SOFTWARE INSTRUCTION OF Zenit Compact

AG Centrum

Zenit Autogas System

Radom 2010

I. Connecting the Zenit Compact control panel with a PC.

1. Interface.

*An **interface** is necessary to connect a PC with the Zenit Compact ECU**.** All USB interfaces used with the Zenit ECU are compatible with and allow connection of the Zenit Compact ECU.*

A relevant interface must be connected to a PC and to a Zenit Compact ECU diagnostics slot. The slot is on the switch wiring harness approximately 30 cm from the mains socket of the control panel. ***During the adjustment, split the wiring harness and connect the interface. WARNING! Prior to first use of the interface, the drivers must be correctly installed in the system.***

After the start-up, the program will automatically search all active ports and try to establish connection with the ECU. ***At the same time the ignition must be switched on.***

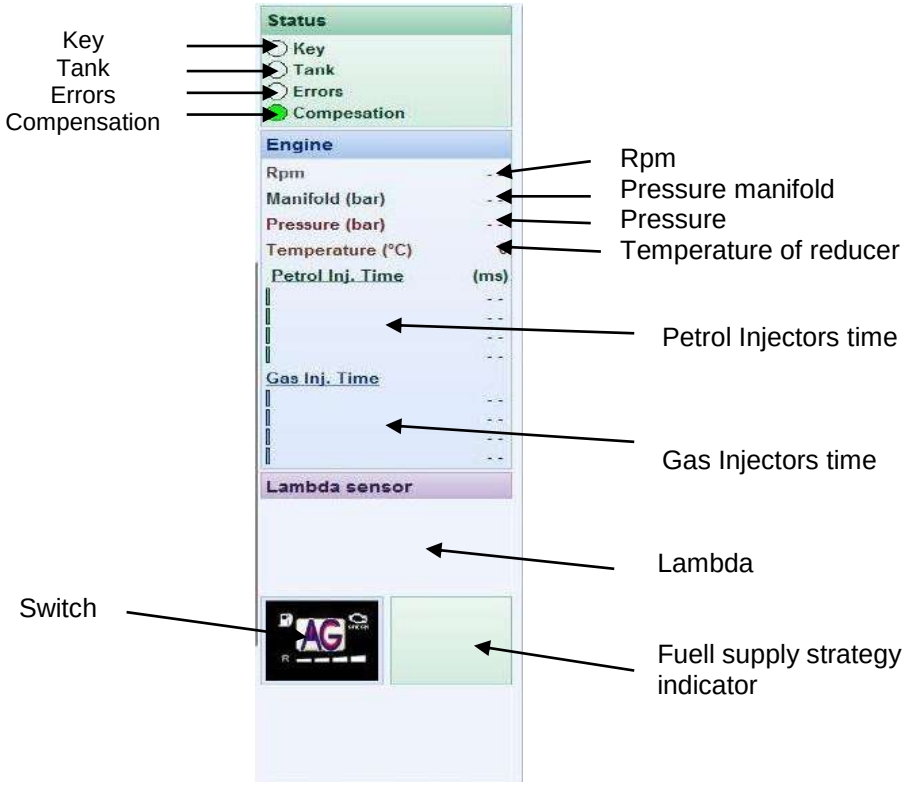
Until the connection is established the system will display "searching port – keep key on".

Zenit Compact Setup view after establishing the connection :

II. ZENIT COMPACT PROGRAM

DESCRIPTION

1. Information panel



This is situated on the left side of the program window, and is visible regardless of the chosen tab and helps to monitoring of system parameters:

***"Key"** – the light is yellow when voltage is supplied to the control panel. It should activate straight after the ignition is on, and it should immediately go off after the ignition is switched off.*

***Tank –** the light is yellow when the voltage to the valves is supplied.*

***Errors** – the light is red when a system error was detected. Go to the **Diagnostics** tab.*

Compensation** – the light is green when compensations are on. For more information go to **Tuning -> Compensations.

***Switch** – this button has the same function as the one in car cab. It is used to switch on/off the gas installation and indicate the gas level in the tank.*

RPM** – this is engine speed. It can be adjusted by changing the number of coils in **Configuration -> Switching parameters -> Coils.

***Pressure –** gas system pressure parameters, behind the reducing valve.*

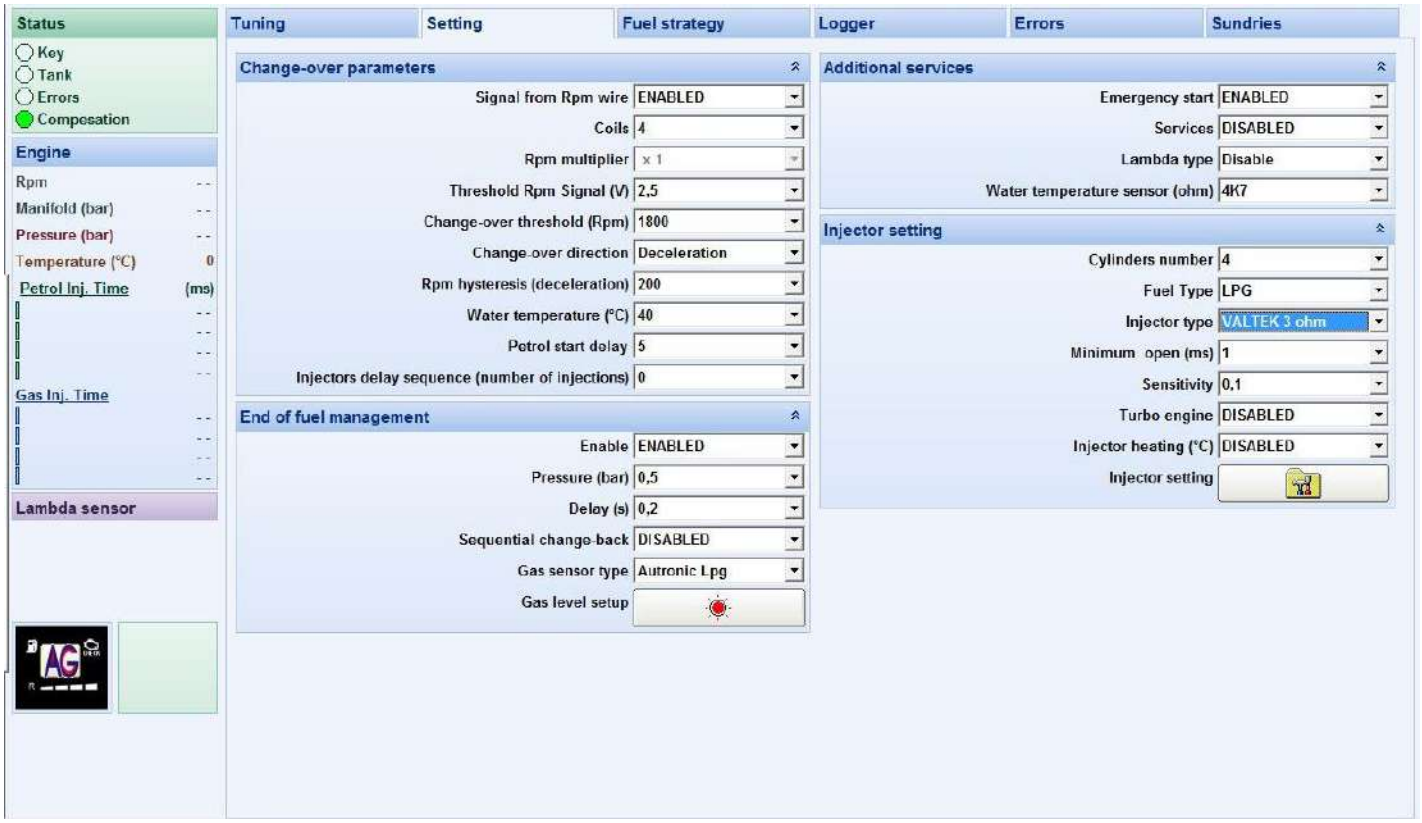
***Temperature** from by the heat sensor located on the reducer.*

***Lambda** – pressure readout from a lambda probe. The window is active only when the lambda probe is physically connected and when an appropriate type of probe is selected in **Configuration -> Other options -> Lambda probe type**.*

