

Spitronics ECU - Adjustment POT - Guide

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The Adjustment POT is a user-adjustable analogue input that allows a driver or tuner to change the value of a selected ECU function.

Depending on firmware, the POT may be assigned to functions such as:

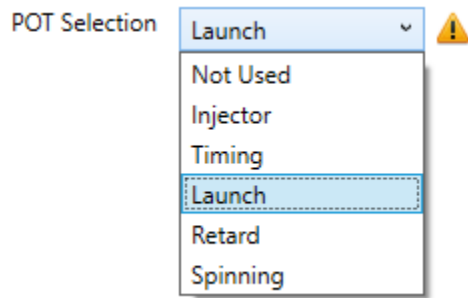
- Injector Adjustment.
- Timing Adjustment.
- Launch Control.
- Transmission Retard.
- Spinning.
- Other supported user-adjustable functions.

All POT functions normally share the same analogue input, so only the selected function can use the POT at that time.

The available selections depend on the Device and firmware generation.

POT Selection

Select the required function under the applicable POT Input settings.



Typical selections include:

- Not Used.
- Injector.
- Timing.
- Launch.
- Retard.
- Spinning.

The available selections depend on the Device and firmware.

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Critical Setting

POT Selection is a Critical Setting.

Changing the POT function may change how the ECU interprets the input or may affect input allocation on some firmware configurations.

For this reason:

- Verify the selected function.
- Verify any associated wiring or Pin Layout where applicable.
- Save the configuration after changing it.

If the POT Input is not used, select:

Not Used

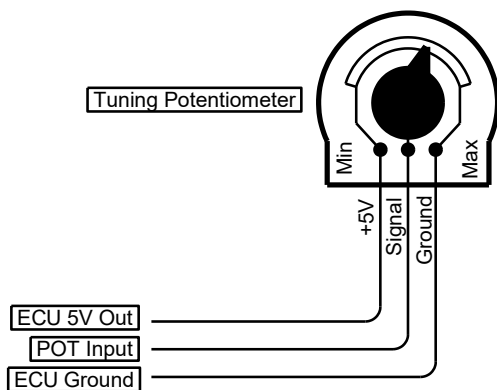
where supported.

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POT Hardware

A typical Adjustment POT is a three-terminal potentiometer connected to:

- ECU regulated 5 V.
- POT Input signal.
- ECU Ground.



As the knob is turned, the signal voltage changes progressively between the minimum and maximum positions.

The ECU converts this analogue position into the adjustment required by the selected function.

Product-specific connector and harness details are shown under the applicable Product information.

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POT Value

Some POT functions use an additional **POT Value** setting.

This determines the amount of adjustment available across the POT range.

Typical examples include:

- Injector Adjustment.
- Timing Adjustment.
- Retard.

The exact meaning of POT Value depends on the selected function.

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Centre Position

For bidirectional adjustment functions such as Injector and Timing, the centre position normally represents:

No correction

Turning the POT one direction applies a positive adjustment.

Turning it in the opposite direction applies a negative adjustment.

This allows the driver or tuner to make corrections in either direction from the base Tune.

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Injector Adjustment

When POT Selection is set to:

Injector

the Adjustment POT changes fuel delivery by a percentage.

Example:

POT Value = 10

At one extreme:

+10% fuel

At the opposite extreme:

-10% fuel

Centre position:

0% correction

POT Sensor

POT Selection 

POT Value  

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Using Injector Adjustment

Injector Adjustment can be useful during:

- Dyno tuning.
- Track testing.
- Race development.
- Temporary mixture investigation.

For example, the tuner can make a controlled global fuel change while monitoring AFR.

Once the required correction has been established, the permanent Tune should normally be corrected rather than leaving the POT as a substitute for correct calibration.

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Injector Adjustment Safety

Large unintended fuel changes can make the engine excessively rich or lean.

For this reason:

- Use a sensible POT Value.
- Confirm the centre position before operating the engine.
- Monitor AFR during tuning.
- Transfer proven corrections into the permanent Tune where appropriate.

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Timing Adjustment

When POT Selection is set to:

Timing

the POT applies ignition-timing correction.

Example:

POT Value = 5

One extreme:

+5° advance

Opposite extreme:

-5° retard

Centre position:

0° correction

POT Sensor

POT Selection 

POT Value

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Using Timing Adjustment

Timing Adjustment can be useful during:

- Dyno tuning.
- Controlled ignition testing.
- Race development.
- Finding the direction of required timing change.

Any ignition change should be made cautiously.

More ignition advance does not automatically produce more power and may increase knock risk.

The final ignition Tune should be corrected once the required timing has been established.

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Timing Adjustment Safety

Ignition advance can cause serious engine damage if knock occurs.

When testing ignition timing:

- Use conservative changes.
- Monitor engine behaviour.
- Use suitable knock-detection equipment where available.
- Do not rely on a feedback system to make an unsafe base timing setting acceptable.

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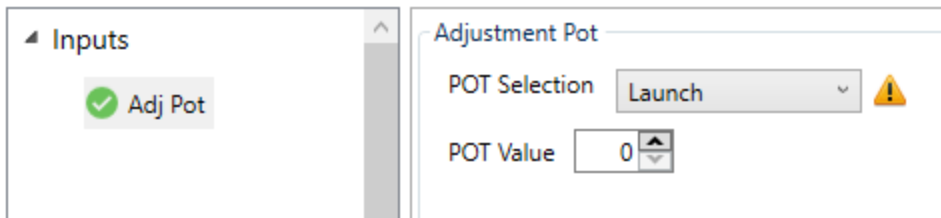
Launch Selection

When POT Selection is set to:

Launch

the POT can be used as part of the Launch Control activation or RPM-adjustment strategy.

