

Spitronics ECU - User Controls - Guide

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The Spitronics ECU can use a small number of configurable user inputs to control several optional engine-management features.

These inputs may use a tuning potentiometer, push button, on/off switch or dedicated signal from another device.

Because several features can share the same input resources, some combinations are limited by firmware priority. The available options therefore depend on the ECU, firmware and enabled features.

Earlier Spitronics documentation used the term Map for an engine calibration. Current documentation uses the term Tune to avoid confusion with the MAP sensor.

Available User Inputs

Typical user-control inputs include:

- Tuning POT input.
- Digital switch input.
- Push button input.
- Dedicated application-specific inputs.

The software determines how each input is used.

One physical input may therefore perform different functions depending on the selected firmware and software configuration.

Always verify the active input assignment and firmware priority before wiring the control.

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Tuning POT

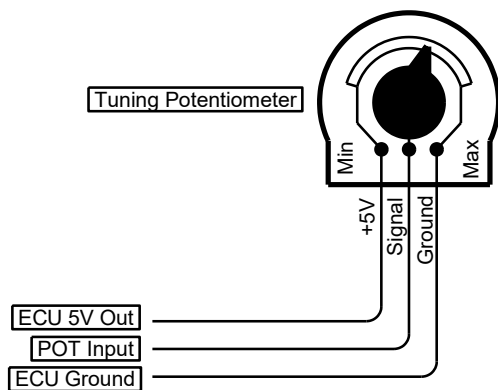
The Tuning POT provides a variable user input that can be assigned to different ECU functions.

Typical uses include:

- Injector adjustment.
- Timing adjustment.
- Adjustable Launch RPM.
- Spinning mode selection.
- Other firmware-specific functions.

The POT is normally connected using:

- ECU 5 V supply.
- POT signal input.
- ECU Ground.



The exact physical pin depends on the ECU and firmware. Refer to the applicable Pin Layout.

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Injector Adjustment

Injector Adjustment allows the driver or tuner to apply fuel compensation using the Tuning POT while the engine is operating.

Required Hardware

- Tuning POT.

Software Setup

Select:

POT Selection = Injector

Operation

Turning the POT adjusts injector compensation in real time.

This can be useful during tuning or where a temporary fuel adjustment is required.

The available range and behaviour depend on the firmware.

Where other features share the POT input, firmware priority may limit simultaneous operation with features such as Flat Shift and Tune Selection.

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Timing Adjustment

Timing Adjustment allows ignition timing to be advanced or retarded using the Tuning POT.

Required Hardware

- Tuning POT.

Software Setup

Select:

POT Selection = Timing

Operation

Turning the POT applies ignition timing compensation while the engine is operating.

This is a compensation function and should not be used as a substitute for correctly tuning the main ignition Tune.

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Launch Control

Launch Control can be activated in several ways depending on the firmware and required operation.

The input method can include:

- Push button.
- Clutch switch.
- On/off switch.
- Tuning POT for adjustable Launch RPM.

The detailed Launch Control settings are configured under the applicable Launch Control feature.

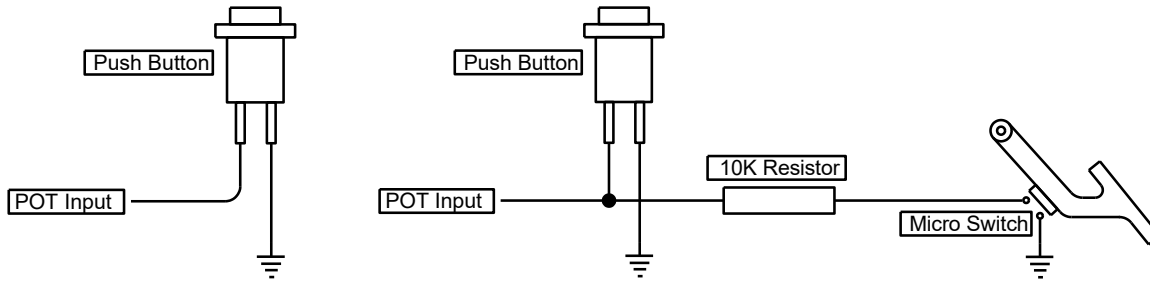
Launch Control - Clutch Method

This method uses a push button or clutch-operated switch to activate Launch Control.

Required Hardware

- Push button.
- Optional clutch switch arrangement.

Hardware Connection



Software Setup

Enable Launch Control.

Operation

Launch Control becomes active when the input condition is met.