***Fuel supply strategy indicator** – shows if the strategies are on and active at the moment. See the **Fuel supply strategies** tab.*

2. Setting

*The **Setting** tab is used to set up the key installation parameters. The configuration window is divided into 4 sections:*



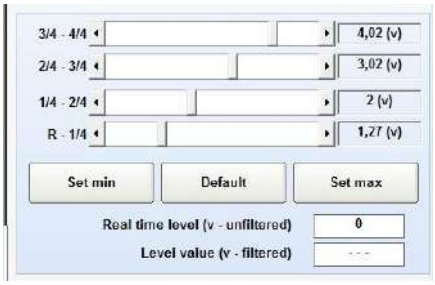
Change-over parameters

RPM signal from the wire – *when this function is active the engine speed signal is read from the RPM wire, otherwise it is based on the petrol injectors opening time and there is no need to connect the RPM wire. In this case, functions of the fuel supply strategies related to slow and high speed are not active.*
Coils *– a section where the number of the engine coils is set up (active only when the **RPM signal from the wire** function is active)*
RPM multiplier *– helps to adjust the RPM view in the program to the actual speed (active only when the **RPM signal from the wire** is off)*
Treshold Rpm Signal *– a voltage threshold, above which the engine speed signal will be read. If the signal is read from the ignition coil, the sensitivity should be set at app. 7V. For impulses received from the petrol controller the threshold is set at app. 2.5V. **ATTENTION! Nissan Micra is an exception, and the sensitivity threshold must be set at 1V.***
Change – over threshold (Rpm) *when this level is exceeded, the fuel supply will be switched over. The value can be selected from 0 (the function is switched off) to **3000***
(the switch-over will happen when 3000 rpm level is achieved).
Change over direction - *when switching-over to gas should happen during acceleration or deceleration.*
RPM hysteresis *– the value by which the engine speed should decrease for switching-over to activate (active only when the **Switch-over at function** is set for deceleration).*
Water temperature *– selectable from 20 to 70°C. When the pre-determined temperature is achieved the control panel will switch the engine over to the gas supply.*
Petrol start delay - *the system delay time. When selecting a value other than 0, the control panel will wait the pre-determined time (in seconds) before switching over to gas supply. 0 – function is disabled – the switching-over to gas supply will happen immediately after the pre-determined temperature is achieved.*

End of fuel managament

Automatic switch *– a choice of automatic or manual return to petrol supply after the min pressure is achieved.*
Pressure *– below this pressure threshold the return to petrol supply will happen.*
Delay *– switching to petrol delay time, after achieving the min pressure threshold.*

Sequential change back *– In this mode each single cylinder can return to petrol supply at certain time interval. Relevant only for switching-over when the pressure drops lower than the min threshold pre-determined in the* ***Min pressure*** *option.*
Gas sensor type *– enables the choice of the type of the sensor installed in the system.*



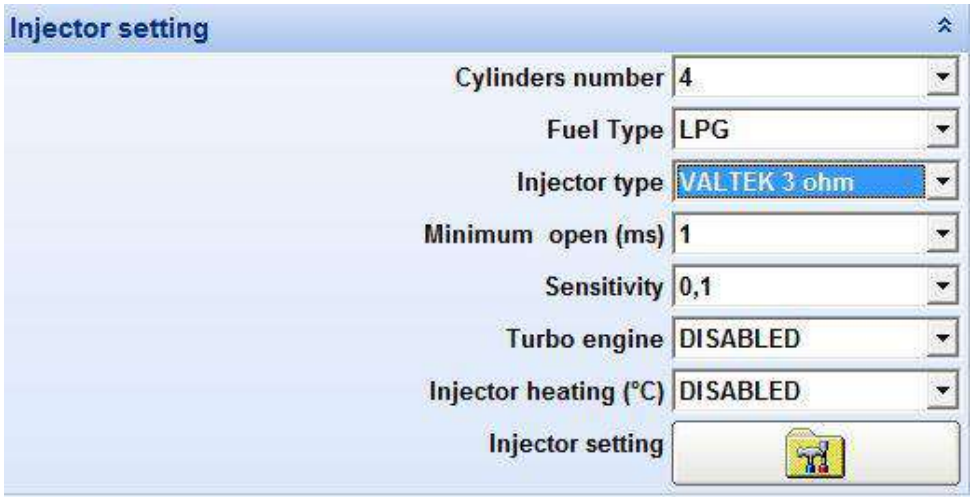
Gas level setup *– activates the view of the gas-level sensor calibration. Calibration consists in determining the voltage threshold above which the diodes should light. Move the slide with the right and left arrows and determine the value.* ***Save min*** *button enables saving the voltage threshold for an empty tank,* ***Save max*** *button – for a full tank, and* ***Default*** *button enables return to the default set up.*

Aditional services

Emergency start *– allows engine start-up in gas supply mode.*
Services *– when this option is active, the solenoid valves switch on at the moment of activating the gas injectors. This enables control of the peripheral equipment (e.g. electronic spark advance variators).*
Lambda type *– choose the type of the lambda probe installed in the vehicle.* ***NOTE! Connecting a probe is not essential for system operation.***
Water temperature sensor *– choose the type of the temperature sensor installed in the system. Most systems have the 4.7 Kohm sensor installed.*

INJECTORS SETTING

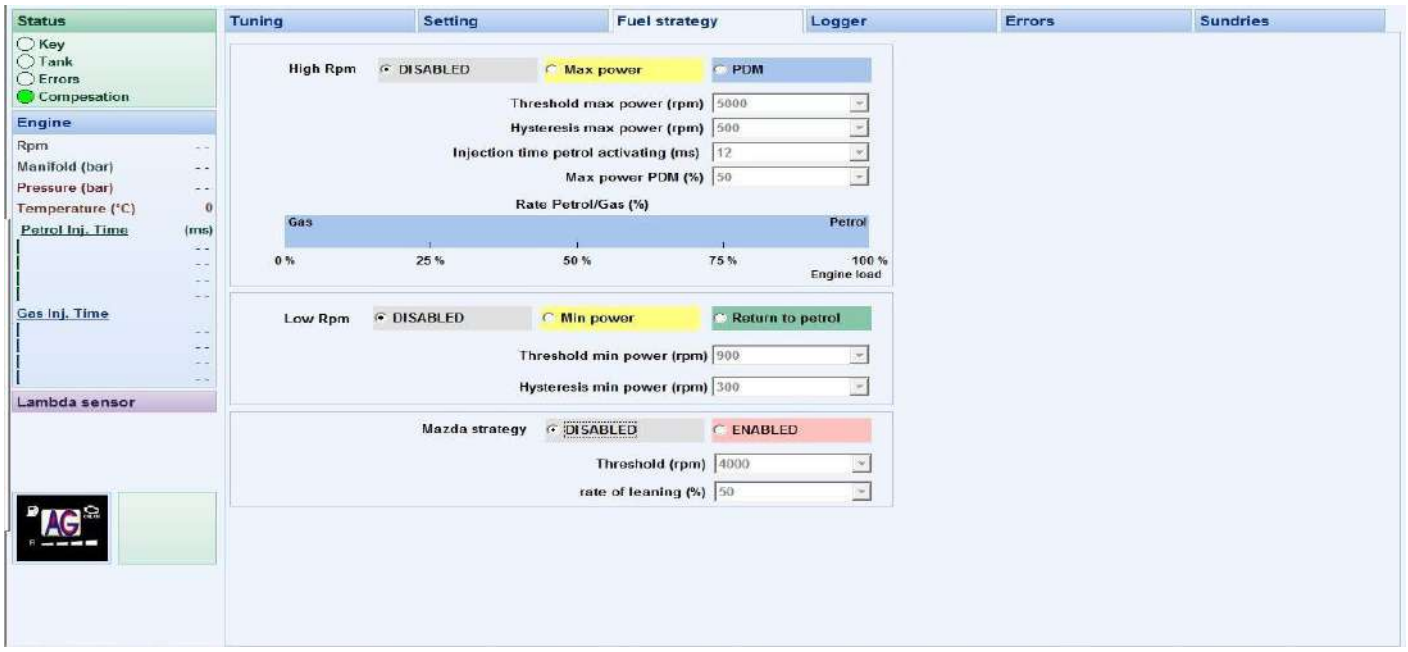
Cylinders number – *choose the number of the engine cylinders: 1, 2, 3 or 4.*
Fuel type *– type of fuel that to be used -> LPG or CNG.*
Injector type *– choose the gas injectors used in the system or an injection rail.*
Minimum open *– prevents control of the gas injectors for very short durations as the gas injector is unable to respond quickly enough. After changing the type of injector, the program will automatically set the minimum time recommended for the injector.*
Sensitivity *– filter for the signal from the petrol injectors. The injector opening times will not be taken into account below the pre-determined value. The filter is active for the value 0.1.*
Turbo engine *– for engines with a turbocharger or supercharger.*
Injector heating *– enables warming up of the gas injectors when the petrol supply is still active. The pre-start of the injectors is designed to smooth the transition from petrol to gas (particularly useful at low temperatures).*
Injector setting - *this display enables individual control of each injector. When there are differences in the operation of individual cylinders, change the value of the* ***Constant Adjustment*** *to match the difference. Additionally, you can set the* ***Work- Mode*** *of the injector:*
Normal *– gas-operated work, dependent on the model and the adjustments.*
Off *– the petrol gas injector is switched off.*
Petrol *–working mode with petrol.*



