



MEC-R

RICH-BURN AIR-FUEL RATIO CONTROL SYSTEM

Three Big Problems. One Cost-Cutting Solution.

Does your business bank on revenues from rich-burn, spark-ignited, carbureted natural gas-fueled engines equipped with catalytic converters? Then you need an air-fuel ratio controller (AFRC) you can count on. But the AFRC you choose makes a huge difference to your business and bottom-line – for better or worse. Fact is, an AFRC just doesn't earn its keep if it doesn't help you cut the costs, time and hassles that come from **three tough problems** you 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 your catalytic converter from doing its job. And that can mean stiff non-compliance fines – even shutdowns.
- 2 Troubleshooting & Maintenance.** Engine misfires, ashed catalysts, overheating: these and other glitches impair performance and shorten your equipment's life span. They can also cost you plenty – in equipment maintenance, repair and replacement costs, downtime and labor. Take one example. Unburned fuel coughed into your exhaust stream by a misfiring cylinder can cause a hot catalyst to burst into flame.
- 3 Operational Issues.** In any competitive arena, your business suffers when you're not getting the benefits of the latest technologies. But keeping up with technology can be costly, in dollars, time, and headaches. Besides: who can afford to hire rocket scientists to run engines day-to-day? You want a system that will give you all the benefits of the state-of-the-art – including trouble-free, set-it-and-forget-it ease of use.

Your Problems: Solved.



Emissions compliance?
Cutting maintenance
costs? Operational

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.

challenges? Count on Compliance Controls for the ideal solution – and the lowest total compliance cost: The MEC-R Rich-Burn Air-Fuel Control System.™

- 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.

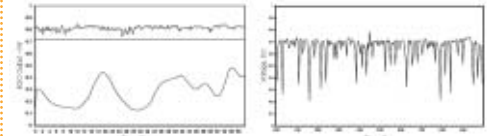
Business owners, financial officers, engineers, IT and operations managers can all agree: the Compliance Controls MEC-R Rich-Burn Air-Fuel Control System is simply the best value on the market, bar none.

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

