

Variable RPM Limiter and RapidFire Sound Effects

These features are aimed at spinning and bragging right for our vibrant customers. This will allow you to combined the Variable Launch RPM limiter with a variable RapidFire frequency and implement the launch control ability to retard timing after TDC with fuel enrichment for the flame effect in the exhaust. This is done by using the POT input combined with the Dual Map Switch. The POT will alter the RPM limiter and the Dual Map Switch will alter the RapidFire frequency. The control box and cable connect to the Comm port connector, so no need to change any wiring on the existing ECU.

Precautions

These features will create excessive heat in the Turbo and exhaust plus the acoustic bangs can destroy the silencers. Retarded Timing may also affect the engine lifetime due to excessive heat. The spark plugs may also foul as a result of extended use of this feature. Spitronics will not take any Liability for any losses or damage due to this feature.

Requirements

This feature is only available in Ultimate Hardware Class and Hyperspace Version 3.6 and up. Products currently running requires the following version or higher. Venus3 Ver 3.6D, Venus3 Ver 3.7A, Orion2 Ver 3.6D, Orion2 Ver 3.7A, Mercury2 Ver 3.6H, Mercury2 Ver 3.7A, Mercury3 Ver 3.6G and Mercury3 Ver 3.7A. Note that Mercury2 requires a Firmware programmer to upgrade the firmware. If the firmware version is not available, request it from your dealer, then it will be added.

You will require a P05-P5 Tune Box and harness to activate the features. This can be purchased from EeziRider or any of our Dealers that carries stock. You may manufacture your own harness if you are capable. The drawing section will explain that. Ultimate class also unlocks a host of racing features which you can now use as well. You will be required to set up your ECU for these features. The tuning section below will explain that.

Tuning

This firmware is slightly modified for exhaust sound effects. There are no new settings in the software but merely the way it is implemented. Note that Dual-map and Flat-shift input will be used for the RapidFire frequency selection. So, you need to make a decision on what is important for you. The moment you activate Dual-map or Flat-shift it will disable the RapidFire button feature.

If you want to use launch control and the variable limiter sound effects, then you will have to turn the knob clockwise the moment you launch the vehicle. It will no longer be automatic. The advantage is you may increase is slower to get better grip on the track.

The normal Engine limiter will now also work with rapid fire. The engine limiter will not alter timing or fuel ratios.

Do note that RapidFire only work in Spark Only mode as it will be dangerous to cut fuel as it could create lean mixtures. And you need the spark to ignite unburned fuel in the exhaust for sound effects.

The launch limiter is used for the sound effects and it will alter timing or fuel ratios according to the launch parameters. This will allow timing to be retarded up to -30 degrees and the fuel can be enriched.

Settings

For the sound effects to work you need to put Dual map off and also put Flat shift off. The reason is the DM input is used to alter the rapid-fire frequency.

Dual Map Selection ⚠️

Off

Flat Shift ⚠️

Delay 0 (ms)

Put the Tuning POT on. See drawings on correct wiring.

☒ Tuning Pot.

Put the pot selection on Launch and set up the max RPM in the POT Register. Ex. 65=6500 rpm. Put this value 200 rpm higher than the normal engine limiter so that it can be disabled and let the normal limiter operate. If you don't want the normal limiter effect then put the Engine limiter 200 rpm higher than the launch limiter. The Pot will adjust the launch limiter from the maximum value all the way down to 0 rpm. Note as a safety launch will be disabled below 1500 rpm.

POT Input

Tuning POT ⚠️

Launch

POT Register 65

RPM Limit ($\geq 60^{\circ}\text{C}$) 6300 (RPM)

Put the RapidFire frequency on 2 or more. Each time you press the push button on the dual map the frequency will change from 1 to 3 in this example. After 3 it will start at 1 again.

Rapid Fire Frequency 3

Limiter Type

Spark Only

Put the Limiter Type on Spark Only to enable RapidFire.

On the Launch Control settings put the RPM Limiter on 0 and Launch Deactivation on Clutch. This setting does not affect pedal position as this is not Launch control but merely sound effects. If the driver wants to take off then he simply turns the POT clockwise and normal engine settings will commence. You can retard the timing and enrich the fuel during launch implementation. This should ignite unburned fuel in the exhaust to create flames at the outlet.