3. Fuel strategy

This tab includes the options that determine how the system is to operate at high speeds, at high speed and load, during decelerations and at a low speed. Normally, when switching to gas, the engine is powered by gas until the ignition is turned off, or the pressure drops due to the lack of gas in the tank. However, in certain situations it is necessary to temporarily switch the engine to petrol. This can happen when, for example, the petrol injectors are still open or the engine is at a low speed and may stall.

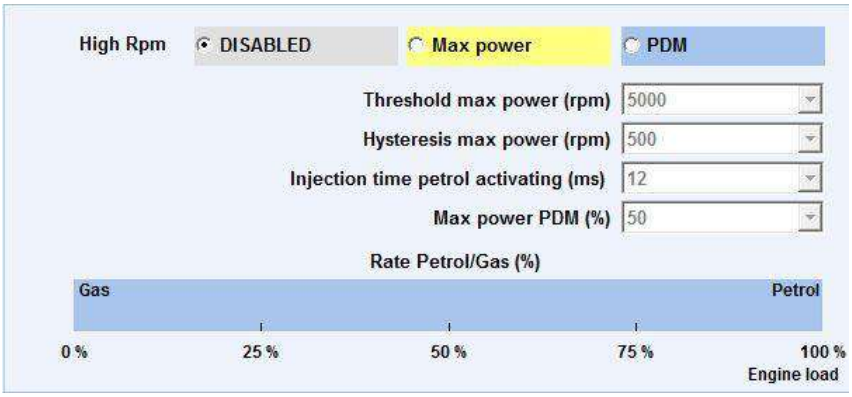
There is also an additional feature here for the Mazda engines, which, under influence of the load, changes the type of fuel supply.



High Rpm

Disabled *– the system runs at high speed on gas, the same as on petrol, until the activation of a speed limiter.*

Max power *– the system, under certain speed and opening durations of the injector, switches the engine to petrol, and then at lower speeds automatically returns to gas.*



In the attached example, if, above 5000 rpm, the gas injector opening time is longer than 20ms, the control panel will switch the engine to petrol. If the speed then decreases by 400 rpm, it will return to gas.

PDM *– at a pre-determined load, regardless of speed, the system will switch to petrol and will automatically return to gas at a lower load level. This feature is useful for engines having petrol injectors with very long opening times, as at high speed the injectors may stay permanently open (e.g. an opening time of 25 ms at 4800 rpm means that the injector is always open and the engine load equals to 100%). The gas control panel can temporary control the gas injectors the same way, but in this case it cannot control the mixture, which is why it is recommended to switch to petrol earlier (e.g. at 90% load level).*

Low Rpm

Disabled *– the system operates at low speed on gas.*

Min Power *– if the speed drops below the threshold pre-determined by the system installer, the system will switch to petrol and only if the speed increases by a certain value will it return to gas. The control panel always switches all the injectors simultaneously; the return to gas depends on the configuration. If the configuration was set to sequential switching of the cylinders, the return to gas will follow the same setting. The switch in the car cab displays normal gas operation, while the program uses a virtual switch to indicate that the function is active.*

Return to petrol *– if the speed drops below the threshold pre-determined by the system installer, the system will switch to petrol and, after several openings of the petrol injector (it may take a few seconds), will automatically returns to gas. The control panel always switches all the injectors simultaneously, with a return to gas depending on the configuration. If the configuration was set to sequential switching of the cylinders, the return to gas will have the same setting. To activate this function, the speed level before the decrease should exceed the activation threshold by app. 200.*
The switch in the car cab displays normal gas operation, while the program uses a virtual switch to indicate that the function is active.

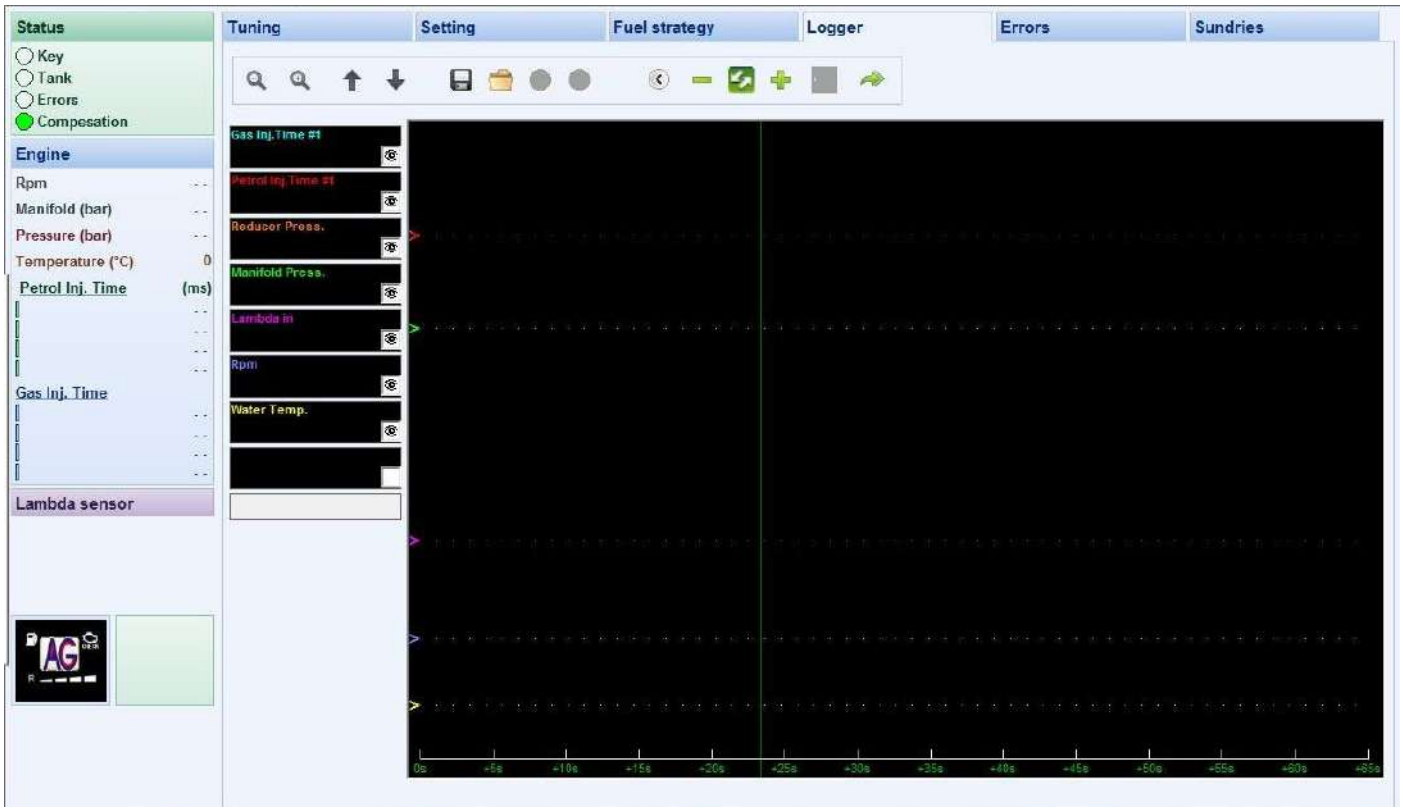
Mazda strategy
This function applies to Mazda engines. Under the influence of load the petrol injector control method changes – the petrol controller changes from a sequential system to semi-sequential. The petrol injectors (as well as the gas injectors) begin to open at a double frequency and for about half the duration (e.g. it will reduce from 8 ms to 4 ms, although the engine load stays the same or increases). The result of this change, during gas-operated work, is that the mixture becomes too rich and may lead to misfiring and jerking. Activation of these functions enables the perfect adjustment of the mixture, both at the low load in sequential work-mode and the heavy load in non-sequential work-mode.