Where a clutch switch is used, the system can disengage Launch Control automatically when the clutch is released.

The exact operation depends on the selected firmware.

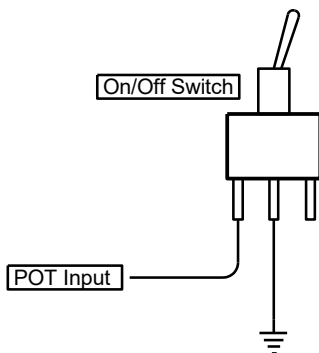
Launch Control - Fixed RPM Method

This method uses an on/off switch to enable a fixed Launch RPM.

Required Hardware

- On/off switch.

Hardware Connection



Software Setup

Enable Launch Control and select the required fixed Launch RPM.

Operation

Launch Control is enabled when the switch is ON.

In the firmware activation occurs automatically approximately 500 RPM below the selected Launch RPM when TPS is below 90%.

Launch Control resets once engine speed falls below approximately 3000 RPM.

These values may be firmware dependent and should be verified against the current software.

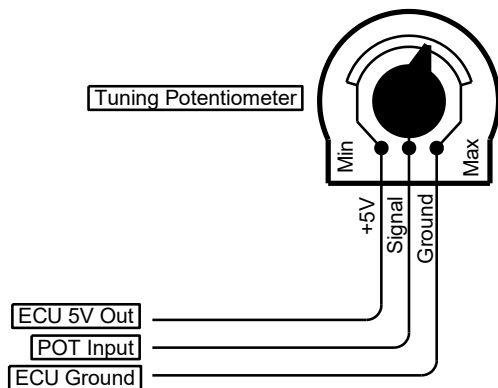
Launch Control - Adjustable RPM Method

The Tuning POT can be used to adjust Launch RPM.

Required Hardware

- Tuning POT.

Hardware Connection



Software Setup

Select:

POT Selection = Launch

Operation

The Tuning POT adjusts the Launch RPM.

Launch activation and reset operate according to the selected Launch Control firmware strategy.

TCU Retard Request

Some ECU and TCU combinations allow the TCU to request ignition retard from the ECU during an automatic gear change.

This can reduce engine torque during the shift and assist transmission operation.

Required Hardware

- Dedicated TCU retard output.
- ECU user input assigned to Retard.

Software Setup

Select:

POT Selection = Retard

Operation

When the TCU activates the retard signal, the ECU applies the configured ignition retard.

Spinning

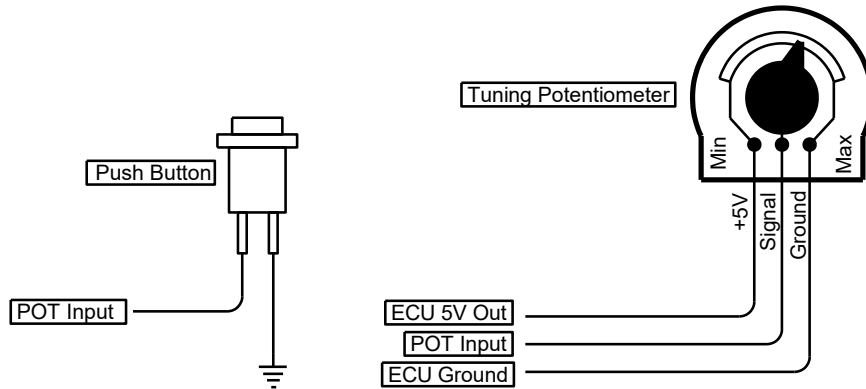
Spinning mode allows several racing functions to be selected and controlled using the Tuning POT and RapidFire push button.

The Spinning firmware arrangement can combine Racing Limiter and Pops & Bangs functions within a single Tune.

Required Hardware

- Tuning POT.
- RapidFire push button.

Hardware Connection



Software Setup

Select:

POT Selection = Spinning

Enable RapidFire.

Operation

The Tuning POT selects the operating mode.

The RapidFire button activates the applicable limiter function.

Some functions share input resources and therefore affect each other through firmware priority.

In the firmware:

- Tune Selection selection is only available during ECU startup.
- Flat Shift is disabled when the higher-priority RapidFire function is active.

