

# VasfEFI ECU – Signal Interface Guide

## Input Compatibility and Installation Notes

### Vehicle Speed Input (VSS)

Supported signal types:

1. Digital / Open-collector / Hall sensor (recommended)

Compatible with digital speed outputs from ABS ECU, instrument cluster or conditioned speed signals.

Supported inputs:

- 0–5 V digital signals
- open-collector outputs with pull-up

2. 12 V digital pulses

Compatible with older instrument clusters providing square-wave speed signals.

The ECU input includes internal protection for 12 V pulse signals.

3. VR / inductive sensors (not supported directly)

Raw variable reluctance signals must be conditioned before connection.

Use external VR conditioners such as MAX9924, LM1815 or equivalent modules.

### Camshaft Position Inputs

CMP\_IN (5V)

For 5 V Hall sensors or open-collector outputs referenced to 5 V.

Do not connect 12 V signals directly.

CMP\_12V

For 12 V Hall sensors or digital push/pull outputs.

The ECU internally conditions the signal to logic level.

### Crankshaft Position Input (CKP)

Designed for conditioned VR signals.

Recommended sources:

- external VR conditioner modules
- ECU internal conditioning circuits (if present on board version).

Direct raw inductive signals without conditioning may result in unstable RPM detection.

### Oxygen Sensor Inputs

Wideband input (O2\_WIDE)

Intended for external wideband controller analog output.

Post-catalyst O2 input (O2\_2)

Designed for narrowband lambda sensors.

Connections:

Signal -> ECU O2\_2 input

Sensor ground -> ECU SENSOR\_GND

The heater circuit is external to the ECU and should be connected to switched 12 V supply.

## **Analog Sensor Inputs**

TPS, CLT, IAT and similar analog sensors should be referenced to SENSOR\_GND.

Sensor supply must use ECU regulated 5 V output.

Typical wiring:

5V supply -> ECU Sensor 5V

Signal -> ECU analog input

Ground -> SENSOR\_GND

## **Grounding Recommendations**

ECU grounds must connect directly to the engine block at the same point used for the battery negative cable.

Do NOT connect ECU grounds to chassis sheet metal separately.

Power ground (PGND) should be used for actuators.

Sensor ground (SENSOR\_GND) must be reserved for analog sensors to minimize noise.