Threshold (rpm) *– the speed threshold which activates the function.*
Rate of leaning *(%) - the percentage value of the mixture depletion.*

4. Logger

***Logger** enables the simultaneous tracking of seven parameters based on the time function. Readings are taken immediately at the speed chosen by the operator. The position of the individual graph lines and their scale can be freely changed. To do this, select the parameter you want to change by pressing its name, and using the corresponding buttons to set the desired position. When the function is active, the area under its name is highlighted in a colour corresponding to the line on its chart.*

The recorder is a very useful diagnostic tool, helping to easily estimate the condition and behaviour of the entire system. The tracked functions can be saved to disk for later analysis.



5. *Errors*

The Zenit Compact sequential gas injection system is equipped with an internal diagnostics tool that identifies and saves any errors that occur during operation of the system. The diagnostics tab gives access to the recorded and current errors, and cancel them after eliminating the cause of the error.

*When the "**Enable acoustic signal on error detected**" option is selected, each time an error is registered the system will beep several times and the "CHECK" indicator will start flashing.*

Unit	Possible error messages	Recording conditions and reaction of the controller	Possible causes
Injector 1....4 (gas injector 1 to 4)	Open load	Saving the error in the memory	- physical break in the electric circuit - a gas injector coil is burnt
	Current Limit	Saving the error in the memory	- a short in the electric circuit - a short on the gas injector coil
MAP SENSOR AND MANIFOLD SENSOR	UP LIMIT	Saving the error in the memory, switching to petrol (P > 3.8 bar)	- the reducer is damaged or dirty
	DOWN LIMIT	Saving the error in the memory, switching to petrol (P < a manually configured value)	- the gas tank is empty - standard multi-valve and gas supply through the D6 copper in the car with a power greater than 180 KM (horsepower) – the reducer is insufficient
TEMPERATURE OF VAPOR	UP LIMIT	Saving the error in the memory (temp. > 100 °C) – only for gas supply	- the reducer is installed too close to the exhaust system - capacity of the reducer too large for the car power
	DOWN LIMIT	Saving the error in the memory (temp. < 20 °C) switching to petrol (temp. < 10 °C) - only for gas supply	- incorrect integration of the reducer with the cooling system - the cooling system is insufficient - capacity of the reducer too small for the car power
EV TANK	Open Load	Saving the error in the memory	- a physical break in the electric circuit - a coil of the solenoid valve is burnt
	Current Limit	Saving the error in the memory	- a short in the electric circuit - a short on the coil of the solenoid valve

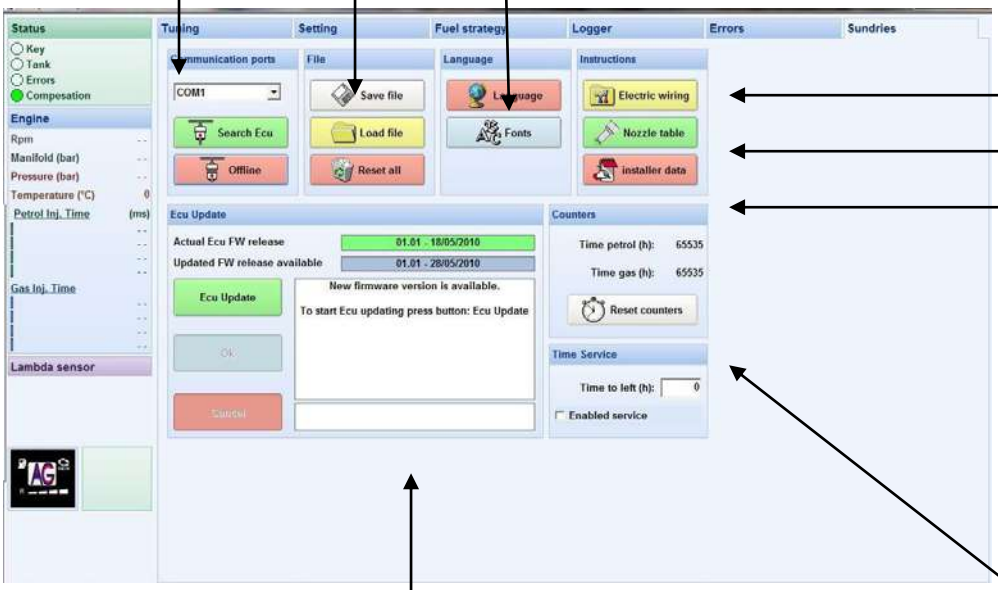
6. *Sundries*

The other general options can be found here, such as the selection of the communication port, saving and reading configuration files, firmware updating, etc.

The control panel will automatically find the port it is connected to via interface. Additionally, in this window you can manually select this option, start the auto searching process or switch the program to the "Offline" mode.

These options enable the control panel configurations to be saved to a file, loaded from a file and saving to the control panel, or to the reset settings (Reset).

Selection of the program language and the font (in the case of problems viewing Polish characters select Arial)



Electrical diagram

Tables with the suggested size of nozzles

See the description below

The system can remind the car user of an approaching scheduled service. After selecting "Enable service option" and typing the number of hours left for the customer to visit a service point, the system starts the countdown. When the pre-determined time expires, after each transition to gas the control panel in the car cab will start beeping and the "CHECK" indicator will light up in red.

TheZenit Compact software enables updating the control panel firmware. Thanks to the Dual Memory technology this process is absolutely safe. For the update to be successful, you need to ensure stable power supply conditions. A special creator guides you step by step through the process of updating.

7. Nozzle table

The preliminary *selection of nozzles can be made using this table. It is also available at the program level in* ***Sundries->For the installer ->Nozzle table.*** *These values should be considered as evaluated. The final dimension is defined by the parameters of the* ***multiplier*** *after the calibration.*

Wtryskiwacz ***MATRIX HD 344*** *- sekwencyjny wtrysk paliwa*

Srednica dyszy	Moc na 1 cyl.	Moc na 4 cyl.	Moc na 6 cyl.	Moc na 8 cyl.
1,8 mm	10 – 13 KM	40 – 56 KM	60 – 78 KM	80 – 112 KM
2,1 mm	14 – 20 KM	56 – 84 KM	78 – 120 KM	112 – 168 KM
2,4 mm	21 – 25 KM	84 – 100 KM	126 – 156 KM	168 – 200 KM
2,7 mm	26 – 32 KM	100 – 128 KM	156 – 192 KM	200 – 256 KM

Wtryskiwacz ***VALTEK*** *3 OHM,* ***RAIL*** *3 OHM - sekwencyjny wtrysk paliwa*

Srednica dyszy	Moc na 1 cyl.	Moc na 4 cyl.	Moc na 6 cyl.	Moc na 8 cyl.
1,8 mm	18 – 23 KM	72 – 92 KM	108 – 138 KM	144 – 184 KM
2,1 mm	23 – 28 KM	92 – 112 KM	138 – 168 KM	184 – 224 KM
2,4 mm	28 – 33 KM	112 – 162 KM	168 – 198 KM	224 – 264 KM
2,7 mm	33 – 40 KM	132 – 160 KM	198 – 240 KM	264 – 320 KM

