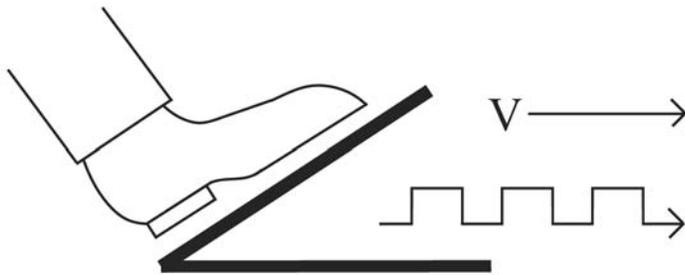


ECM appsCAN Pedal Simulator Module



- CAN Communication
- Four Analog Inputs
- Four Analog Outputs
- Four PWM Outputs

- Pedal Simulated by CAN Input, Voltage Input, or Potentiometer Input
- Analog Outputs based on External Voltage (Ratiometric) or Internal Voltage References
- Open-Collector or Pulled-Up PWMs
- Isolated Grounds
- Synchronous and Asynchronous Operation
- Programmable Start-up Values
- Configuration & Control Software Provided
- IP67 Sealed Enclosure



Most vehicles sold today do not have a direct physical connection between the accelerator pedal and the engine's throttle. Instead, command signals from the accelerator pedal are sent to the engine controller and the engine's throttle is controlled by an electric motor. When engines or vehicles are tested in dynamometer cells, it is no longer necessary to have a robot or actuator pushing on the accelerator pedal if these signals can be simulated.

ECM's appsCAN module simulates accelerator pedal position signals based on CAN commands sent to it from the dynamometer controller, or a voltage input, or a potentiometer input. Up to four analog outputs and four PWM outputs can be simulated. For fail-safe reasons, all accelerator pedals output at least two signals. Coordination of these signals must be maintained to avoid triggering an engine fault code. ECM's appsCAN module supports synchronous signal operation which maintains coordination of these signals. In addition, all analog outputs from accelerator pedals are ratiometric. This means that the pedal's analog outputs must scale with voltage reference(s) sent from the engine controller. ECM's appsCAN module's analog outputs can be ratiometric based on up to four external measured reference voltages or absolute voltages based on internal references.

ECM's appsCAN module can also serve as a general-purpose four-channel analog input, four-channel analog output, and four-channel PWM output device. Therefore, other dynamometer and test schedule functions can be controlled using the module.

Specifications

Command Input	CAN, or Voltage Input, or Potentiometer Input
Commands	% of external voltage reference, or absolute voltage output (4 x) % duty cycle of PWM (pulse-width modulated) output (4 x) PWM frequency (4 x) Default % value for voltage output on power-up (4 x) Default % duty cycle value for PWM on power-up (4 x) Default frequency for PWM on power-up (4 x)
Analog Inputs	0 to 15V, 16 bits (4 x)
Analog Outputs	0 to 100% of external voltage reference, or internal 5V reference (4 x) Resolution: 0.024% of voltage reference Maximum current source capacity: 10 mA per channel Output Impedance: 1 Ohm Common ground for analog signals but separate from PWM and CAN/Power grounds Outputs protected from shorts and misconnections
PWM Outputs	Low-side drivers with optional internal pull-ups to 5V (4 x) 0 to 100% duty cycle, Resolution: 0.0015% 1.5 to 1000 hz frequency, Resolution: 0.5 hz Maximum current sink capacity: 500mA per channel Common ground for PWM outputs but separate from analog signals and CAN/Power grounds Outputs protected from shorts and misconnections
Configuration	Via CAN Bus using supplied Configuration Software or User Program. Programmable Node ID.
Module	145mm x 120mm x 40mm, Environmentally Sealed
Environmental	-55 to 125 °C, IP67
Connection Hardware	Outputs: 300mm harness with Deutsch DTM06-12S 12-position connectors (2 harnesses supplied with unit) CAN and Power: 2m Cable with Eurofast 12mm cable and banana plugs
Power	8 to 28 VDC, 100 mA min., AC/DC (optional)

Ordering Information

appsCAN	appsCAN kit (module, two output harnesses, CAN/Power harness, Configuration Software)
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ECM ENGINE CONTROL
AND MONITORING

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