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Tune Selection

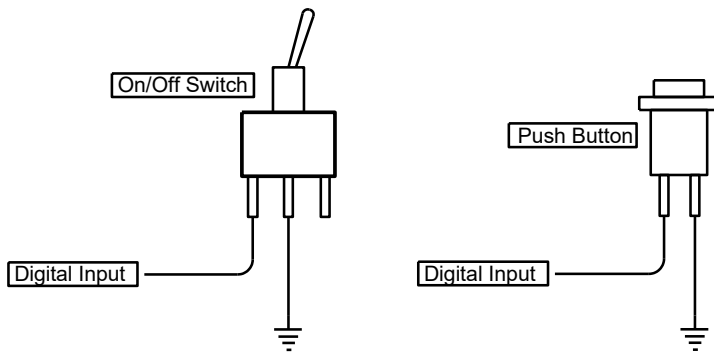
Tune Selection allows the driver to select between Tune 1 and Tune 2.

Required Hardware

Depending on the enabled features:

- On/off switch.
- Push button.

Hardware Connection



Software Setup

Enable Tune Selection.

Normal Operation

Where neither RapidFire nor Flat Shift uses the shared input, Tune selection can be available while driving.

Startup Selection

Where a higher-priority feature uses the same input, the Tune selection may only be read during ECU startup.

In the firmware:

- Button released = Tune 1.
- Button pressed = Tune 2.

The selected Tune is then retained after startup.

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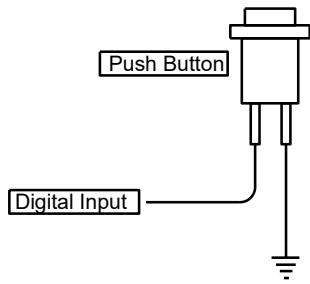
Flat Shift

Flat Shift momentarily reduces engine torque during an upshift so that the driver can change gear without fully lifting the throttle.

Required Hardware

- Push button, clutch switch or dedicated input depending on the application.

Hardware Connection



Software Setup

Enable Flat Shift.

Operation

Flat Shift uses the assigned input to request the supported Engine Limiter cut strategy during the gear change.

Because Flat Shift can share user-input resources with other features, firmware priority must be considered.

In the firmware, Flat Shift has priority over Tune Selection, and Tune Selection selection is then only read during ECU startup.

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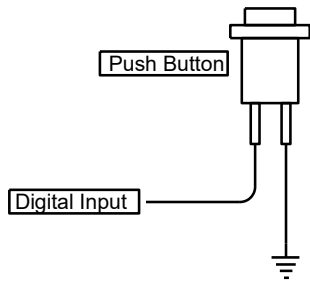
RapidFire

RapidFire changes the limiter operation to create the configured RapidFire effect.

Required Hardware

- Push button.

Hardware Connection



Software Setup

Enable RapidFire.

Operation

The push button selects or activates the preset RapidFire operating modes according to the firmware.

In the firmware, RapidFire has the highest priority of the shared user-control functions. When enabled:

- Flat Shift is disabled.
- Tune Selection selection is only available during ECU startup.

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Firmware Priority

Several ECU functions can share the same physical input.

The firmware therefore uses a priority system to determine which function has control when more than one feature is enabled.

A feature with higher priority may:

- Disable another function.
- Restrict another function to ECU startup.
- Change how a switch or POT is interpreted.

Do not assume that enabling several features means that all of them can use the same user input simultaneously.

After enabling the required features:

1. Check the software selections.
2. Verify the active input assignment.
3. Confirm the applicable Pin Layout.
4. Test each user control before driving the vehicle.

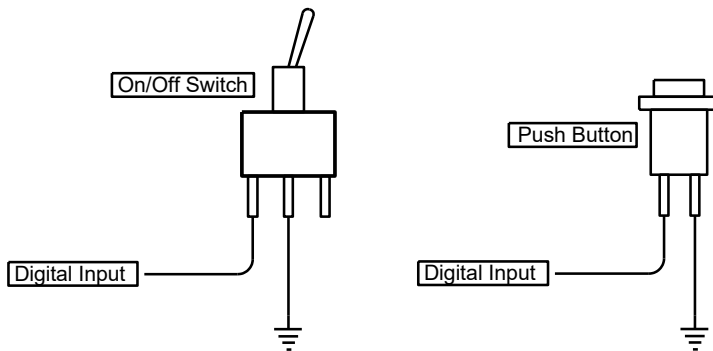
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Generic Switch Connection

Many ECU user inputs use a simple switch to Ground.

Depending on the function, the switch may be:

- Momentary push button.
- On/off switch.
- Clutch-operated switch.
- Other application-specific switch.



Always use ECU Ground as shown in the applicable connection documentation.