Wtryskiwacz ***VALTEK Typ 34*** *- sekwencyjny wtrysk paliwa*

Srednica dyszy	Moc na 1 cyl.	Moc na 4 cyl.	Moc na 6 cyl.	Moc na 8 cyl.
1,8 mm	12 - 17 KM	48 - 70 KM	72 - 105 KM	96 - 140 KM
2,1 mm	18 - 24 KM	70 - 98 KM	105 - 147 KM	140 - 196 KM
2,4 mm	25 - 32 KM	98 - 130 KM	147 - 195 KM	196 - 260 KM
2,7 mm	33 - 40 KM	130 - 162 KM	195 -243 KM	260 - 325 KM

Wtryskiwacz ***MAGICJET*** *- sekwencyjny wtrysk paliwa*

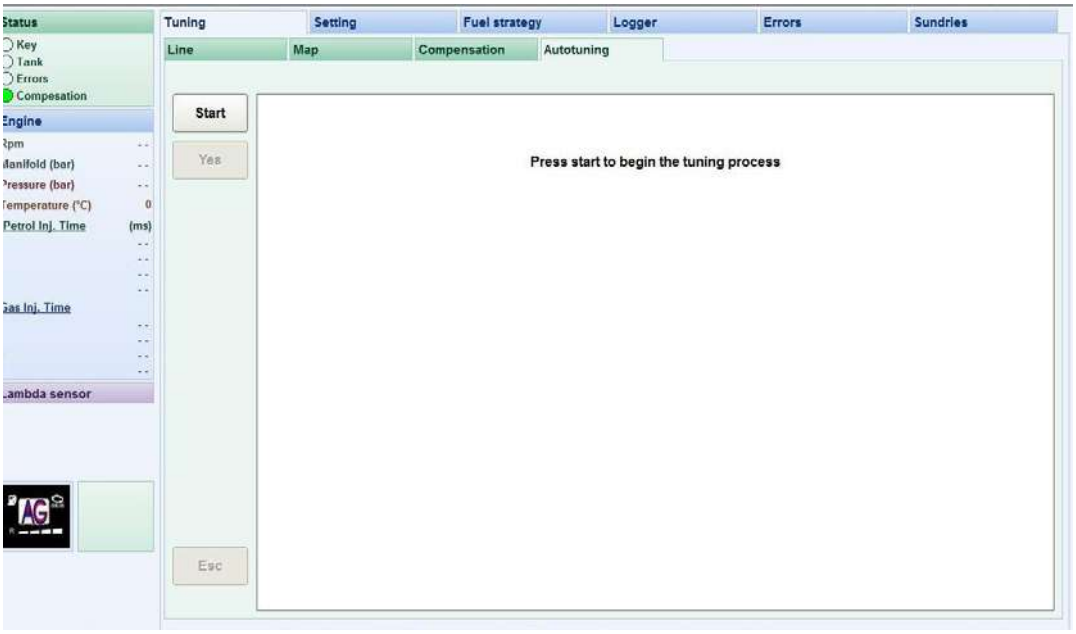
Srednica dyszy	Moc na 1 cyl.	Moc na 4 cyl.	Moc na 6 cyl.	Moc na 8 cyl.
1,7 mm	10 – 17 KM	40 – 70 KM	60 – 105 KM	80 – 140 KM
2,0 mm	17 – 25 KM	70 – 100 KM	105 – 150 KM	140 – 200 KM
2,4 mm	25 – 32 KM	100 – 130 KM	150 – 195 KM	200 – 260 KM
2,8 mm	32 – 40 KM	130 – 160 KM	195 – 240 KM	260 – 320 KM
3,2 mm	40 – 50 KM	160 – 200 KM	240 – 300 KM	320 – 400 KM

Recommended system pressures are 1.0 to 1.3 bar.

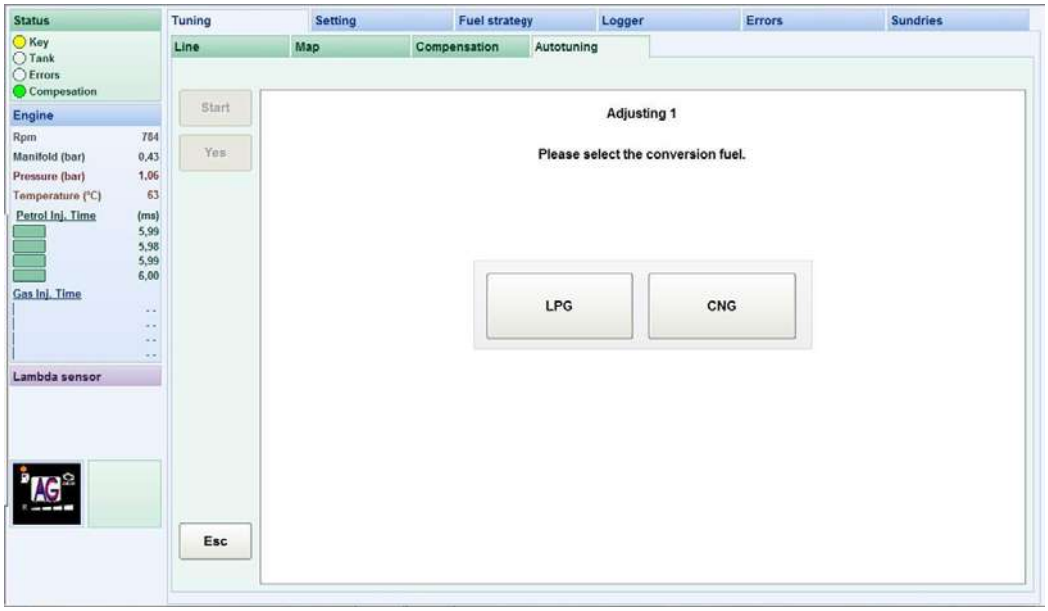
8. *Autotuning*

Autotuning *of the system consists in basic adaptation of the Zenit Compact system to the specific type of engine. The user is guided through the en tire process by instructions displayed on the screen.* ***NOTE! Auto calibration can only be done when the temperature of the reducer is higher than 40°C.***

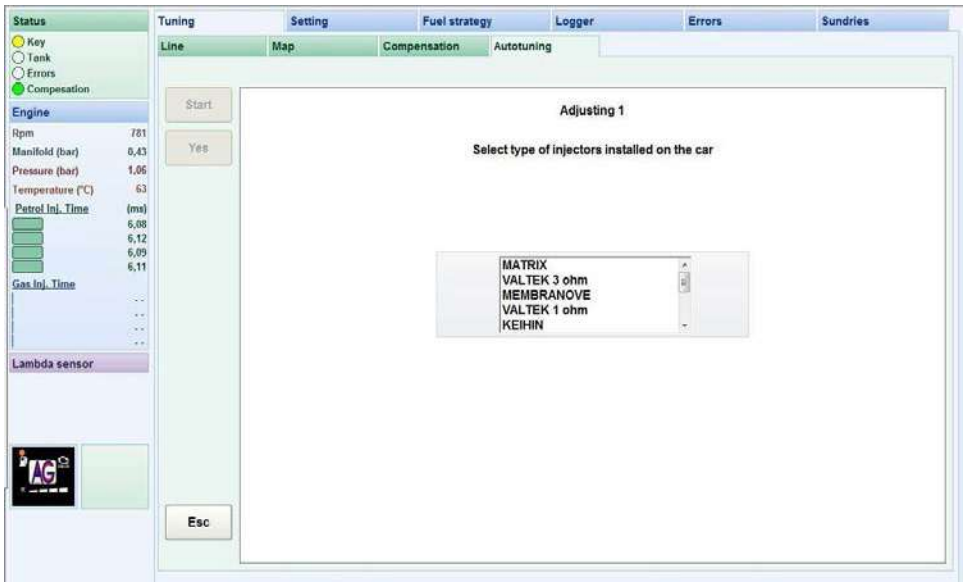
Press ***"Start"*** *to start calibration and follow the instructions.*



First select the type of fuel that will be used.



