advance limits in the "Global Settings".

The 8x16 responds to the same stimulus as the analog map, ignition timing is then added or subtracted from the main map by the 16 row map on the left of the screen, which is connected to an external AMP sensor.

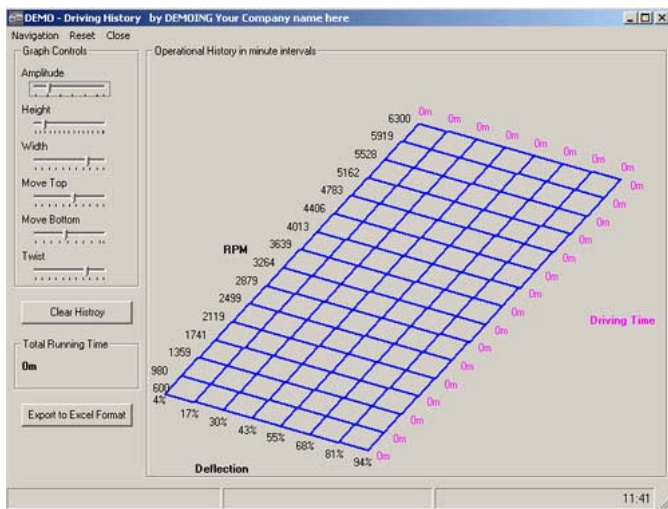
								RPM	Ign AMP
0	0	0	0	0	0	0	0	7017	3 1.00
0	0	0	0	0	0	0	0	6584	3 0.95
0	0	0	0	0	0	0	0	6168	3 0.89
0	0	0	0	0	0	0	0	5744	3 0.84
0	0	0	0	0	0	0	0	5303	3 0.79
0	0	0	0	0	0	0	0	4883	3 0.73
0	0	0	0	0	0	0	0	4456	3 0.68
0	0	0	0	0	0	0	0	4027	3 0.63
0	0	0	0	0	0	0	0	3595	3 0.57
0	0	0	0	0	0	0	0	3167	3 0.52
0	0	0	0	0	0	0	0	2738	3 0.47
0	0	0	0	0	0	0	0	2311	3 0.41
0	0	0	0	0	0	0	0	1884	3 0.36
0	0	0	0	0	0	0	0	1456	3 0.31
0	0	0	0	0	0	0	0	1028	3 0.25
0	0	0	0	0	0	0	0	600	3 0.20
7% 16% 28% 41% 53% 65% 77% 90%								Deflection	
Load Deflection: 58.8%								RPM 3602	

8.2.4 LOOP LIMIT

This is used when you run an open loop engine as a closed loop engine. Click on "Loop Limit" and enter an "AFR Target" in the lower blocks. Values are then calculated in conjunction with the values entered in the analog map. Whichever values are entered on the analog screen, would be the most adjustment the unit would make in the "Loop Limit" tab.

7%	16%	28%	41%	53%	65%	77%	90%	RPM	
0	0	0	0	0	0	0	0	7017	
0	0	0	0	0	0	0	0	6584	
0	0	0	0	0	0	0	0	6168	
0	0	0	0	0	0	0	0	5744	
0	0	0	0	0	0	0	0	5303	
0	0	0	0	0	0	0	0	4883	
0	0	0	0	0	0	0	0	4456	
0	0	0	0	0	0	0	0	4027	Adj Window
0	0	0	0	0	0	0	0	3595	
0	0	0	0	0	0	0	0	3167	
0	0	0	0	0	0	0	0	2738	
0	0	0	0	0	0	0	0	2311	
0	0	0	0	0	0	0	0	1884	
0	0	0	0	0	0	0	0	1456	
0	0	0	0	0	0	0	0	1028	
0	0	0	0	0	0	0	0	600	
14.7	14.7	14.7	14.7	14.7	14.7	14.7	14.7	<-AFR target	

8.2.5 HISTORY RECORDING



The unit can record the driving history. That is to say that it counts the time spent in each map point. The time recording can be uploaded to the PC and when this is done, the time recording is reset to start from fresh.