Do not assume that a switch input should be connected to vehicle 12 V unless specifically documented.

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P07 Coms Extension Harness

The P07 Coms Extension Harness allows the ECU communication connection and user controls to be used together.

The harness is used with Callisto and some older Spitronics products.

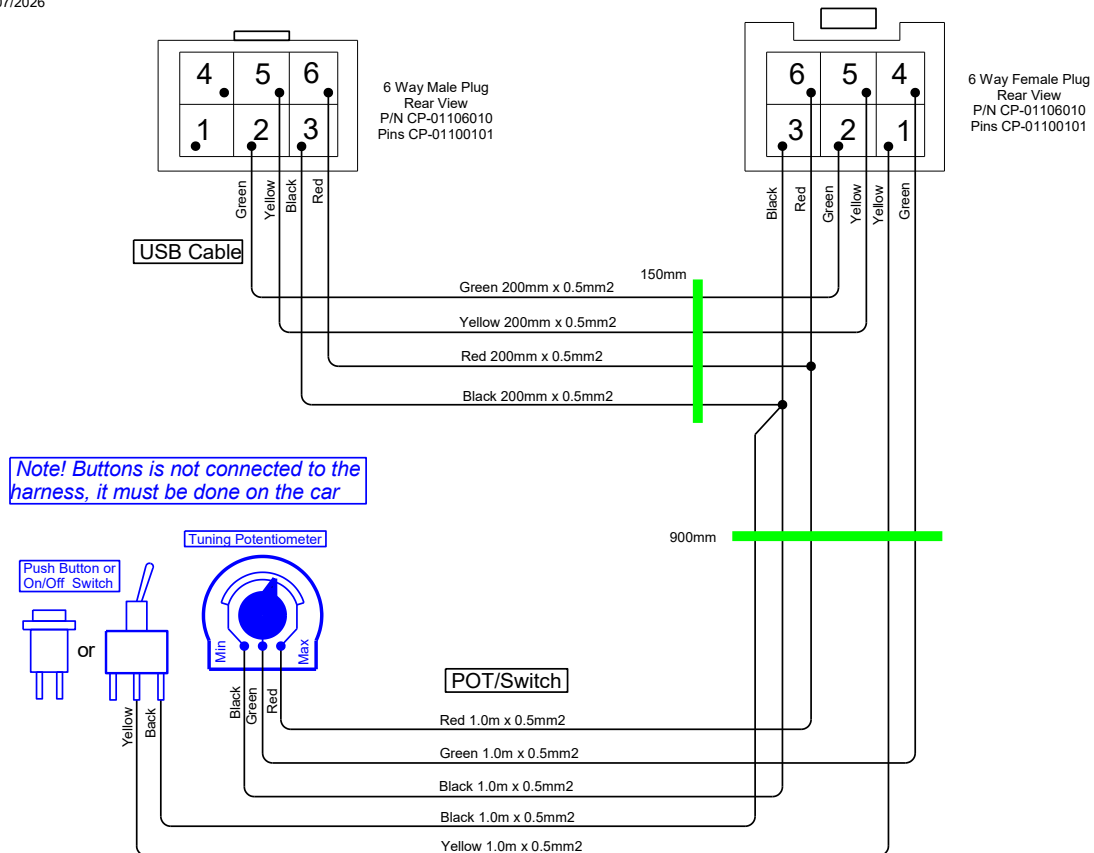
Mercury3 uses a different connection arrangement through its P4 harness, with the input selection configured in Hyperspace.

The P07 harness provides the required wiring for the user-control connection while allowing the USB communication cable to remain connected.

The switches and Tuning POT are not permanently fitted to the harness because the required controls depend on the selected ECU features.

P07_COMS Extension Harness

Last Changed: 29/07/2026



P08 Tune Box Harness

The P08 Tune Box is a preassembled user-control harness that includes a Tuning POT and push button.

It is intended for applications requiring functions such as RapidFire, Tune selection or other firmware functions using these controls.



The exact function of the POT and push button is determined by the ECU firmware and software selections.

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Setup Check

After installing the user controls, verify:

- ☐ Required ECU feature is enabled.
- ☐ POT or switch function is selected correctly.
- ☐ Input assignment agrees with the ECU Pin Layout.
- ☐ Tuning POT operates through its full range.
- ☐ Push buttons and switches change state correctly in Realtime Data where applicable.
- ☐ Firmware priority does not disable another required feature.

[] Tune Selection operation is understood where higher-priority features are enabled.

[] User controls operate correctly before the vehicle is driven.

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