The exact behaviour depends on the selected Launch Activation Method and firmware generation.



Detailed Launch Control setup should be covered under:

Features → Launch Control

rather than repeated in this Input guide.

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Adjustable Launch RPM

In firmware supporting POT-controlled Launch RPM, the POT can allow the driver to change the required Launch RPM according to track conditions.

This can be useful where:

- Traction varies.
- Surface grip changes.
- Tyre conditions change.

- A lower or higher Launch RPM is required.

The exact activation and deactivation logic is firmware-dependent and belongs in the Launch Control manual.

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Retard Selection

When POT Selection is set to:

Retard

the POT input can be used for a dedicated timing-retard function.

One application is transmission shift retard.

The selected POT Value defines the timing value used during the retard request.

Example:

POT Value = 15

Retard request timing value = approximately:

15° BTDC

The exact interpretation depends on firmware generation and transmission-control strategy.

Detailed transmission-related operation belongs in the appropriate TCU or shift-retard documentation.

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Spinning Selection

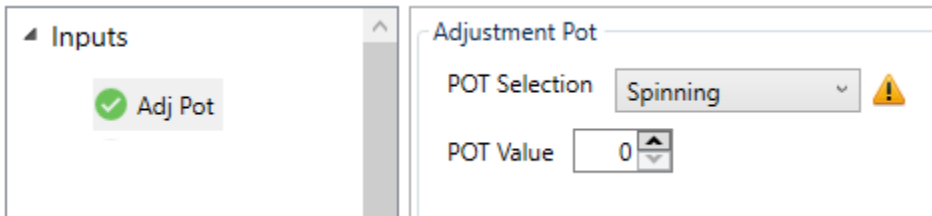
When POT Selection is set to:

Spinning

the POT becomes part of the RapidFire / Spinning limiter system.

The POT can then be used for:

- Adjustable RPM limiting.
- Switching between limiter operating regions.
- Driver control during Spinning operation.



Detailed setup and driver operation are covered in:

Spitronics ECU - RapidFire and Spinning - Guide

and

Spitronics ECU - RapidFire Spinning - Track Quick Guide

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Android and Software Control

Some firmware or Android implementations may allow the assigned POT function to be changed electronically rather than requiring a permanent physical selection.

This can allow one physical user control to serve more than one feature at different times.

On supported Android-capable systems, the POT selection may be changed from a mobile device.

Availability depends on firmware and application.

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Realtime POT Position

Where available, monitor the POT value in Realtime Data.

Turn the POT slowly through its full range.

The reading should:

- Move smoothly.
- Reach both ends of the usable range.
- Not jump unexpectedly.
- Remain stable when the knob is stationary.

An unstable POT signal can cause unwanted adjustment of the selected function.



Potentiometer Direction

If a POT operates in the opposite direction from the intended driver action, correct the wiring or applicable software configuration.

For most installations it is useful to maintain a consistent convention:

Clockwise = Increase

where practical.

For example:

- Increase fuel correction.
- Increase timing correction.
- Increase RPM.

This makes driver controls more intuitive.

POT Position Marking

For functions where the driver frequently uses known settings, mark useful knob positions.

Examples:

- Neutral position.
- Specific Launch RPM positions.
- Known fuel corrections.
- Track-specific settings.

This can make repeated setup more consistent without requiring the driver to watch the software.

TuneBox

A TuneBox may combine:

- Adjustment POT.
- Push button.

into one driver control assembly.



The TuneBox itself is a Product.

Its connector details, wiring and product-specific drawings should therefore be kept under the applicable Product information rather than duplicated in this guide.

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Troubleshooting

Symptom	Possible Cause	Check
POT has no effect	POT Selection set to Not Used	Select required function
POT has no effect	Selected Feature not active	Check feature configuration
Adjustment operates backwards	POT wiring reversed	Check supply and Ground orientation
Value jumps while turning	Worn POT or wiring problem	Check signal with Realtime Data
Adjustment changes unexpectedly	Loose connection or unstable POT	Inspect wiring and POT
Centre position not neutral	POT not centred or calibration differs	Verify Realtime position
Launch RPM not adjustable	Wrong POT Selection or Launch method	Check Launch configuration
Spinning function does not operate	POT not assigned to Spinning	Verify POT Selection
Transmission retard not operating	Wrong Retard configuration	Check TCU/retard setup

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Setup Check

Before using the Adjustment POT, verify:

- [] Correct POT Selection is configured.
- [] POT wiring is correct.
- [] POT moves smoothly through the complete range.

- ☐ Clockwise direction produces the intended action.
- ☐ POT Value is appropriate where required.
- ☐ Centre position produces no correction for bidirectional functions.
- ☐ Injector Adjustment does not create unsafe AFR.
- ☐ Timing Adjustment remains within safe limits.
- ☐ Launch POT behaviour matches the configured Launch strategy.
- ☐ Spinning POT behaviour matches the RapidFire setup.
- ☐ Product-specific connector information has been verified where required.

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