



# MEC-R

## RICH-BURN AIR-FUEL RATIO CONTROL SYSTEM

## One Cost-Cutting Solution. Three Big Problems.

**A**ny business that banks on revenues from a rich-burn natural gas-fueled engine equipped with a catalytic converter needs an air-fuel ratio controller (AFRC). But only the MEC-R cuts the costs, time and aggravations that come from **three tough problems** rich-burn engine owners and operators face every day:

- 1 Emissions Compliance.** Almost everywhere, emissions rules are tightening. But variance by as little as one percent from the "stoichiometric" air-fuel ratio – the ratio at which all fuel is oxidized in engine combustion – will keep a catalytic converter from doing its job. The MEC-R is the only AFRC that monitors both pre- and post-catalyst exhaust, precisely adjusting the air-fuel mix to maintain targeted emissions levels. This gives the operator failsafe assurance of ongoing compliance, regardless of variance in load, ambient air temperature or fuel composition.
- 2 Troubleshooting & Maintenance.** The MEC-R Air-Fuel Ratio Control System includes advanced built-in troubleshooting and diagnostics, covering no fewer than 44 critical engine and emissions control system operating parameters. By allowing the operator to pinpoint performance problems as soon as they occur – misfires, detonations, overheating, ashed catalysts and more – the MEC-R cuts the costs of maintenance, downtime, labor, and replacement parts.
- 3 Operational Issues.** Keeping up with technology is costly – in dollars, time and headaches. The MEC-R provides all the benefits of the state-of-the-art – including trouble-free, set-it-and-forget-it ease of use.

Plus: with today's high gas prices, engine operators can count on the MEC-L to handle these challenges while maximizing engine fuel economy.

## Problems: Solved.

Ongoing emissions compliance, reduced maintenance costs, fully automatic operation, with minimal operator intervention or training: the Compliance Controls MEC-R Air-Fuel Ratio

Control System delivers benefits and continuing returns on investment no other air-fuel ratio control system can match.



*Set it and forget it. It's like having an engine expert monitoring your engine, tweaking the air-fuel mix 24-7-365 – even troubleshooting your equipment.*

- Ongoing compliance assured
- Improved engine & emissions control performance
- Fail-safe troubleshooting & diagnostics
- Easy to install & use - fully automatic

Compliance   
CONTROLS™

Some choices are hard. Which AFRC to install on your engines isn't.



## THE BEST. BAR NONE.

- Easy to install & use
- Fail-safe troubleshooting & diagnostics
- Improved engine & emissions control system performance
- Ongoing compliance assured

The MEC-R Air-Fuel Ratio Control System continuously monitors and precisely controls the air-fuel mix in rich-burn, carbureted natural gas-fueled engines. By maintaining the proper air-fuel ratio over varying engine loads, speeds, fuel quality and ambient conditions, it maximizes the efficiency of both the engine and its three-way catalytic converter.

Unlike other air-fuel ratio controllers that cost about the same as the MEC-R, the MEC-R tracks *multiple factors* and regulates the air-fuel mix accordingly: engine load, actual tailpipe emissions and more. It also monitors a wide range of engine operating conditions. The result? Top performance, less maintenance and ongoing compliance assured.

*And the MEC-R works all on its own – without operator intervention.*

## Dollars & Sense: Lowest Total Compliance Cost, Fastest ROI.

Continuous emissions control. Improved engine performance. Longer, more trouble-free equipment service-life. Fail-safe troubleshooting. Fast, easy installation. Easy, user-friendly operation, with minimal training. Network compatibility with high-speed data transfer. Powerful smart-

system features and benefits you won't find anywhere else. All with the flexibility to tailor capabilities to your specific current and future needs. All for about what you'd pay for other air-fuel controllers that deliver a whole lot less.

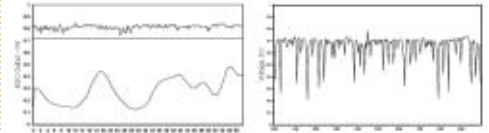
Business owners, financial officers, engineers, IT and operations managers can all agree: the Compliance Controls MEC-R Rich-Burn Air-Fuel Control System is simply the best value on the market, bar none.

### Features

- Fast, easy, low-cost installation
- Fits virtually any gas-fueled, carbureted, rich-burn industrial engine – with (or without) any catalytic converter
- Windows®-based platform compatible with most computers  
*Software can be installed on laptop, or network*
- Adaptive valve learn-software  
*Continually updates look-up tables for rapid transient response and continuous control in Open Loop mode*
- Comprehensive 44-fault diagnostics  
*Including continuous oxygen sensor health monitoring*
- Data plotting for easy, accurate troubleshooting
- Alarm and shut-down dry contacts
- Pre-catalyst closed loop, exhaust oxygen feedback control
- Post-catalyst exhaust oxygen feedback; cascade control for fast, real-time adaptation to changing catalyst performance
- Variable set-point for pre-catalyst and post-catalyst exhaust oxygen control – for real-time response to varying engine loads
- Catalyst temperature monitoring to protect the catalyst from engine fueling malfunctions
- Two-dimensional open-loop valve positioning, based on engine speed and load  
*Maintains compliance even with critical oxygen sensor malfunction*
- Drives up to two fuel-metering valves for "V" engine configurations
- Multiple valve control options:
  - **Smart Valve Electronic Pressure Regulator**  
*Controls all engine fuel with full authority, with differential fuel pressure control in case of Air-Fuel Control System failure*
  - **Full Authority Valve**  
*Controls all engine fuel via system-controlled butterfly valve*
  - **Trim Fuel Valve**  
*Adds supplemental fuel to the air intake via system-controlled proportional fuel valve*
- Simple, soft-key control option
- RS-485/MODBUS® communications support for high-speed data transmission
- Utilizes CAN protocol
- NEMA 12 enclosure

### Benefits

- Ongoing compliance assured
- Improved engine & emissions control performance
- Longer, more trouble-free equipment life
- Fail-safe troubleshooting & diagnostics, with automatic shutdowns
  - Eliminates operator guesswork and look-see troubleshooting
  - Prevents costly equipment damage and breakdowns caused by failing to adjust the air-fuel ratio to compensate for changes in ambient temperature or fuel composition
  - Better-managed maintenance costs; lower replacement costs
- Fully automatic; no operator required in normal operation
- Minimal operator training
- Flexible network compatibility – with high-speed data transfer capability
- Responsive, full-service support: 24-7-365
- Software, upgrades and documentation available on disk or online



Sticking Valve

Continuous Misfire

### Comprehensive, Failsafe Engine Diagnostics

- Covering 44 critical parameters

## About Compliance Controls.

Compliance Controls was formed by two of the best-known, most trusted leaders in industrial engine emissions control and equipment management



solutions: MIRATECH

Corporation and FW Murphy. Backed by our parent companies' distribution networks, Compliance Controls focuses



exclusively on delivering and supporting MEC Air-Fuel Control System solutions tailored to our customers' specific requirements.

## Visit Our Website. Or Give Us A Call.

To find out more about the MEC-R Rich-Burn Air-Fuel Control System, please visit our website: [www.compliancecontrols.com](http://www.compliancecontrols.com).

Or simply give us a call: **918-627-5050**