The time is recorded in minute intervals, and recordings of less than one minute are lost when the unit is switched off. The maximum time recording (at any map point) is 65000 minutes, which equals 45 days!

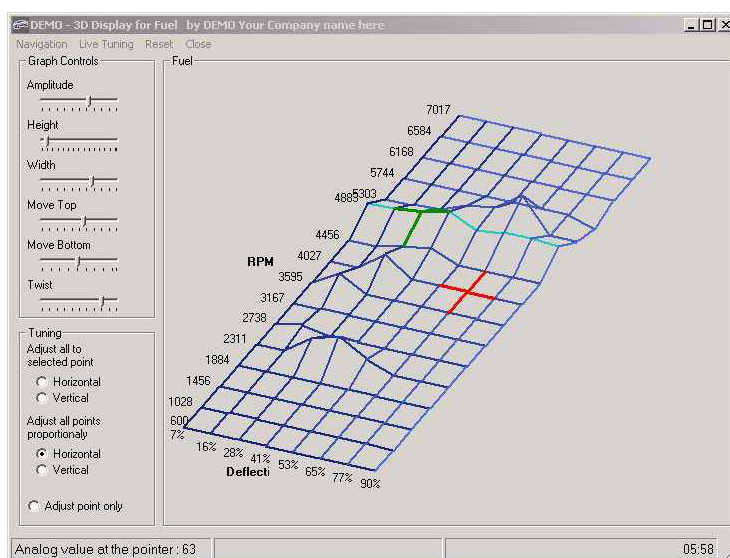
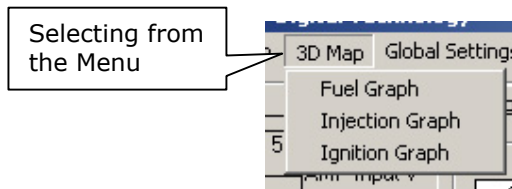
The history recording indicates in which map points the engine is operated, and for the amount of time. This information directs the tuning effort to the most used area. This

allows the dedicated tuner to achieve an environmentally friendly engine most of the time, while retaining "brutal power" performance in the less used areas.

The history recording feature is automatic and requires no setup.

8.3 3D MAPS

By clicking on the Menu item "3D Map" you will have three options: Fuel Graph, Injection Graph and Ignition Graph.

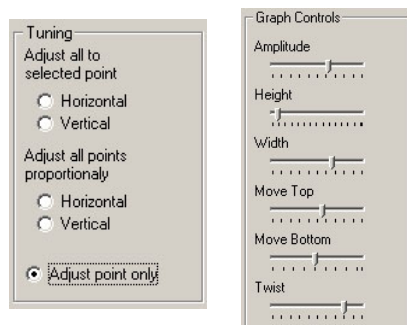


The screen to the left, shows the Fuel Map. Please note that the 3D maps only deal with the main 8 x 16 map. There is no 3D representation of the 16 row map. The red cross, shows where the engine is running, while the green cross shows the cursor position. Buttons F4 - F9 can be used to modify the red cross's height. When you do this, the gradient on this point of the graph will move up or down. Green cross positions are modified by pressing the "Page Up" and "Page Down" or "+" and "-" keys, on the keyboard.

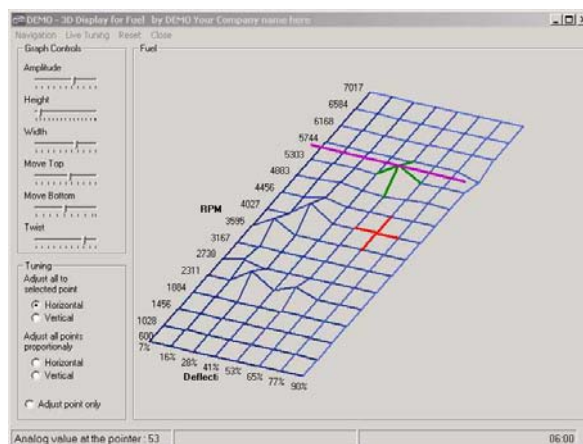
You also have the option of raising entire rows or columns proportionally or at the selected point only. For a horizontal or vertical proportionate change, adjust all

points proportionally on the left of the screen. This will raise the entire row by the same value.

