

Closed-Loop Idle Timing

This configuration adjusts ignition timing dynamically to help maintain a stable idle speed in closed-loop control mode. Timing adjustments are calculated based on the RPM deviation from the idle target.

This is also commonly referred to as Closed Loop Idle Spark Gain.

Enable Closed-Loop Idle Ignition Timing: When set to true, the system dynamically adjusts ignition timing based on RPM deviations.

Proportional Gain:

- Specifies how much timing will be adjusted per RPM away from the target.
- A suggested starting point is 0.1, equating to 10° of adjustment for every 100 RPM of deviation.

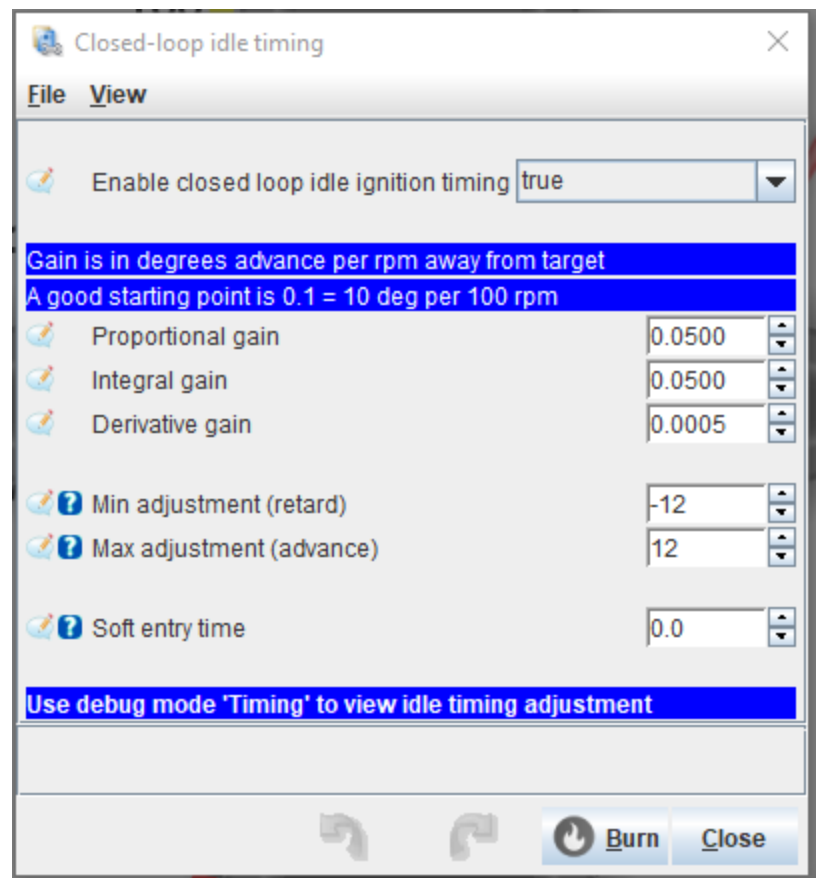
Integral Gain: Adjusts the timing over time to account for sustained errors. Typically left at 0.0500 unless advanced tuning is required.

Derivative Gain: Helps to predict and counteract RPM changes based on the rate of change. The example value is 0.0050.

Min Adjustment (Retard) and Max Adjustment (Advance): Defines the allowable timing range for adjustments.

Example:

- Retard: -12° (timing can retard by up to 10°)
- Advance: $+12^\circ$ (timing can advance by up to 10°)



Soft Entry Time (sec): Introduces a delay to smoothly enable timing adjustments when transitioning into closed-loop idle control. The example value is 0.0 seconds.