

PG+ GAS ENGINE CONTROL SYSTEM RELIABLE AND FLEXIBLE SOLUTIONS FOR TODAY'S DEMANDING APPLICATIONS

WOODWARD | INDUSTRIAL SYSTEMS



PG+ | GAS ENGINE CONTROL SYSTEM
Always Innovating for a Better Future

 **WOODWARD**

PG+ GAS ENGINE CONTROL SYSTEM

CHALLENGES IN THE INDUSTRY TODAY

Emissions compliance. Poor performance. Low efficiency and reliability. No controls integration. Poor-quality fuels. Engine damage. These challenges affect all of us working to extend the service lives of engine equipment, as they wreak havoc on the performance and compliance of your engines. Simply put, if you're not getting the proper burn from your engines due to system-wide control issues or low-heat-content fuels, you've got more than just a challenge, you've got a real problem.

VALUE THROUGH TOTAL SYSTEM INTEGRATION

PG+ system solutions provide a total system approach to engine control, providing air, fuel, ignition, combustion, and knock control—all in a single cohesive and integrated system. This integrated approach eliminates multiple control boxes, minimizes wiring complexity, and simplifies the overall engine application process.

The PG+ electronics, valves, integrated sensors, and advanced control algorithms provide the correct gas and air flow under varying conditions, enabling the engine to run at an optimal level with low emissions.

- Flexible solution for all stationary engine applications
- Cost competitive solution
- Easy to apply to a wide range of engines
- 2L – 32L displacement range
- Extensive hardware portfolio with lower cost hardware options for “standby use” or longer life components for “continuous use” applications
- Wider range of fuel flexibility (focus on bio-gas and flare gas needs) with less hardware changes
- Smart phone enabled for monitoring, troubleshooting, and application configuration



PG+ FEATURES OVERVIEW

- Accurate air/fuel control to improve engine and catalyst performance and provide long-term emissions compliance
- Misfire detection to minimize engine and catalyst damage
- Integration of engine control functions such as speed control, air/fuel ratio control, ignition control, parameter monitoring and engine protection into one system
- Adjustable alarm and shutdown trigger points to optimize engine protection
- Easy calibration and operation

SYSTEM CONFIGURATION

- Woodward Motohawk software provides a flexible solution for rapid time to market and easier application
- Lean burn or stoichiometric
- Turbocharged or naturally aspirated
- 3 to 8 cylinders (up to 16 with master/slave configuration)
- Knock detection
- Auxiliary shutdown
- Automatic back-up fuel switching
- Application specific functions and features



AIR FUEL CONTROL – ELECTRONIC FLOW REGULATOR

The Woodward Electronic Flow Regulator (EFR) is designed to meet the demanding needs of today's stationary engine market. Operating as part of the PG+ total system, the EFR provides full authority fuel control for precise fuel metering over a wide range of changing environmental conditions.

SCALABLE

- Available in 16mm, 24mm, 32mm fuel bore sizes
- 3 mixer housings available with multiple inserts for wide range of applications

FUEL FLEXIBLE

- Designed for use with pipeline gas, wellhead gas, bio-gas and propane
- Single hardware can handle 600-1200 BTU range
- Supports bi-fuel fueling with LPG
- 1 – 4 kPa fuel pressure inlet range



THROTTLES

Our throttle portfolio consists of long life, durable throttles for demanding applications as well as lower cost, high quality automotive derivative throttles for less demanding applications.

F-SERIES / L-SERIES THROTTLES

- Designed for long life for continuous use applications
- Available in 60mm, 68mm bore sizes
- CSA Class 1 Div Certified for hazardous locations



LIGHT-DUTY DERIVATIVE

- Lower cost option for intermittent use or some continuous applications
- Available in 32mm, 45mm, 55mm, 60mm, and 68mm bore sizes
- 30% longer life compared to other automotive style throttles



ENGINE CONTROL UNIT

SECM-70

- Low cost but very capable controller
- 8-32v
- 8 cylinder ignition (16 cyl with slave/master configuration)
- 15 analog inputs, 4 switch inputs, 1 knock input



IGNITION

Heavy Duty Coils

Heavy Duty Coil on Plug (coming 2017)

FOR MORE INFORMATION

visit us at www.woodward.com

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