If you want to change a selected point, click on the relevant "Horizontal" or "Vertical" radio button under "Adjust all to selected point". The entire row will be raised to the same point as the selected point.

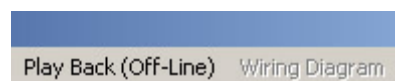


Adjusting the slider bars on the left of the screen can also change the appearance of the graph. These bars will allow you to rotate the graph to the best viewing angle for your application:



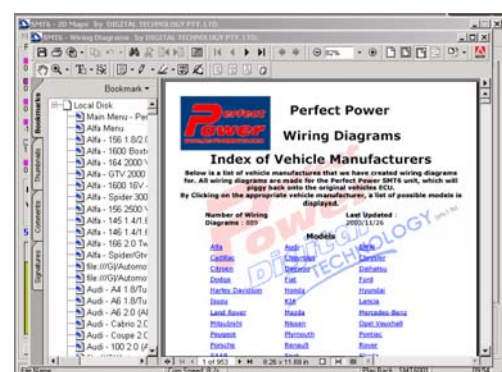
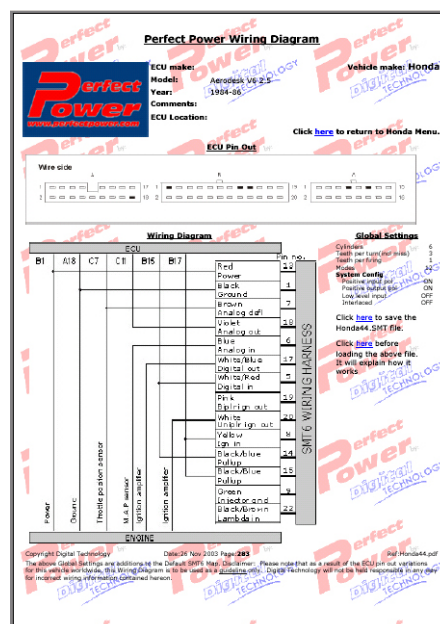
9 WIRING DIAGRAMS

The Wiring Diagrams that Digital Technology has created for the SMT6 Perfect Power product, are now available for you to include in your Windows Tuning software. Initially when you open the software, the "Wiring Diagram" option on the Menu bar will not be highlighted. However, once you load the actual .PDF format Wiring Diagram, the option will be available for you to select. A copy of the actual .PDF Wiring Diagrams is available on the Dealer CD.



To activate the "Wiring Diagram" option on the Menu bar, copy the wiring diagram .PDF file from your CD to your product's tuning software directory. If you installed your software following the default installation process, you can find this directory under "Program Files".

Once the .PDF file has been loaded and you select "Wiring Diagram" from the Menu, you will see the screen below:



As a matter of interest, you can also open and view the .PDF Wiring Diagram from the standard Adobe Acrobat Reader program.

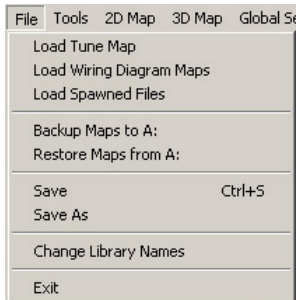
The new wiring diagram format includes the "Global Settings" on the same wiring diagram for all the vehicles.