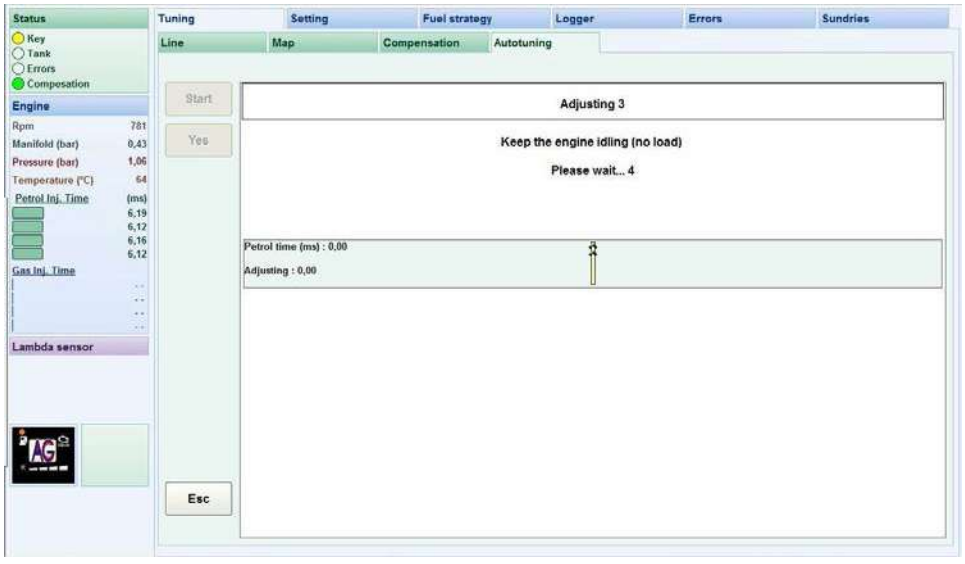
Next, the system will ask what type of gas injectors are installed in the car.



Calibration will take up to several minutes. During this time, follow the Zenit Compact system instructions.

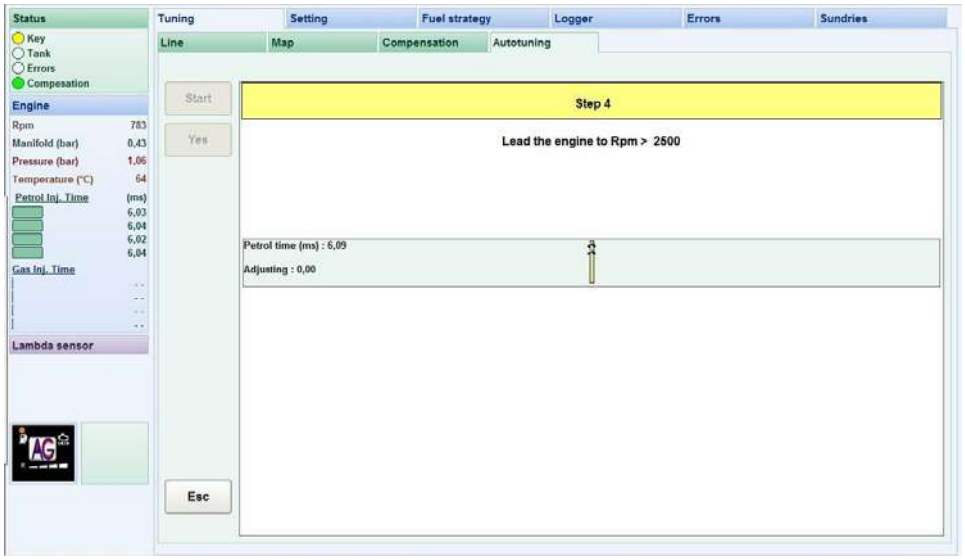
Leave the engine idling with no load...

... wait a few seconds before the next step of the calibration process.



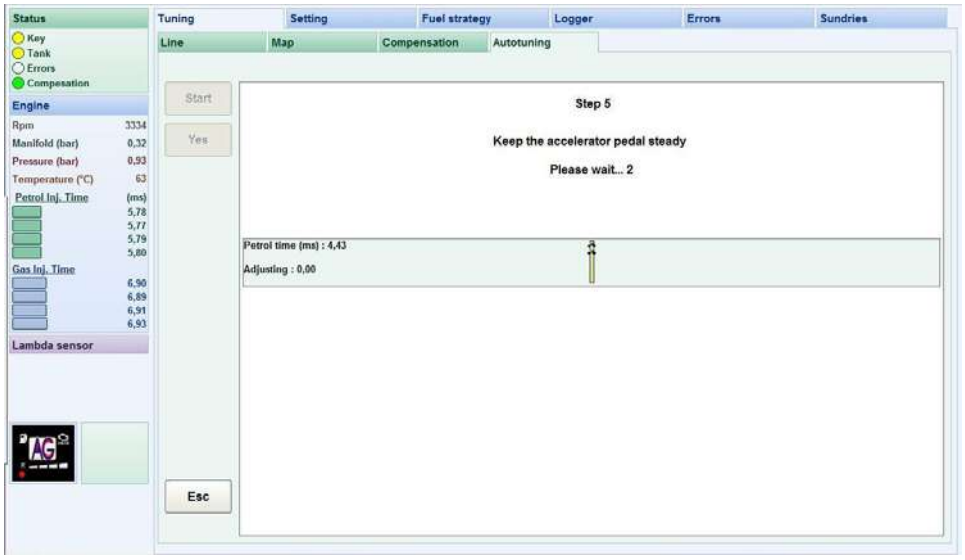
Increase the speed to 2500 rpm and hold the accelerator pedal in a fixed position.

Right now the system is waiting for the engine speed to increase.

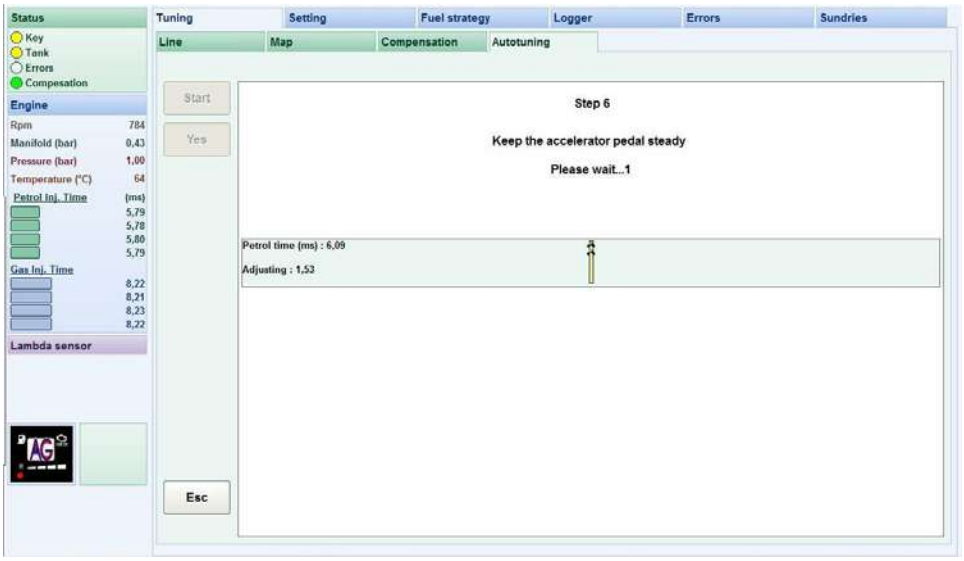


When the engine speed exceeds 2500 and stabilizes, the system will switch the power supply a few times.

Despite small fluctuations in speed at this stage of the calibration, keep the accelerator pedal in a fixed position until the system displays the next instruction.



