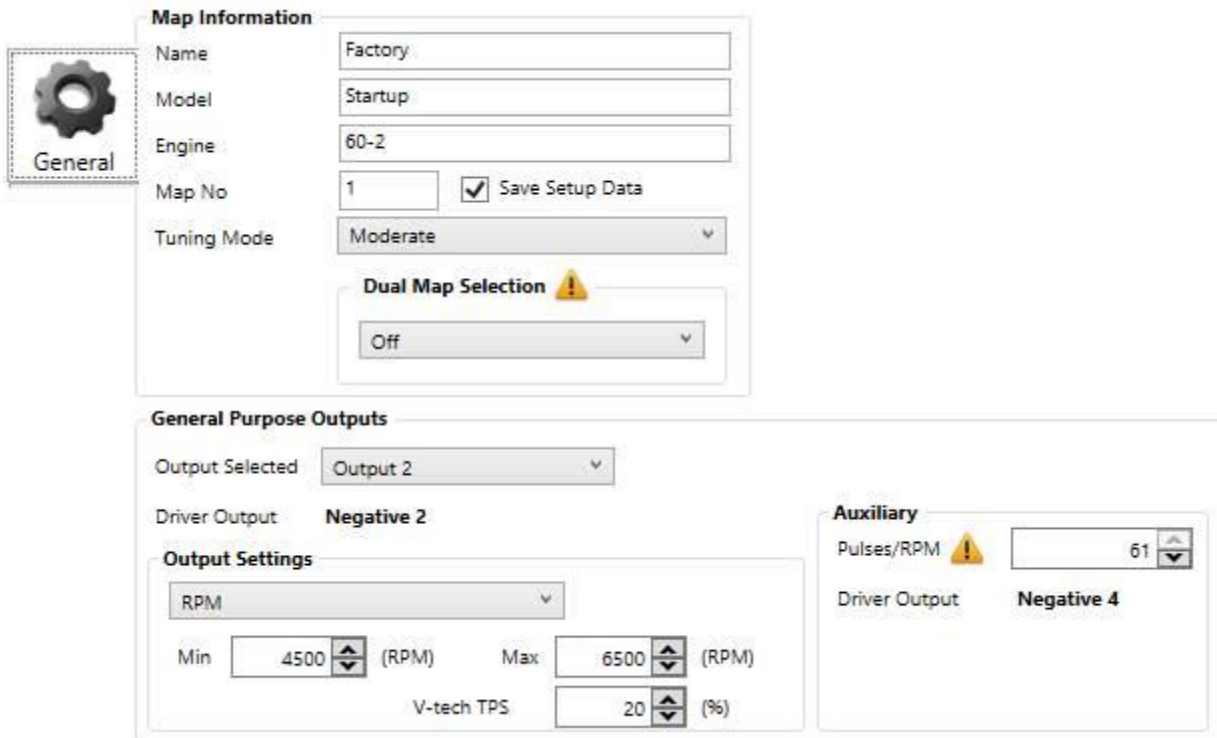


General Settings



General

Map Information

Name: Factory

Model: Startup

Engine: 60-2

Map No: 1 ☒ Save Setup Data

Tuning Mode: Moderate

Dual Map Selection ⚠

Off

General Purpose Outputs

Output Selected: Output 2

Driver Output: Negative 2

Output Settings

RPM

Min: 4500 (RPM) Max: 6500 (RPM)

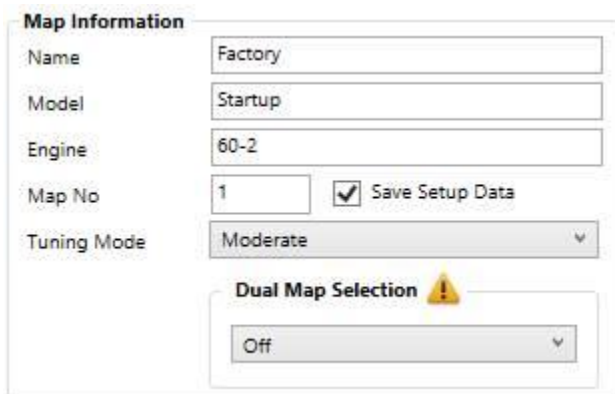
V-tech TPS: 20 (%)

Auxiliary

Pulses/RPM ⚠: 61

Driver Output: Negative 4

MAP Information



Map Information

Name: Factory

Model: Startup

Engine: 60-2

Map No: 1 ☒ Save Setup Data

Tuning Mode: Moderate

Dual Map Selection ⚠

Off

The Map information screen, **Name Model** and **Engine**, contains info for the ECU application for a specific vehicle. This helps the tuner to recognize previous work and tuning data. It is saved in the ECU and also in PC maps. It does not affect any tuning on the engine.

