



E³ Rich Burn Control System with Stablesense™ Technology

CLEAN ENERGY TECHNOLOGIES

Always innovating for a better future.





E³ Rich Burn Control System with StableSense™ Technology

REDUCE YOUR COST OF COMPLIANCE BY STAYING IN COMPLIANCE

Staying within government-initiated emission regulations is a fact of life for anyone operating a natural gas fueled reciprocating engine. Emission compliance adds costs to the maintenance of rich burn natural gas engines. Woodward's E³ Rich Burn air to fuel ratio (AFR) control system for natural gas engines minimizes the resources needed to meet emissions compliance.

BENEFITS AT A GLANCE

E³ Rich Burn integrates fuel control and catalyst control in a single system using StableSense™ Technology. Unlike first-generation A/F controls, E³ Rich Burn effectively analyzes, controls and optimizes engine and catalyst functions without continuous readjustment.

REDUCE COSTS

Reduce the amount of money and resources spent adjusting and recalibrating your engine to meet compliance limits, regardless of changing load and environmental conditions.

INCREASE ENGINE UPTIME

Identify potential engine and catalyst risks before they happen. E³ Rich Burn monitors more of your engine critical parameters, allowing you to identify and troubleshoot potential failures.

STAY IN COMPLIANCE

Enter your exhaust emission compliance limits into the E³ Control System and the engine will stay within those limits for years regardless of conditional changes.

REDUCE MISFIRE DAMAGE

Alarm or shut down to minimize engine and catalyst problems due to repeated engine misfires.

REDUCE SYSTEM COMPLEXITY

Combine the AFR with speed and ignition control in one box.

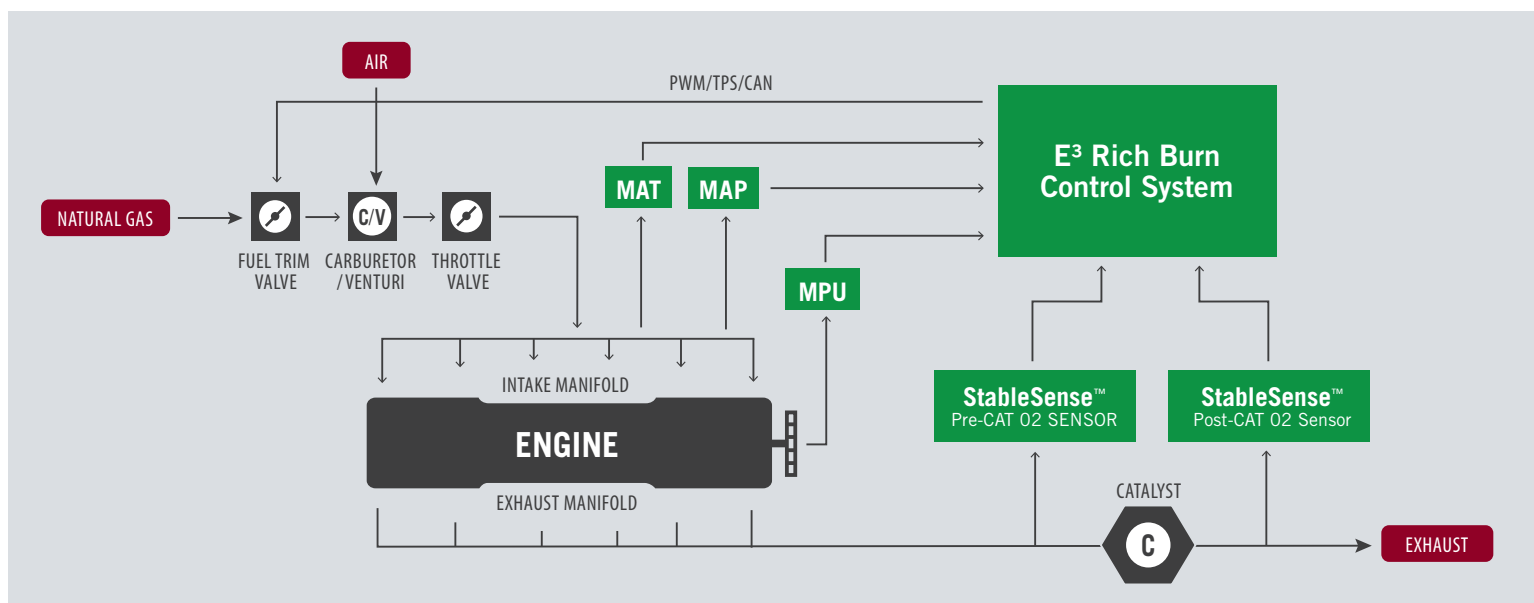


FEATURES AND FUNCTIONS

- Control catalyst effectiveness with AFR
- Detects and alarms repeated misfire conditions reducing potential damage to the engine and catalytic converter
- AFR start fuel trim to simplify starting
- On-board diagnostics and fault logging for troubleshooting
- Cylinder bank balancing for improved performance
- Ignition timing adjustment to improve starting reliability and performance
- Speed and load control for improved engine control
- External AFR and speed bias
- Direct interface with generator control for engine load and dynamics control based on breaker status
- Multi-level fallback fault strategy to handle loss of sensor information
- Catalyst health, temperature, and pressure monitoring
- Engine coolant temperature, lube oil temperature, and pressure monitoring
- MAP* and MAT† health monitoring
- Class I, Division II classification

SYSTEM APPLICATION (SINGLE BANK ENGINE)

NOTE: The dual bank (stereo) engine application still only uses a single E³ Rich Burn electronic control unit with the same sensors and fuel trim valves for each bank.



*MAP: Intake Manifold Pressure †MAT: Intake Manifold Air Temperature

CONTACT

WOODWARD, INC.

PO Box 3800 - Loveland CO 80539-3800 - USA
3800 North Wilson - Loveland CO 80538 - USA
Tel: **+1 (970) 663 3900** Fax: **+1 (970) 962 7050**

www.woodward.com

DISTRIBUTORS & SERVICE

Woodward has an international network of distributors and service facilities. For more information, contact us or visit the website below.

phone: **+1 (970) 498 3300**

email: **e3rb@woodward.com**

web: **<http://www.woodward.com/e3rb-rer>**

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward contractual or warranty obligation unless expressly stated in a written sales contract.

© Woodward 2012, All Rights Reserved