Launch Control

RPM Limiter 0

Timing -18 ($^{\circ}\text{BTDC}$)

Fuel Enrichment 10 (%)

Anti Lag

☐ Enabled ⚠️

Launch Deactivation

Clutch

Launch Recover Delay 0

Rapid Fire Frequency 3

Flat Shift ⚠️

Delay 0 (ms)

Note that these settings still need to be in accordance to engine fueling. You cannot just put any values in and expect the engine to perform properly. For spinning you may need to run higher timing and less fuel enrichment to maintain power on the track.

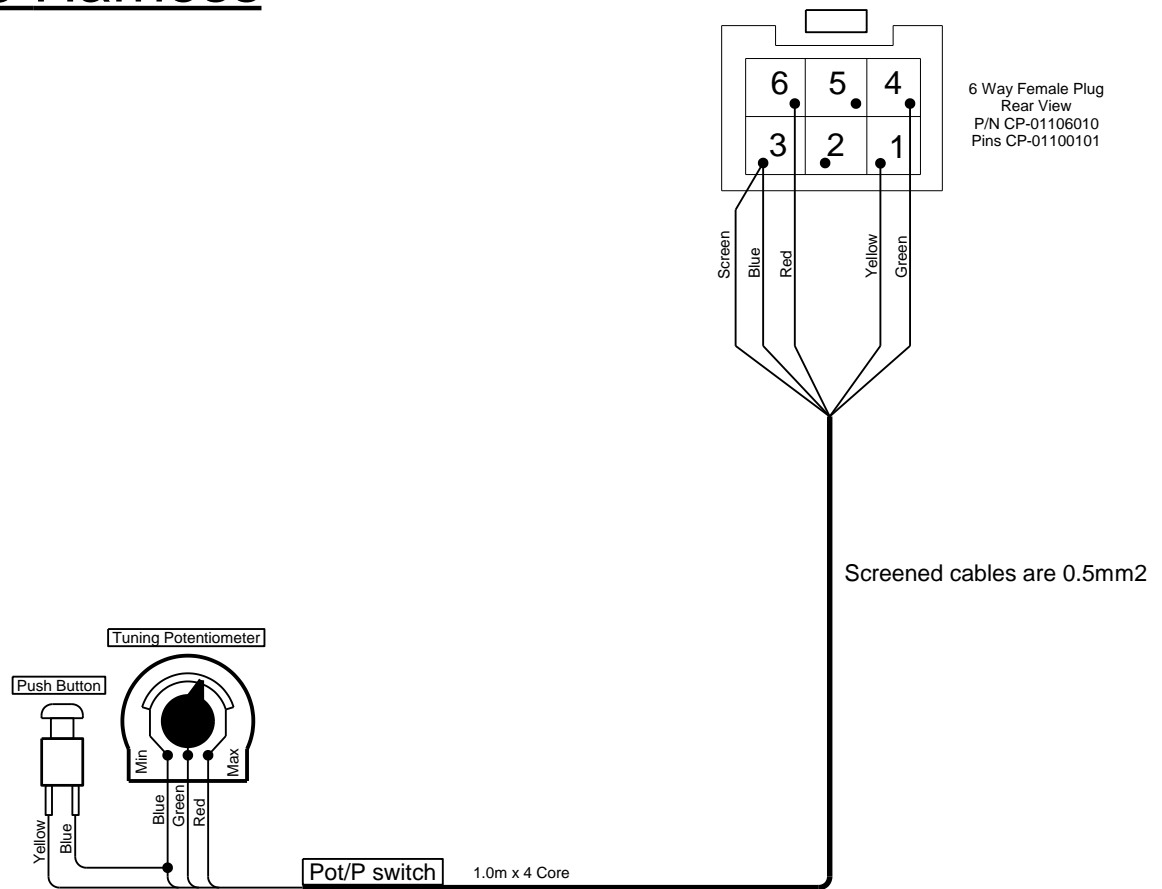
So, with this system the driver can manipulate engine rpm with the pot and RapidFire frequency with the button.

Connection Wiring

Below is a wiring diagram for the P05-P5 harness. This can also be purchased from the dealers that carry stock.

P05-P5 Harness

Last Changed: 13/12/2023



Enjoy and don't come back to complain about broken exhausts and engines!