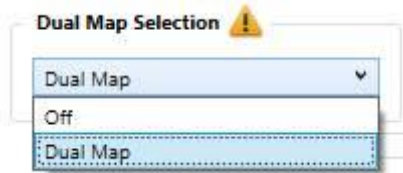
Map Number

The firmware can save up to 2 maps for different fuel setups or tuning algorithms. This is only an indication and the map cannot be forced on this page. This block is updated when the ECU is switched on. If no selection switch is connected, the ECU will default to Map 1. Note: The maps cannot be changed whilst the engine is running. The power of the ECU has to be cycled for the new Map to be loaded. The reason is the time it takes to load and populate a map in software will let the engine cut out. If you populate in real time settings of one map will be implemented momentarily on another map and then time and fuel values may be out of limits and damage an engine under load.

Save Setup Data

This feature is handy if you want to load a map to change the tuning graphs without altering the setup data. If it is on it will load the setup settings and the graph and matrix data. If it is off it will only load the graph and matrix data. Note: The critical settings and calibrations are not altered in map load. A useful tip is to leave this setting off. Any changes on the setup while the ECU is connected is saved as normal. This feature is permanently saved in the ECU and can only be changed on the screen when the ECU is connected. **Note.** Never load a map while an engine is running.

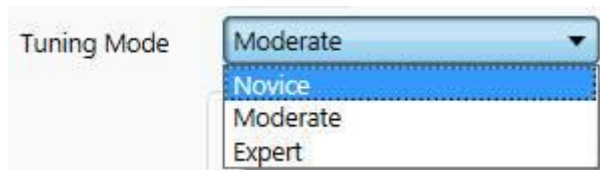
Dual Map Selection



The map loaded in the ECU is determined by the Dual Map Selection switch. The input can also be used for other tasks and this setting in software will indicate if it is used as dual map input. Maps may be changes on the while driving depending on Flat Shift feature. Do not swop Maps at full power as there may be setting that clash with graphs as the map are loading. They load in about 1 second.

NB! This is a Critical setting that alters wiring connections. Do not change it on a running vehicle. It could damage drivers or components on the engine.

Tuning Mode



This feature allows the tuner to select variations of tuning according to his skills. The firmware will enable more features as the level of progress is made and hide features on lower levels so that confusion for beginners is kept to a minimum.

Novice

This level is set up as the first generation of Spitronics ECU's. There are however new features which is explained further in the manual. This mode is used for graph tuning and were developed by Spitronics. It is also easier for road tune where a Dyno is not present.

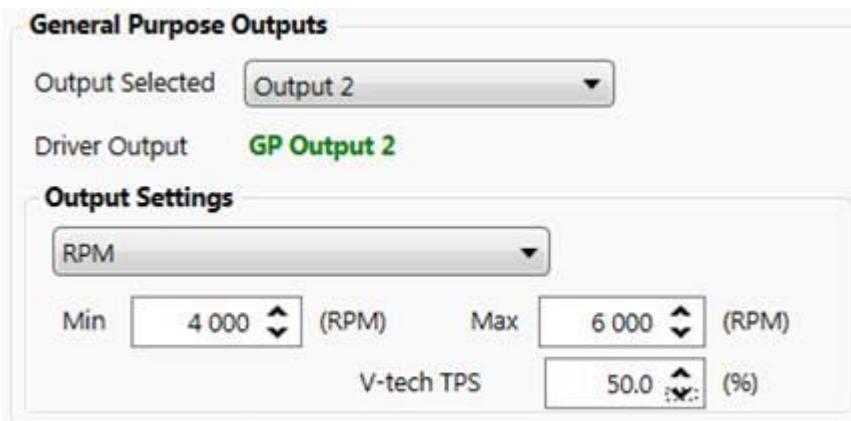
Moderate

This level is more for tuners with Dyno facilities. Here the matrix tuning is present as well as the graph method for fuel and timing. There is also a selection for MAP or TPS tuning versus RPM. Included in this level is a mixture, possibly for racing engines with poor vacuum but with turbo chargers where MAP pressure needs to be compensated for. The tuner can select his preferred option. **Note:** The graph and matrix data uses its own memory space and both types could be tuned without losing the data on selection changes. This allows the tuner to tune both options and chose the best for his application.

