



# EControls®

by **ENOVATION** CONTROLS

## Who we are

Since 1994, EControls products have delivered innovation and customer satisfaction to the engine and vehicle industries through:

- State of the art engine application, calibration development and testing to meet emissions, drivability and fuel economy requirements
- Design, development, qualification and production of “more robust than automotive” grade Engine Control Units
- Creation of critical components – fueling systems, harnesses, sensors and actuators
- High-quality, rugged and robust systems used in the most demanding environments

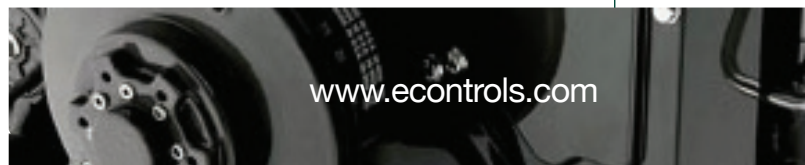
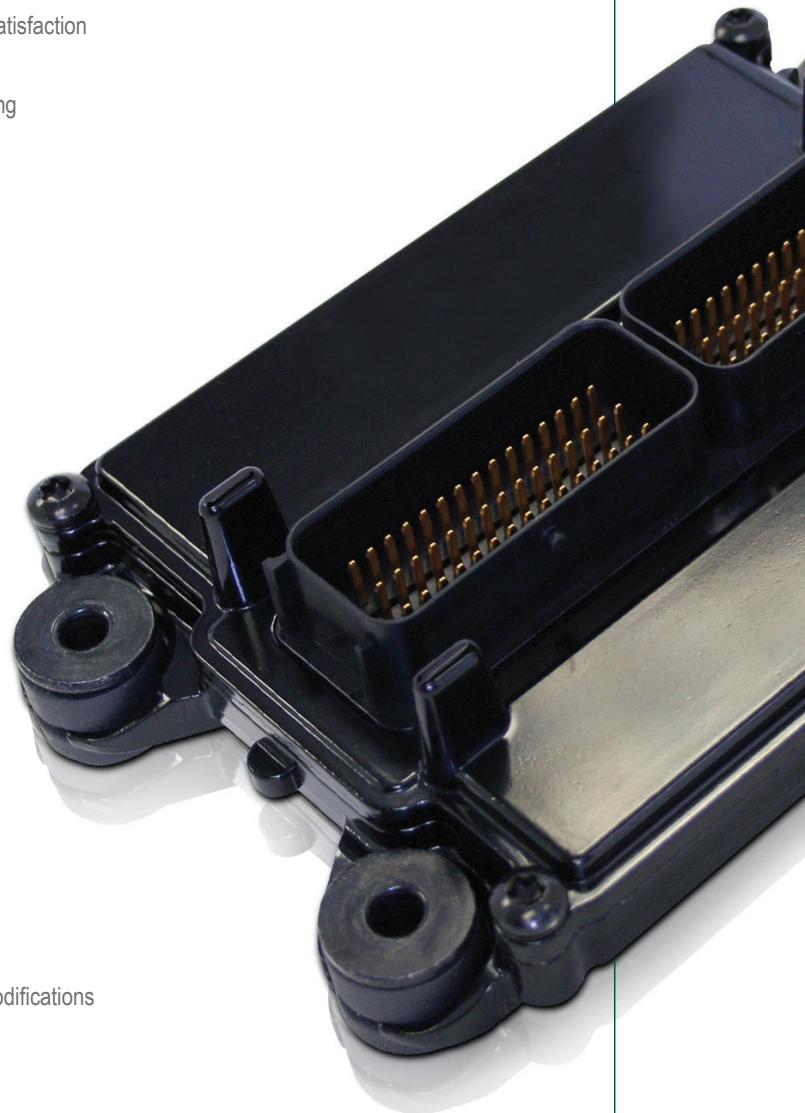
## What we do

We combine fundamental engine knowledge, engine control expertise and innovation to produce full-authority engine control systems that meet your requirements.

Markets/applications include off road industrial, heavy-duty on road, generator sets, marine equipment, material handling, construction equipment and agricultural equipment.

## What we deliver

- Complete engine control systems for LNG, LPG and gasoline
- Custom hardware solutions with quick turnaround for software modifications
- Full depth and breadth of engine/application expertise
- Minimal upfront development investment
- High-quality, advanced engine control technology

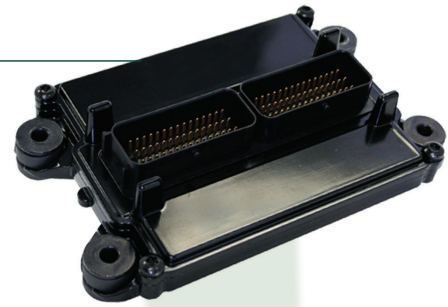


[www.econtrols.com](http://www.econtrols.com)

## Engine Control Modules

Our customizable Engine Control Modules deliver precise engine control for multiple applications in the heavy duty, over-the-road, off road, industrial and marine markets.

