

General Purpose Outputs

Settings

The screenshot shows a software interface for configuring General Purpose Outputs. It features a section titled "General Purpose Outputs" with a dropdown menu for "Output Selected" currently set to "Output 2". Below this, the "Driver Output" is displayed as "GP Output 2" in green text. A second section, "Output Settings", contains a dropdown menu set to "RPM". Underneath, there are three input fields: "Min" set to "4 000 (RPM)", "Max" set to "6 000 (RPM)", and "V-tech TPS" set to "50.0 (%)". Each input field has a small up/down arrow icon for adjustment.

Output selection

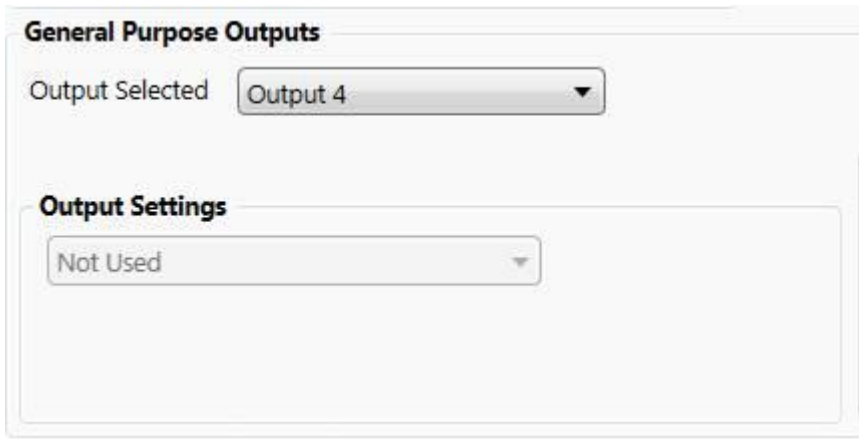
Version 3.5 can handle up to 10 General Purpose (GP) outputs to configure for several different functions. These outputs can be configured to use any of the analogue signals to switch relays on or off when certain limits are reached. Due to the number of GP outputs this block was developed to be generic. 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.

This image shows a close-up of the "Output Selected" dropdown menu. The menu is open, showing a list of options from "Output 1" to "Output 10". "Output 2" is currently selected and highlighted in blue. The text "Output Selected" is visible to the left of the dropdown.

Driver Output **GP Output 2**

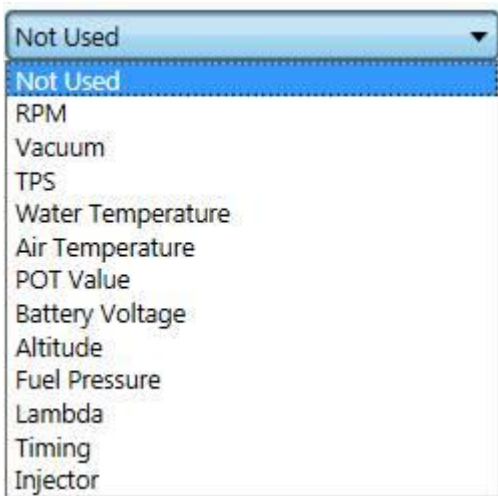
If an output is available, the software will show the location of the driver that is used with this GP output.

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



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 – 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

Driver Output **GP Output 1**

Output Settings

Min (°C) Max (°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

Driver Output **GP Output 2**

Output Settings

Min (RPM) Max (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

Driver Output **GP Output 2**

Output Settings

Min (RPM) Max (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

Driver Output **GP Output 2**

Output Settings

Min (RPM) Max (RPM)

V-tech TPS (%)

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.

Hardware Connections

Below is a universal connection drawing. For specific wiring look at the GP Pinout of your product and setup. Some GP Outputs migrate between pins due to features selected and cannot be pin specific.

[Fan Control](#)

[Lamp Control](#)

[VVT Solenoid Control](#)

[V-tech Solenoid Control](#)