The wiring diagram screen that opens has an "ADOBE Acrobat Reader" format, with all the tools. On the main screen of the wiring diagrams, select the vehicle manufacturer and then the model to locate the appropriate wiring diagram. On a typical wiring diagram, as seen on the right, the appropriate "Global Settings" are also included. These "Global Settings" are adjustments to the default tune map that is loaded with a new unit or the "Blank.SMT" map shipped with the software. To view the default "Global Settings", go to the last page of the wiring diagrams list or view the Default settings below.

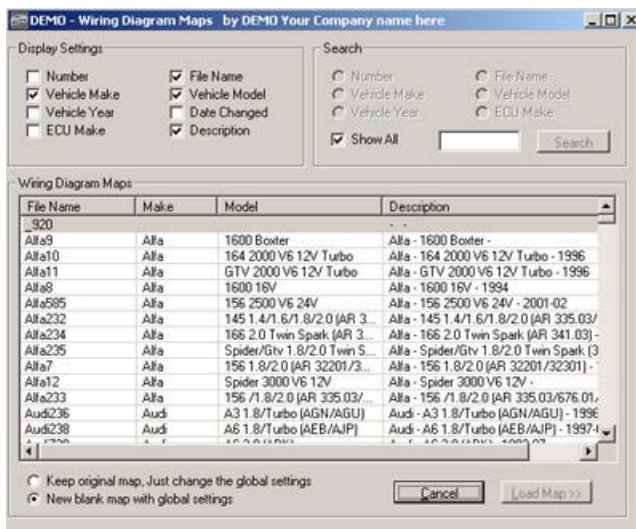
The Default "Global Settings" has all the non-essential features turned off, allowing for easy installation and first time starting. Once the vehicle is running, we recommend that these settings are adjusted or changed, especially the limits and switch points. All vehicles are different and require unique individual "Global Settings".

9.1 HOW TO LOAD THE GLOBAL SETTINGS

You can load specific "Global Settings" into the unit, by clicking on "Load Wiring Diagram Maps" from "File" on the Menu.



Once you have clicked on this option, the following screen will be displayed:



The **"Display Settings"** section allows you to select which details (columns) you wish to see in the "Wiring Diagram Maps" list.

The **"Search"** section allows you to search for a specific wiring diagram map, for example, a car's make or model.

The **"Wiring Diagram Maps"** section lists all the available Wiring Diagram Maps for the unit.

The two radio buttons under the "Wiring Diagram Maps" section can be used as follows:

"Keep original map. Just change the global settings"

This means that you will be able to load a standard tune map from your library and replace the global settings on that tune map with the global settings from your selected Wiring Diagram Map. For example, you select the BMWX5 tune map from the "Load Tune Map" facility and then select "Audi236" from the "Load Wiring Diagram Maps" facility. The tune map for the BMWX5 will remain, but it will now have the global settings from the Audi236 only.

"New blank map with global settings"

This option automatically loads the default blank tune map without any tuning and with the default global settings. You can then replace only the global settings of this blank map, with the global settings from the Wiring Diagram Map of your choice. For example, you choose this option and select "Audi236" from the Wiring Diagram Maps list. The tune map will remain blank but it will have the global settings for the Audi236.

PLEASE NOTE:

- To change any of the above "Global Settings", communication is required with the unit.
- The individual "Global Settings" only replace or update the existing "Global Settings" on the unit.
- The individual "Global settings" do not contain any tune maps or sensor calibrations and therefore CANNOT be used as a full tune map.
- Due to ECU pin-out variations for vehicles' worldwide, the individual "Global Settings" should be used as a guideline only.

Below is the Default “Global Settings” in a text format. They can also be installed or programmed into the unit by loading the “Blank.SMT” tune map.