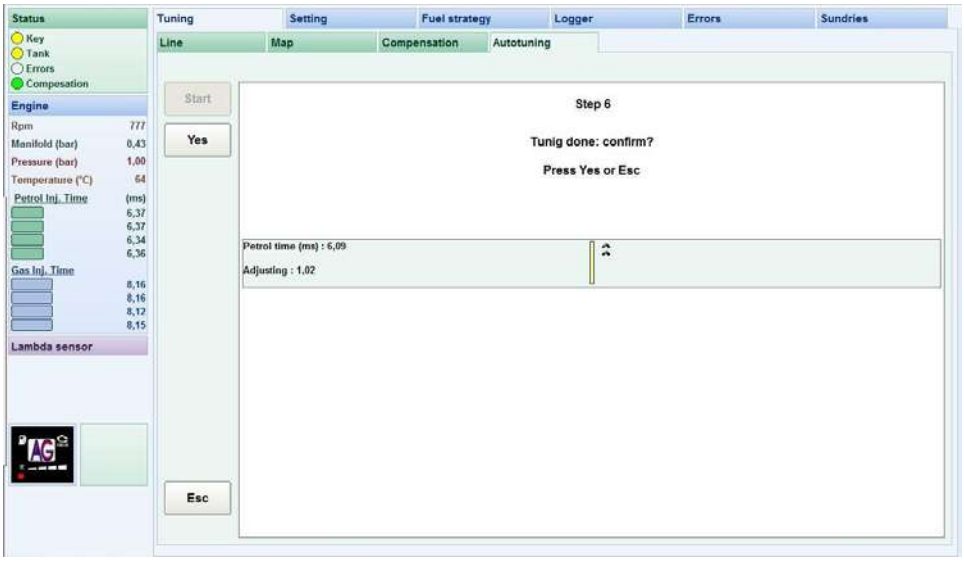
The next step is to return to idle. This should be done when the system displays ***"Go to idle"***



When the calibration is complete, it will display ***"Tuning done: confirm? Press Yes Or Esc"***

Press the ***Yes*** *button to save changes or* ***Esc*** *to finish calibration without saving changes.*

NOTE! If you press **"Esc" button during the calibration, the calibration will be interrupted.**



When the calibration is completed, the system will switch to the “model” tab, the car will switch to petrol and the program will display the message ***"Auto calibration is successfully completed. Next step is creating a petrol map"***

9. *Tuning - Line*

*The **Line** tab includes a diagram giving the percentage multiplier ratio (used to calculate the gas injectiion time) to the petrol injecting time. Petrol and gas gauge charts are displayed here. This tab also includes the charts managing the panels and the readings of the key parameters of the system operation.*

The curve model can be corrected in several ways:

- ***To increase the gas consumption: move the curve up. To reduce the consumption: move the curve down***
- *To move all the points of the model upwards or downwards, click on each point with the **left mouse button** (the point will change to green), then while pressing the **CTRL button** use **the up/down arrow keys on the keyboard to select the rest.***
- *To change the position of a particular point of the model, select it using the **left mouse button,** then use the **arrow keys on the keyboard** to change the position of the selected point **vertically** or **horizontally.** (To do so, you can also use the **Panel** window in the right top corner. The **"trash"** icon will return the model to the default set up).*
- *To switch between the active points, use the **PgUp** and **PgDn** keys**.***
- *While adjusting the settings with the **keyboard**, **holding SHIFT** during the adjustment increases the adjustment step size.*
- *It is possible to **add points to the model line** by clicking the line with the **right mouse button** (the curve model can include up to **16 points).***
- *To **remove a point,** select it with the **left mouse button** and use **DEL.***
- ***A yellow point and a black arrow** moving along the curve and the horizontal axis give the specific instantaneous value of the injection time.*
- ***The black arrow** moving along the right vertical axis gives the instantaneous negative pressure in the intake manifold.*
- ***The black arrow** moving along the left vertical axis indicates the current value of the multiplier.*

A properly connected and calibrated installation is necessary for fine-tuning – creating, while driving, a chart of the specific petrol and gas points.

After successful completion of the auto calibration a test drive must be taken, during which the ***Petrol and Gas*** *charts will be created.*

The petrol and gas map is automatically created in the controller's memory regardless of any connection with a computer or diagnostic software. To speed up the process we recommend performing a test drive with a computer connected. This way you can observe the formation of the current maps and generate the right loads to collect all the required engine characteristic features.

*To begin creating a chart, following the program suggestions while driving with petrol. Select "****View sampling****" option for the chart point to be visible in the program.* ***Regardless whether the function is active, the chart points are collected and saved in the controller's memory.*** *The points are collected at various loads, but only when the temperature of the reducer is above the value pre-determined in:* ***Configuration >Switching parameters > Temperature of the reducer.***

If the points are visible over the whole range of engine loads and a broken averaging line is visible, you can now start to create a gas chart. During use of the system the charts will automatically refresh. To quit refreshing the petrol chart, select ***Lock the petrol.*** *If the discrepancy between the points is too big, increase the value in the* ***Velocity*** *(recommended set up: 1000-2000ms – the higher the value is, the slower, but more precisely, the chart is created)*

After completing the petrol chart, switch the fuel supply to "gas" and create the ***gas map.***

When the gas points' line (blue) entirely corresponds across the whole range of loads with the petrol points (red), the adjustment is completed.

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If any discrepancies appear, the model must be corrected.
*To do so, select **the Suggested tuning** (the option is automatically available and will light up yellow when a suitable number of chart points have been collected)*

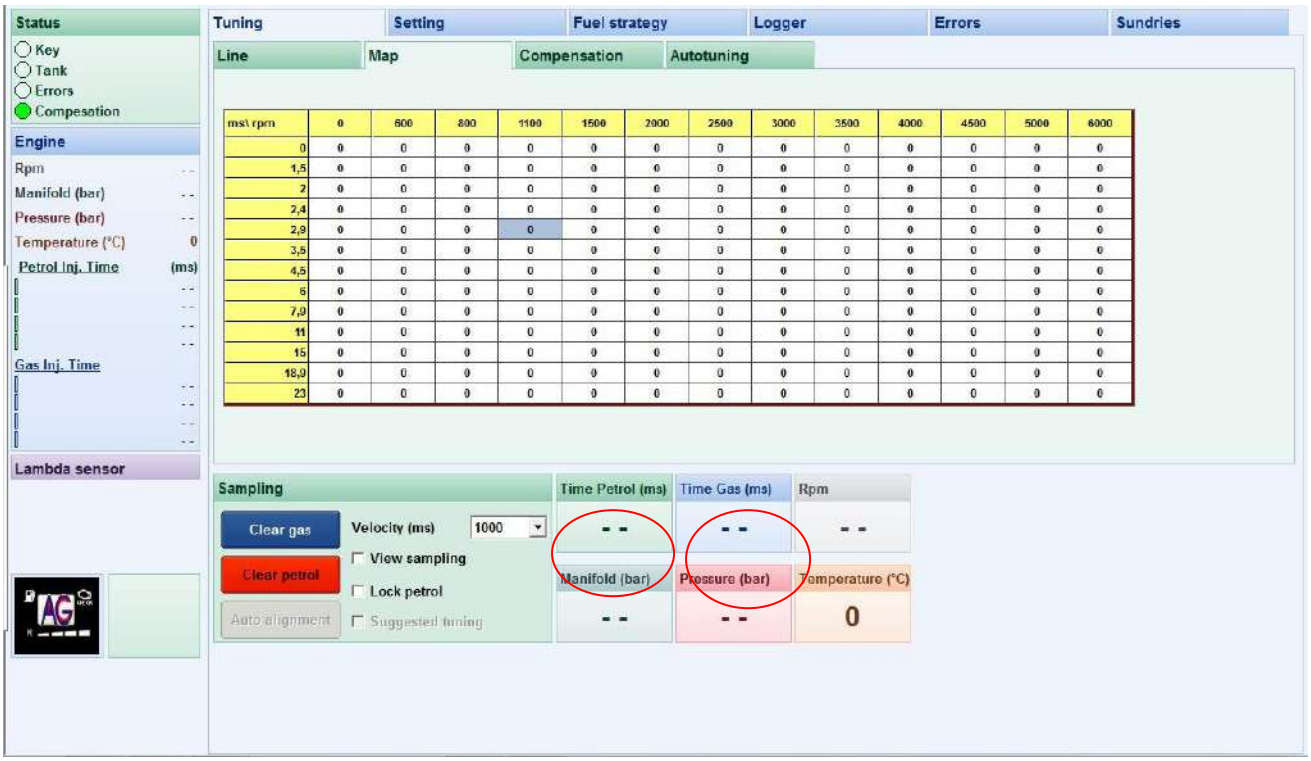
*Green points will appear on the chart field suggesting the way the model should look for the petrol and the gas charts to correspond. Now correct the model. This can be done in two ways: by using the automatic option **Auto aligment** or manually. Choosing the manual adjustment, by "pulling" each adjustment point from the model, draw a model line as close as possible to the green points, gently, with no sudden deviations.*

