

Spitronics ECU - Engine Data - Guide

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The Engine Data page contains the basic information that defines the engine application and some of the operating ranges used by the ECU.

Open:

Features → Engine Data

▲ Features
Engine Data

Engine Data

Engine Type Piston Engine ▾

Cylinders 6 Cylinders ▾

Two Stroke Engine ☐

RPM Range 7900 ▴ ▾

Engine Shutdown Fuel First ▾

Tune/Map Information

Name Toyota - John Smith

Model 2JZ-GTE

The available settings are:

- Engine Type
- Cylinders
- Two Stroke Engine
- RPM Range

- Engine Shutdown
- Tune Information
 - Name
 - Model

Some settings may be fixed by the firmware and therefore cannot be changed by the tuner.

Engine Type

Engine Type identifies the basic engine configuration used by the firmware.

Typical selections include:

- Piston Engine
- Rotary Engine

On application-specific firmware this setting may be locked because the firmware has already been created for a particular engine type.

Rotary firmware may enable additional rotary-specific functions such as Trailing Ignition settings.

Do not change Engine Type simply to obtain additional software options. The selected type must correspond with the actual engine and firmware.

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Cylinders

Cylinders defines the number of cylinders used by the engine application.

For example:

6 Cylinders

On many application-specific firmware versions the cylinder count is fixed.

More general-purpose firmware may allow the tuner to select the required number of cylinders.

The cylinder selection affects fundamental ECU operation and must match the engine.

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Two Stroke Engine

Enable **Two Stroke Engine** when the ECU is controlling a genuine two-stroke engine.

This setting causes the ECU to apply the full calculated injector time on every engine revolution.

On a four-stroke engine operating in Split Sequential mode, enabling Two Stroke Engine effectively doubles the delivered fuel because the full injector time is applied every revolution instead of being divided across the two revolutions of the four-stroke cycle.

On some low-revving engines this setting may also be deliberately used to compensate for injectors that are too small and provide additional fuel delivery.

Important

When using this method, monitor **Injector Duty %** carefully. The injectors will reach their maximum available operating time at a lower RPM.

As a practical guideline, avoid operating injectors continuously near 100% duty. Keeping normal Injector Duty below approximately 85% provides useful operating margin.

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RPM Range

RPM Range defines the upper engine-speed range used by the ECU tuning displays and related calculations.

The value should be set high enough to cover the complete usable engine-speed range without making it unnecessarily large.

Approximately 500 RPM above the intended maximum engine RPM

because an unnecessarily large range reduces the useful tuning resolution available across the Graphs or Matrix.

Example

If the intended maximum engine speed is:

7 400 RPM

a suitable initial RPM Range may be approximately:

7 900 RPM

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Selecting the RPM Range

Choose a value that:

- Covers the normal operating RPM.
- Covers the intended RPM limit.
- Allows some margin above the normal operating range.
- Does not unnecessarily extend the tuning scale.

Do not use RPM Range as the engine's protection limiter.

The actual RPM protection settings are configured under:

Features → Engine Limits

RPM Range mainly establishes the working range used by the tuning system.

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Engine Shutdown

Engine Shutdown determines how the ECU stops the engine when the ignition is switched off.

The available options depend on the Device and firmware.

Typical strategies include:

- Fuel First
- Fuel & Spark

Fuel First

When **Fuel First** is selected, the ECU stops the injectors first while ignition continues briefly.

This allows the remaining fuel in the intake and cylinders to be burned rather than being left unburned. Unburned fuel can wash down the cylinder walls and dilute the engine oil.

Because some fuel may still remain in the intake system, the engine may continue running briefly after the ignition is switched off.

This setting is particularly useful on engines such as rotaries, where the injectors may be positioned relatively far from the intake ports.

Fuel & Spark

When **Fuel & Spark** is selected, both injection and ignition are stopped at the same time. The engine therefore stops immediately.

Any fuel already present in the intake or cylinders may remain unburned and can contribute to fuel dilution of the engine oil.

Availability

Engine Shutdown is available only on Products and firmware that support the required power-management operation.

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Choosing the Shutdown Method

For most installations, use the shutdown strategy intended by the firmware and Product.

Consider:

- Engine type.
- Fuel-system arrangement.
- Rotary or piston application.
- Power-management hardware.
- Manufacturer or application requirements.

Do not change Engine Shutdown merely to correct a poor-running or run-on problem without first determining the underlying cause.

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Tune Information

The **Tune Information** section allows basic identification information to be stored with the Tune.

Current fields are:

- Name
- Model

Older Spitronics systems called this Map Information. Current documentation uses Tune Information because the term Map can be confused with the MAP Sensor.

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Name

Use **Name** to identify the manufacturer, vehicle or application.

Examples:

- Toyota
- BMW
- Nissan
- Race Car
- Generator
- Marine

Use a name that will still make sense when the Tune is opened again later.

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Model

Use **Model** to identify the engine, vehicle model or more specific application.

Examples:

- 2JZ-GTE
- M54B30
- VQ35DE
- Golf 1.8T
- Land Cruiser

Name: Toyota

Model: 2JZ-GTE

This information is identification only and does not alter the engine Tune.

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Tune Information and File Identification

Meaningful Tune Information becomes especially useful when:

- Several vehicles use similar firmware.
- A tuner keeps many saved Tunes.
- Technical support receives a Tune file.
- A Tune is copied between PCs.
- Several Tunes exist for the same vehicle.

Avoid vague identification such as:

- Test
- New
- Car
- Tune 1

Where possible, identify the actual application.

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Firmware-Locked Settings

Some Engine Data values may be locked by the firmware.

This is normal.

Application-specific firmware may already define:

- Engine Type.
- Cylinder count.
- Trigger requirements.
- Other fundamental configuration.

A locked setting means that the firmware controls that parameter and the tuner does not need to select it manually.

Do not attempt to use different firmware merely to gain access to a locked setting unless that firmware is correct for the application.

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Engine Data Setup Procedure

When configuring a new ECU installation:

1. Open **Features** → **Engine Data**.
2. Confirm Engine Type.
3. Confirm cylinder count.
4. Confirm whether the engine is two-stroke or four-stroke.
5. Set an appropriate RPM Range.
6. Select the required Engine Shutdown strategy where available.
7. Enter meaningful Tune Name information.
8. Enter the engine or vehicle Model.
9. Save the Tune.
10. Continue with the remaining ECU setup.

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Fault Finding

Symptom	Possible Cause	Check
Engine Type cannot be changed	Firmware locks the setting	Verify correct firmware
Cylinder count cannot be changed	Application-specific firmware	Verify firmware
Injector duty indication appears incorrect	Incorrect Two Stroke setting	Check engine cycle selection
Tuning RPM scale too wide	RPM Range unnecessarily high	Reduce range appropriately
Tuning RPM scale ends too early	RPM Range too low	Increase range
Engine continues briefly after key-off	Fuel First shutdown selected	Normal operation may be occurring
Engine stops immediately	Fuel & Spark shutdown selected	Check shutdown setting
Wrong vehicle details appear in Tune	Tune Information incorrect	Correct Name and Model

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Setup Check

Before leaving the Engine Data page, verify:

- [] Engine Type matches the application.
- [] Cylinder count is correct.
- [] Two Stroke Engine is selected only where applicable.
- [] RPM Range covers the intended engine-speed range.

☐ RPM Range is not unnecessarily high.

☐ Engine Shutdown is appropriate for the application.

☐ Name clearly identifies the application.

☐ Model identifies the engine or vehicle.

☐ Any locked settings correspond with the intended firmware.

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