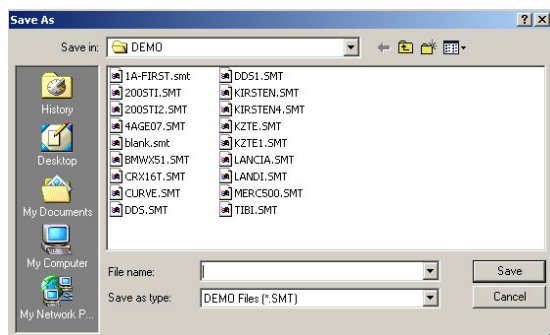
Default Global Settings			
Analog Tab		Speed Tab	
Fuel zero calibration	0	Adjust	99
Fuel upper limit	9.99	Limit	0
Fuel lower limit	0.12		
Ignition Tab		Modes Tab	
Teeth per turn (incl miss)	2	Modes	10
Teeth per firing	1		
Ignition Adv. limit	12	System Config Tab	
Ignition Ret. limit	-12	Positive input pol	ON
Ign dwell time	0	Positive output pol	ON
Cylinders Tab		Low level input	OFF
Cylinders	4	High frequency	OFF
Switch Tab		Low deviation	OFF
RPM	6010	Interlaced signal	OFF
Temperature	OFF	One missing tooth	OFF
AMP	OFF	Multi coils	OFF
Deflection	OFF	Nox injection	OFF
		Lambda input	OFF
		Lambda un-linear	OFF

10 SAVING AND BACKING UP MAP FILES

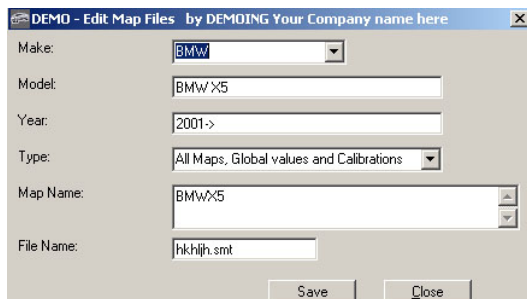
Once you have completed your installation, you can save your work to your laptop or PC.

10.1 SAVING FILES

To save a file, click on “File” from the Menu Bar and select “Save” or “Save As”. The following dialog box will be displayed:

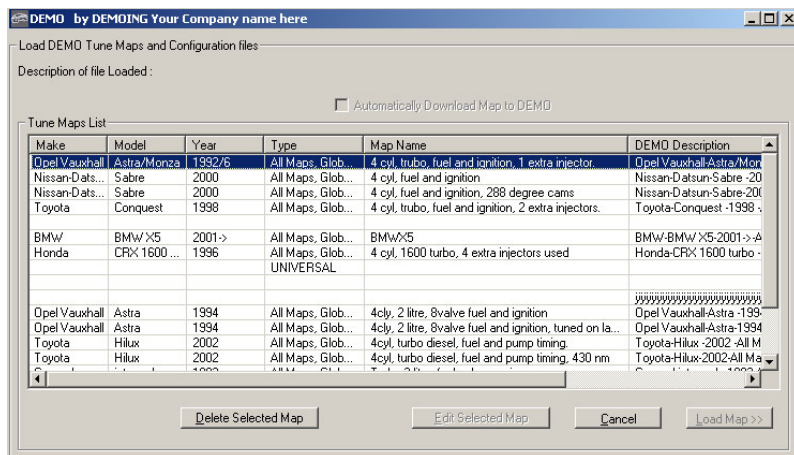


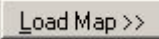
Type in your filename, and click on “Save”. You will then get a dialog box, which will allow you to select the make, model, year, type of map, map name and file name of the file you are saving. Type in the details and click on “Save” to save the file.



10.2 LOADING NEW FILES

To load a new file, click on "File" from the Menu Bar and select "Load Tune Map". The following dialog box will be displayed:



Select one of the maps from the list and click on the button . This will take the selected map and will download it onto the unit.