*Choosing the automatic option, after selecting **Auto aligment,** the program will implement necessary corrections.*

*After model correction, it is necessary to create the gas chart once again. To do so, select the option **View sampling.** Now only the petrol chart is visible, as the gas chart was automatically cancelled. A new gas chart must be made following the same procedures as earlier.*

***The calibration is complete** when the gas chart line and the petrol chart line overlap. If after the Line correction the chart lines do not overlap, another correction is required and it must be done in the same way as earlier. So, select the function **Suggested model** (when it is active and lighted up yellow), press **Auto aligment** or implement the correction of the curve manually. Then select **View sampling** and create a new gas line. Repeat this procedure until the gas chart and the petrol chart overlap.*

*Finally, we recommend checking the engine running at low-speeds. Leave the car idling, on **petrol** and watch the **petrol injection time** duration. Then switch to **gas** and watch the **petrol injection** duration. After the change of the type of fuel the time must remain the same or change slightly. App. 3% deviation is acceptable.*



In the above example the petrol injection duration at low speed is 3.50 ms. After switching to the gas supply the injection time should stay within 3%, which is 3.4 to 3.6.

*If the deviation is higher, the adjustment must be corrected by using the options **Map.***

10. Tuning – Map

*The **MAP** contains the table that enables to correct the gas injection time values depending on the engine-speed and the petrol injection duration.*

***The blue box** moving along the table fields indicates the current engine parameters (speed and the petrol injector opening time).*

*To change the gas consumption in a specific field, select it by clicking with the **left mouse button. To select an area that includes several fields at once,** hold **the left mouse button.** To select **the rows or columns**, click or select the **yellow fields** containing the injection time values or the engine speed values.*

*To make a correction, select the desired field or an area and press **ENTER.** The screen will display:*

Corrections can be modified in two ways:
***[+/-] Linearly** – correction grows or decreases (depending on the sign) by a certain percentage. In the attached example, the correction value will increase by 2% compared to the values in the selected field or an area.*
***[=] Absolutely** – correction assumes the set value regardless of the previous values. In the attached example the correction will change by 2% in the selected field or an area.*

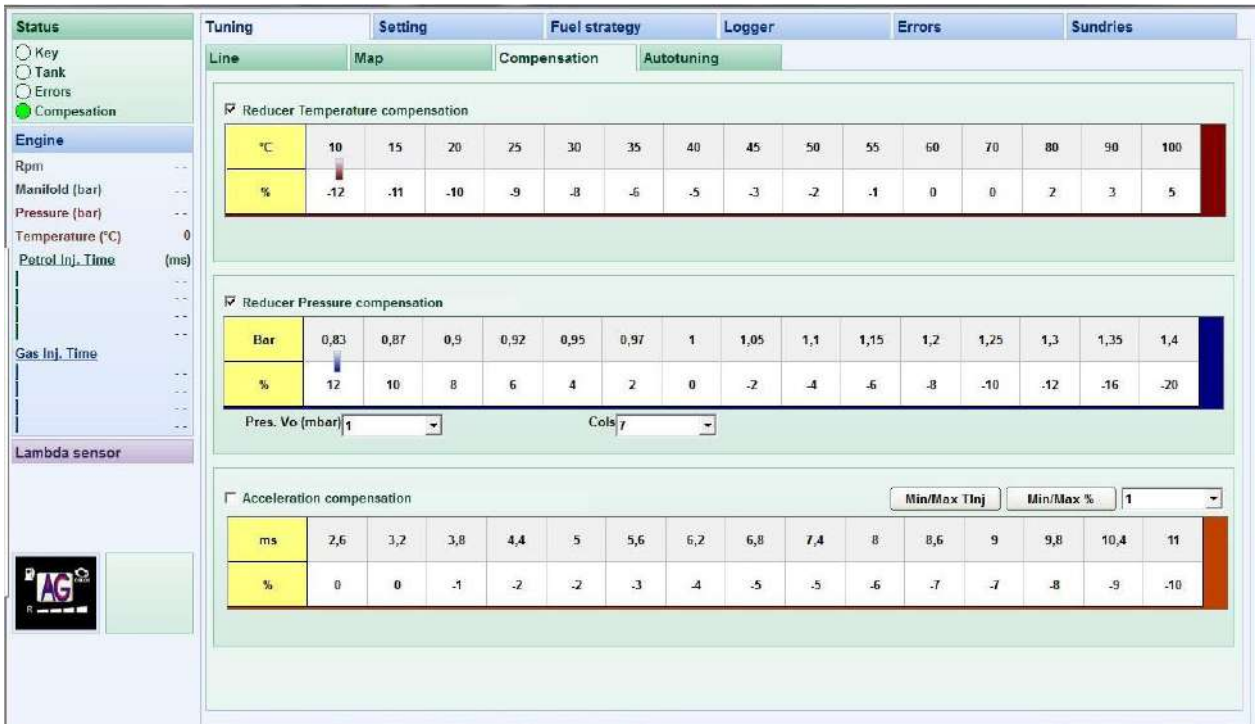
*Clicking with the **right mouse button** on the **yellow field** containing the injection time or the engine-speed will open the window:*

Here you can modify the values on the T Inj. and the RPM axis – the ranges of the petrol injection time and the engine-speed can be adapted to suit the characteristics of the engine.

*The **RPM correction** function is typically used to correct the gas injection time at low speed. To do so, switch from petrol to gas a few times and implement the corrections in the appropriate fields until the injection time values are identical or almost the same. If the petrol injection time is identical on gas and petrol injection, or shows no more than a 3% deviation, the adjustment is complete.*

11. Tuning - Compensation

*The **Compensation** tab contains the tables that reduce the influence of temperature and pressure fluctuations and acceleration on the mixture control.*



***Reducer Temperature comensation** helps to maintain the optimal mixture when the engine is warming up, when the gas temperature rises above normal, after switching over after a long stop, or when the engine is not warmed-up and the gas temperature is low and gas density is high. Activating the compensation will prevent a too rich mixture by decreasing gas injector opening durations, e.g. at Tred = 30 by 4%*

- *when the gas temperature is increasing the gas density will be decreasing, which can cause the mixture to become too lean. When the correction is activated, at high gas temperatures the controller will enrich the mixture, e.g.: at Tred = 90 by 3%.*

***Reducer pressure compensation** will prevent modification of the mixture as the pressure changes.*
***Working pressure -** at this pressure level the correction = 0.*
*Modifying the **Cols** range of the pressure values subject for correction.*

***Acceleration compensation** helps maintain an optima mixture In the case of a sudden increase of the injection time (e.g. during acceleration). Values in the top row of the table are the difference between the previous and the current injection time. If the injection time suddenly increases from 3ms to 9ms, in accordance with the table, the gas injector opening time will be reduced by 4%.*
***Min/Max Tinj** – linearly convert the values between the first and the last column of the **ms** row**.** To adjust the values of the deviations of the injection time, it is enough to provide two extreme values.*
***Min/Max** % - linearly convert the values between the first and the last column of the **%** row. To adjust the values of the compensation it is enough to provide two extreme values.*
The window with the numerical values indicates the system reaction rate. The system reaction is the lowest when the window indicates "1", and is the highest when the window indicates "32". Low response time means a long return time for the injection time, regardless of the compensation on acceleration.

We recommend activating the compensation for temperature and keeping the pressure correction active, checking correct set up of the working pressure and setting the reference column according to the preferences.

*Originally set - **recommended** – correction values can be modified. To do so, select the value which needs to be modified and using* "+" and "-" keys set the desired value*. Hold the **SHIFT** key during the modification to change the corrections in steps of 10.*

After the adjustments are completed, close the Zenit Compact program and disconnect the interface wire from the system, and connect the diagnostic plug to the switch wiring harness.

III. ELECTRICAL DIAGRAM

This is also available at the program level in ***Sundries -> Instruction -> Electrical diagram.***