Expert

This level is to assist the tuner to tune racing engines and different fuels where more refined parameters are required. Here parameters like Start Prime Pulse, Start enrichment, and the two Accelerator pump Enrichment values are tuned on a graph versus temperature. This is very useful for methanol cars also in extreme cold conditions when fuel does not ignite easy.

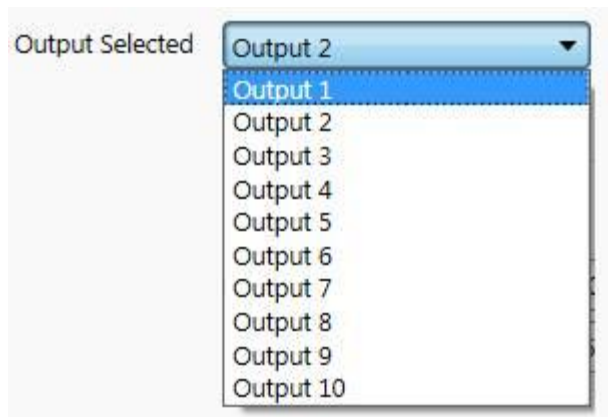
General Purpose Outputs



The screenshot shows a configuration window titled "General Purpose Outputs". It contains a dropdown menu labeled "Output Selected" with "Output 2" chosen. Below it, the text "Driver Output" is followed by "GP Output 2" in green. A section titled "Output Settings" contains a dropdown menu set to "RPM". Below this, there are three input fields: "Min" with the value "4 000" and "(RPM)", "Max" with the value "6 000" and "(RPM)", and "V-tech TPS" with the value "50.0" and "(%)".

Output selection

Version 3.5 can handle up to 10 General Purpose (GP) outputs to configure for several different functions. These outputs can be configured to use any of the analogue signals to switch relays on or off when certain limits are reached. Due to the number of GP outputs this block was developed to be generic. That means there is a dropdown menu to choose which one is adjusted by the tuner. Not all firmware has the ability for 10 GP outputs so the number of selections may be limited. This depends on which features are activated in the ECU. Note the operating current and requirements of each product in the electrical drawings, so that damage to the ECU will not occur. See the GP Priority register and the wiring of the specific output for that ECU. Some drivers may be positive output and some negative output.



The screenshot shows a dropdown menu labeled "Output Selected". The menu is open, showing a list of options: "Output 1", "Output 2", "Output 3", "Output 4", "Output 5", "Output 6", "Output 7", "Output 8", "Output 9", and "Output 10". "Output 1" is currently selected and highlighted in blue.

Driver Output **GP Output 2**

If an output is available, the software will show the location of the driver that is used with this GP output.

Should an output not be available the driver will be blank and the Output settings will be locked on not used.

General Purpose Outputs

Output Selected Output 4 ▼

Output Settings

Not Used ▼

Selections

The tuner has a number of selections to use in the GP output. Use the drop down menu to display the others.

Not Used ▼

- Not Used
- RPM
- Vacuum
- TPS
- Water Temperature
- Air Temperature
- POT Value
- Battery Voltage
- Altitude
- Fuel Pressure
- Lambda
- Timing
- Injector

Not used – this saves processor time

RPM – RPM/min 100rpm increments

Vacuum – pressure 0.1 Bar increments

TPS – percentage at 1% increments

Water temperature – degrees at 1°C increments

Air temperature – degrees at 1°C increments

POT value – percentage at 1% increments

Battery voltage – voltage 0.1volt increments

Altitude – pressure 0.01 Bar increments

Fuel pressure – pressure 0.1 Bar increments

Lambda – percentage at 1% increments

Timing – degrees at 1° increments

Injector – fuel at 0.1milli second increments

The GP outputs can be used in different ways.

First we do water temperature as it operates in a unique way on all the GP outputs. In this example we will setup the water temperature to operate the electrical cooling fans.