- Full Authority - All sensing, control, diagnostic and I/O in one form factor
- Model based control reduces development time and improves performance
- Custom software algorithms added quickly
- Hardware optimized to customer's application
- Development platform included - Separate development ECM is not required
- Free calibration software included
- Comprehensive diagnostics suite simplifies troubleshooting



### Dual Stage Regulator

- Superior heat exchanger
- Lower temperature LP cold starts
- Designed for extreme durability



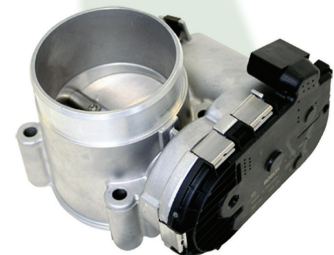
### Catalyst

- Improved performance at lower cost
- Optimized precious metals loading for:
  - Alternative fuels
  - Industrial emissions test cycle

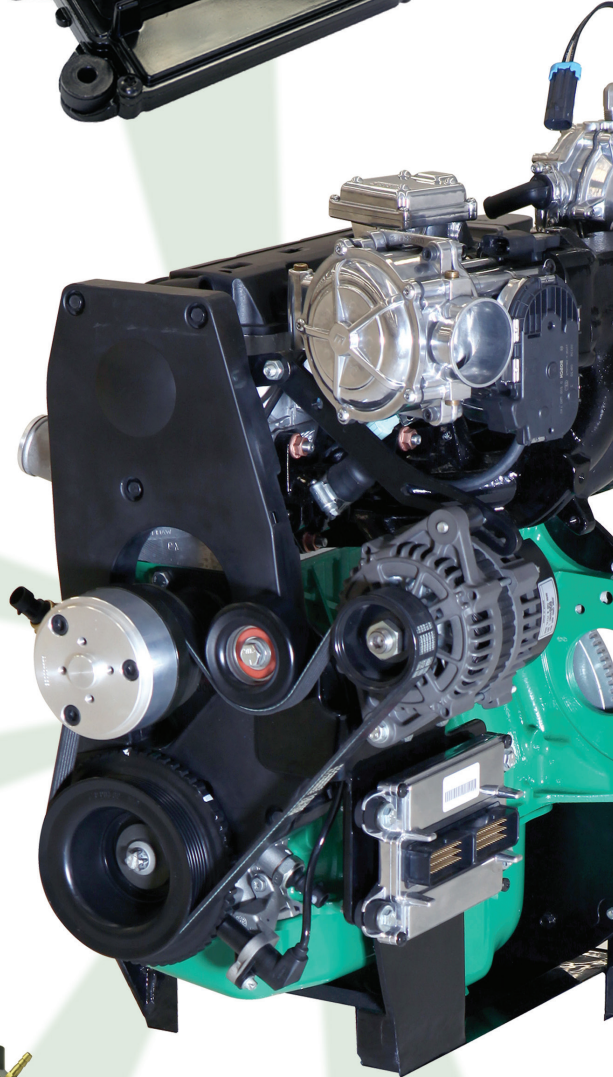


### High Pressure Regulator

- 2-stage high pressure regulator
- Excellent flow droop and tank
- Additional heat exchanger not required for flows less than 260 bhp



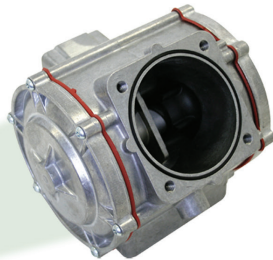
### Electronic Throttle Body





## Smart Fuel Control

- Continuous fuel flow control
- Improved emissions performance and fuel economy
- Never clogs or sticks with LPG fuels
- Extremely durable when used with non-lubricating fuels
- Does not require high pressure fuel supply



## Mixers

Mechanical variable venturi mixer increases turbulence and allows you to adjust the engine fuel intake proportionally to the amount of air flowing.

- Accurate air/fuel flow for improved engine and transient emissions performance
- Centered air/fuel ratio improves controllability
- Excellent performance in open-loop systems, with little part to part variability
- Proven field durability



## Sensors

EControls offers a wide range of sensors and can create a sensor package specifically for your unique application. Whether it is a special calibration or a special connector, we can assist with the selection and application of your sensor needs. Sensors options include both switching and wide band oxygen, knock, pressure, temperature and speed.



## Wire Harnesses

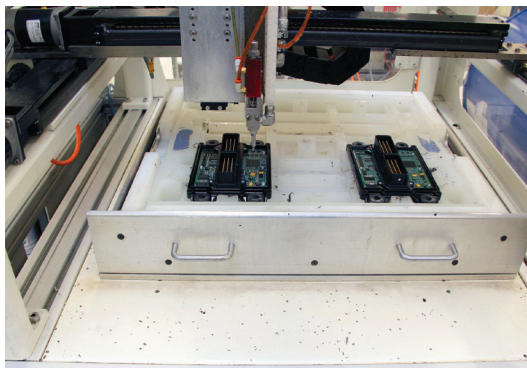
EControls provides custom wire harness solutions for all your engine needs. We work with you to provide the right combination of connectors, shielding, ground points and relays to simplify wiring and eliminate connectivity errors.



## Complete Solution Capabilities

We work with you to create a complete engine control solution – from engine components to engine calibration – for your specific application. We offer cutting edge expertise in:

- Advanced control algorithms
- Real-time and embedded software
- Electronic and mechanical development and design for harsh environments
- Dynamic, compressible flow, combustion, and thermodynamic modeling
- Complete dynamometer testing for drivability and emissions



## In-House Production and Testing

We utilize the most reliable and robust equipment to produce our products, from state of the art PCB assembly and inspection, to engine control module assembly, encapsulation and testing.

Enovation Controls maintains control of assembly methods, testing methods, and product assembly through its San Antonio, Texas location. We design and implement product-specific processes for assembly, and conduct end of line testing to ensure the quality of our products.

**EControls**

by **ENOVATION CONTROLS**

5757 Farinon Drive, San Antonio, TX 78249 USA

1.210.495.9772 Phone 1.210.495.9791 Fax

1211028 08-2-12

[www.econtrols.com](http://www.econtrols.com)