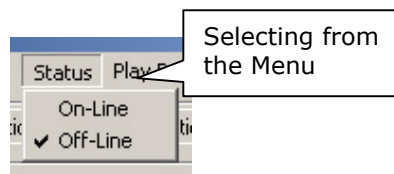
10.3 BACKING UP

It is advisable to "back up" your work periodically. To do this, place a blank floppy disk into your floppy disk drive – this is usually the "A:" drive. Click on "File" on the Menu Bar, and select "Backup Maps to A:". Your file(s) will then be backed up to the disk.

When you want to restore the backed up files, place the disk with the relevant backed up files into the floppy drive. Click on "File" on the Menu Bar and select "Restore Maps from A:". Your file(s)/map(s) will then be restored to your tuning directory.

11 OFFLINE MODE AND PLAYBACK FEATURE

In the "Off Line" mode you can modify files/maps and save them without having a unit connected to it. This mode can either be enabled on the first dialog box during Start Up or by selecting "Off-line" from "Status" on the Menu Bar.



While you are in the "Off Line" mode, you have the option of running the playback feature. This feature loads a previously saved log file or map and simulates the log file conditions, based on the data in the log file. To do this, click on "Play Back (Off-Line)" on the Menu Bar:




Once the "Play Back Station" screen appears, you can move it somewhere else, as it may block something on the SMT6 Windows Tuning Screen. To move the "Play Back Station" screen, click and hold on the screen name or blue bar and drag to your preferred place. When you open the "Play Back Station" screen again, the program will remember where you last moved the screen and appear in the same place.

Click on "Load recorded data file" button on the "Play Back Station" screen to select the file to play back. Once the file is loaded, the other buttons and the slide bars on the screen, will be enabled or active, as seen below.



Use the "Run", "Pause" and "Stop" buttons to control the "Play Back" of the recorded file. If you want to change what your Tuning Software displays, you can make the changes in the "Setup Display", as described earlier in this manual. The changes you make, will be displayed on the screen when you "play back" the logged file.

By clicking on the "Recorded Data" slide bar, you will be able to fast forward or rewind the "play back". The "Play back speed" slide bar, allows you to slow down or speed up the "play back" speed. By default, the SMT6 records 10 readings per second, so by adjusting the "Play back speed" slide bar, you are able to adjust the amount of readings played back per second.

	Item	Description
	Load recorded data file	Load the log file you want to play back
	Recorded Data	Displays the total time of the recorded log file and allows for quick fast forward by dragging the pointer to the desired position.
	Running Time (in Minutes and Seconds)	Indicates the present time within the play back file
	File Name: XXXX.raw	The file that is being played back.
	Run	Start the play back from the beginning of the file.
	Pause	Pause the play back.
	Stop	Stop the play back.
	Play back speed	By default the log file records 10 readings per second. By adjusting the speed, you are able to vary the number of readings played back per second.



12 OVERWRITING SOFTWARE

As you are aware, the software for your unit has been designed with your company details and logo, as well as your product name. This is to give you the opportunity of having your very own fuel-injection unit. Your customer will purchase the unit from you with your details o both the unit, as well as the software.

It may happen that your customer decides to go to another Dealer to tune his/her car. This car will have your unit installed. If the new Dealer connects to this unit, he will see your company details, logo and product name. At this point the other Dealer can inform the customer to go back to you (the original installer and tuner) or he can decide to "overwrite" your software and tuning with his own software. If this Dealer decides to overwrite your software, his company details, logo and product name will appear. This means that should the customer come back to you after this, you will be able to determine if the customer has gone to another Dealer. You can then also overwrite the other Dealer's software and tuning.

12.1 OTHER PERFECT POWER PRODUCTS

Since your unit is based on the trusted SMT6 unit from Perfect Power, many of the SMT6 features and functionalities are applicable to your unit. You need to be aware that your software can work on the current SMT6 product range (black boxes). But if you connect to the SMT6 with your personalised software, the SMT6 will no longer be compatible with SMT6 software.

The software for the SMT6, which is downloaded from the Internet is not compatible with your personalised unit (grey box).