Flexible Engine Control
A&D Technology Application Solutions

Engine Control for Component Development and Testing

The AD5435 is an ideal system for a wide variety of engine control applications, particularly for component development, testing and/or investigation.

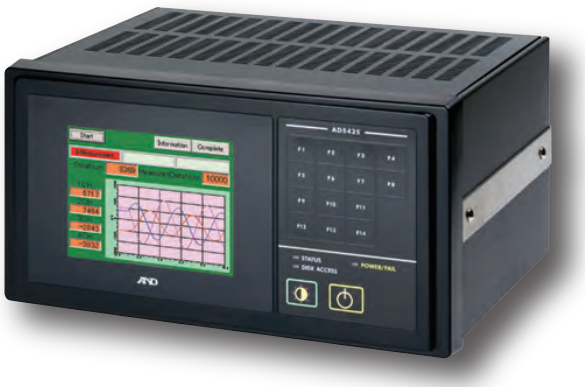
Full User Control

In many test cell applications it is often difficult – and sometimes impossible – to modify or calibrate the algorithms of an OEM, development or aftermarket ECU. With the AD5435, Simulink® software provides the capability to manipulate algorithms, giving the user complete control over the engine. The use of Simulink eliminates the need for embedded software or special programming. There is no complex setup, advanced training or operating system expertise required, making this an ideal tool for both engineers and test cell operators who work with engines.

Open & Extensible System

With a variety of optional cards available, the AD5435 can be configured for a wide range of applications, from simple open loop fuel injection pulse width control to more sophisticated closed loop control algorithms of all engine systems.

A&D Technology offers both turnkey and user-defined systems. In either case, the AD5435 provides the user complete control of the software and hardware components, as well as the graphical interfaces needed to operate the system.



The AD5435 is an ideal system for test cell engine control, providing a completely open system for both hardware and software modifications.

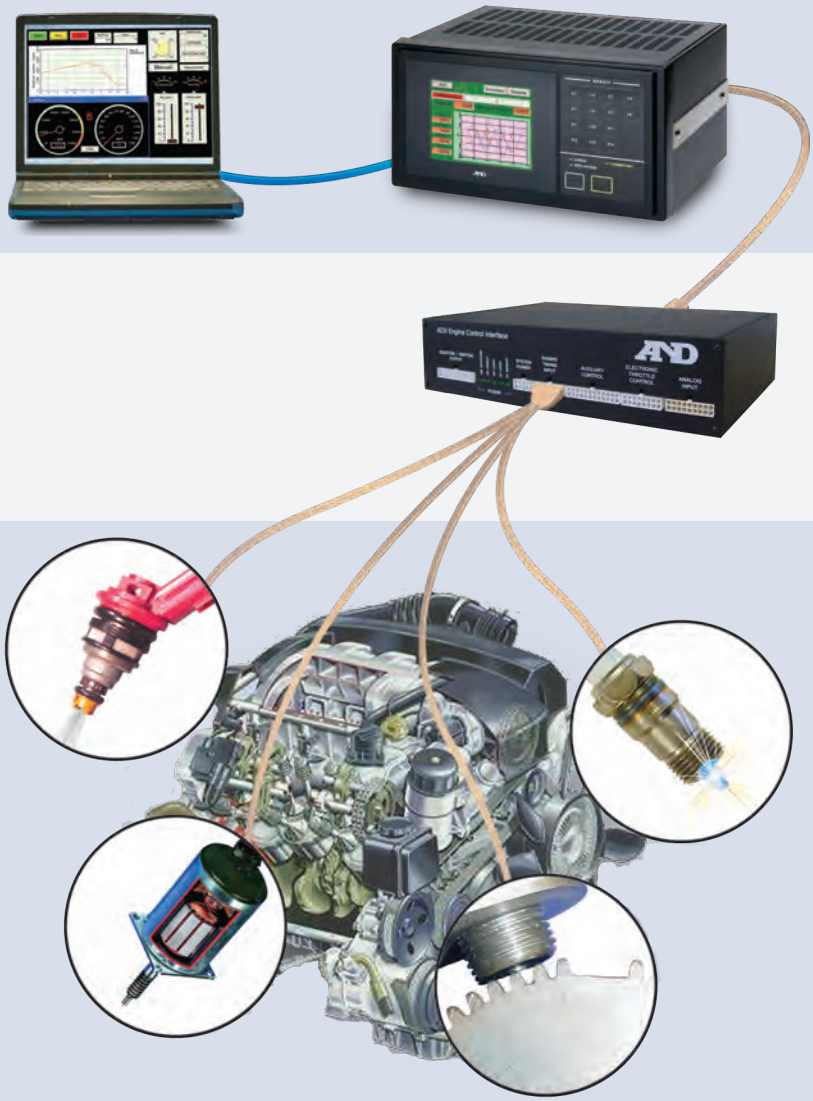
Features

- Simulink® control models
- 2- or 4-stroke engines
- 1-16 cylinder capability
- Gas, diesel, and alternative fuels
- Dual-bank lambda control
- ACT/ECT trim
- Coldstart enrichment
- Individual cylinder adjustment for all control signals
- Spark and fuel control
- 0.1° crank angle resolution
- 1 µsec injection pulsewidth adjustment
- Multiple injections and ignitions per cylinder event
- Completely open system for hardware and software expansion (e.g. cam phasing, turbo-charging, EGR algorithms, etc.)
- Stand-alone operation, PC-based user interface, or integrated with dyno data acquisition and control system

AD5435
Flexible Engine Control

SIMULINK Enabled
MathWorks Partner

Flexible Engine Control Component Overview



PC:
- User interface, calibrations, data collection
- Simulink/Stateflow algorithm specification

AD5435:
- Real-time control algorithms

Interface Hardware
- Signal conditioning, power stages, amplifiers, etc.
- Low-impedance ("peak and hold") injector driver

ECU
- Optional hardware or software bypass

Control Signals/Outputs
- Ignition timing and dwell
- Injection timing and duration

Standard Inputs/Feedback
- Cam, crank position sensors
- Air/fuel ratio
- MAF/MAP
- Air and coolant temperatures

I/O & Control Options:
- EGR valve control
- Knock sensor
- Cam phasing
- Electronic throttle control
- Interfaces to dyno DAC systems
- Custom I/O and control

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