General Purpose Outputs

Output Selected Output 1

Driver Output **GP Output 1**

Output Settings

Water Temperature

Min 93 (°C) Max 97 (°C)

The water output will come on when the temperature goes above the Max setting at 98 degrees C and will stay on until below the Min setting at 92 degrees C. This will give the fan a dead band of 6 degrees before switching off.

All other types.

If you want to use a GP output to switch on a shift light. The light must come on at 5000 RPM and switch off at 7000 RPM.

General Purpose Outputs

Output Selected Output 2

Driver Output **GP Output 2**

Output Settings

RPM

Min 4 900 (RPM) Max 6900 (RPM)

Note that the GP limits are only, 'bigger and smaller than'. This is to prevent shuddering due to a small dead band. This means if the light must come on and off on the rising limits, you may need to change the value a slightly. In this example on rising RPM's the output will come on at 5000 RPM and off on 7000 RPM and on falling RPM's it will come on at 6800 RPM and off on 4800 RPM. So the output is set on between the limits and off outside the limits.

If we swop the Min and Max settings around, (see below), it will change the logic to Off between the limits and On outside the limits.

General Purpose Outputs

Output Selected Output 2

Driver Output **GP Output 2**

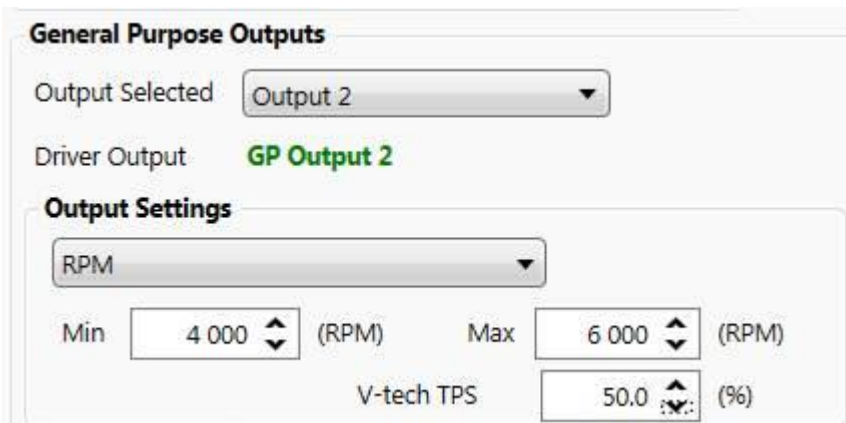
Output Settings

RPM

Min 6 900 (RPM) Max 4900 (RPM)

V-Tech

There is one GP output, No2, that has the added V-Tech TPS limit added to the RPM setting.



General Purpose Outputs

Output Selected: Output 2

Driver Output: GP Output 2

Output Settings

RPM

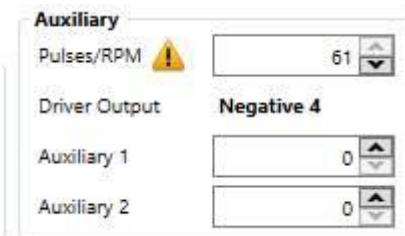
Min: 4 000 (RPM) Max: 6 000 (RPM)

V-tech TPS: 50.0 (%)

In this method the output will switch on between the limits only if the TPS value is above 40%.

Note! If you don't use these outputs, select **Not Used** so that valuable processor time can be saved.

RPM Output



Auxiliary

Pulses/RPM ⚠️: 61

Driver Output: Negative 4

Auxiliary 1: 0

Auxiliary 2: 0

Pulses/RPM

This feature is used for Rev counter calibration. You can adjust the number of pulses per revolution for the RPM output. This is handy for engine conversions. A value of 1 to 60 pulses can be achieved with this function. On some firmware you may enter 61 which will then divert the crank angle signal onto the RPM output. This is also handy if the standard ECU is still active and doing other functions in the car. Note different electrical connections in the drawings to connect the different RPM gauges onto the Spitronics ECU. When you select 0 the software will refresh and free this driver for other functions like General Purpose output on specific firmware.

If this feature is not used select zero to free up some valuable microprocessor time.

NB! This is a Critical setting that alters wiring connections. Do not change it on a running vehicle. It could damage drivers or components on the engine.

This **Auxiliary Values** is used on certain firmware to achieve certain functions. It is only used in new development where the features were not yet developed in the Tuning Software. See *the specific instructions for that engine type*.