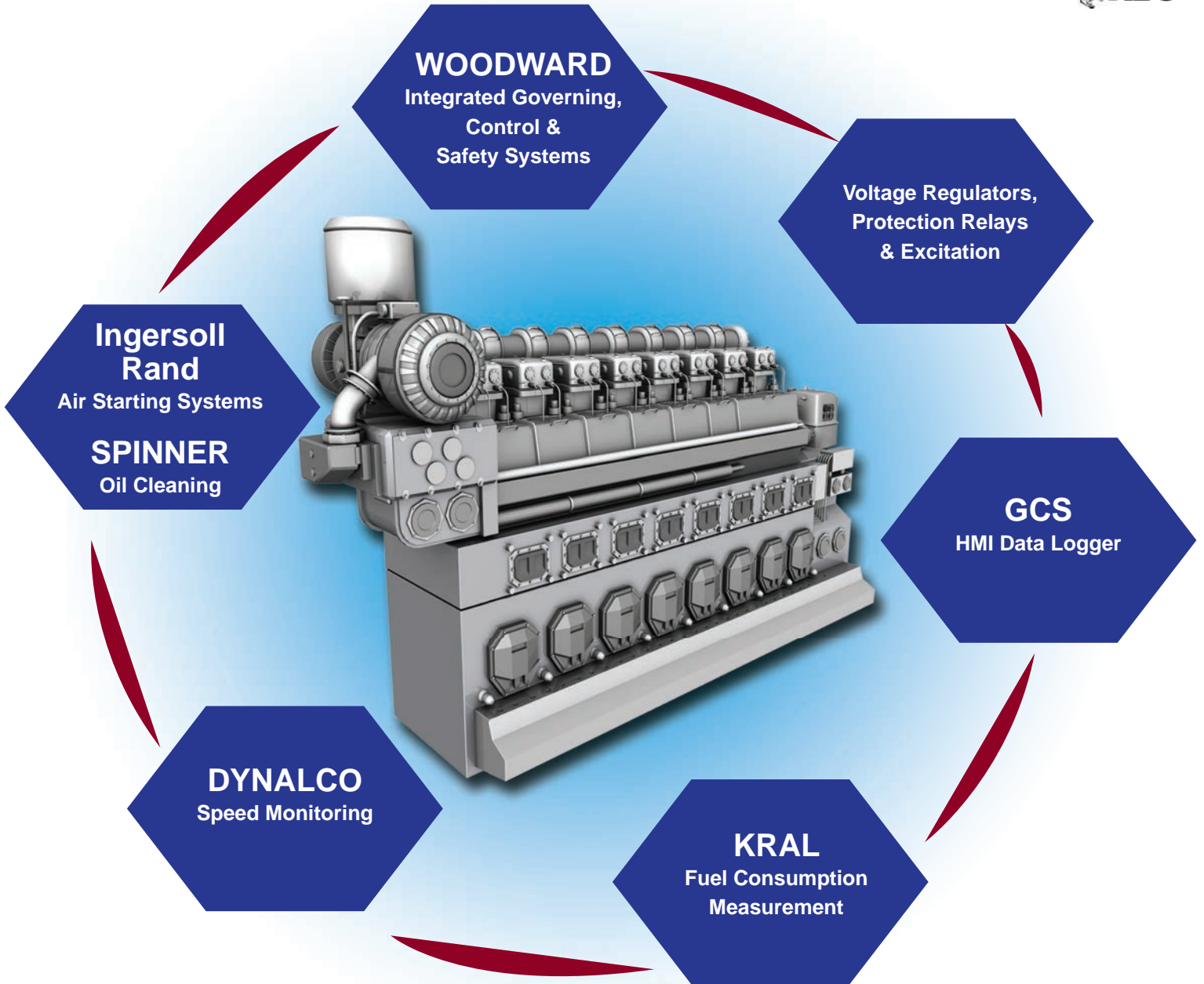




# MARINE SOLUTIONS - Class Approved

Innovative marine propulsion and power generation solutions to achieve optimum engine performance



Meet the challenges of obsolescence and enhanced engine performance with class approved products from leading manufacturers. Avoid unnecessary downtime and costly equipment repairs with GCS integrated control and monitoring systems. GCS Control System Health Checks are designed to maintain your equipment in first class condition, extending the lifecycle and performance of your engines.

- **Improve fuel efficiency**
- **Meet emissions standards**
- **Extend equipment life**

## GOVERNOR CONTROL SYSTEMS, INC.

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KRAL advanced fuel consumption monitoring and diagnostic system improves fuel usage. Fuel consumption value is an indicator of optimum engine tuning.



KRAL Fuel Consumption Measurement



## AVRs and Excitation

The DECS-250 offers a 15 amp pulse width modulated power stage providing high field forcing. Multiple communication options and an optional integrated power system stabilizer make the DECS-250 a complete system solution. Utilizing the BESTCOMSPPlus® PC software, the setup, configuration, operation and control can be performed quickly and accurately. Easily integrates PLC capabilities allowing users to customize their control scheme to meet virtually any application.

DECS250

## DYNALCO

The GCS Digital Tachometer provides reliable readings for over-speed testing. The self-powered tachs do not require external voltage; only a connection to the speed sensor is needed. Utilizing the Dynalco SPD100-Signal-Powered Digital Peak Speed with Memory Tachometer, the self-powered SPH100 is designed for high speed applications. It is shock and vibration resistant, immune to electrical noise and may be paralleled with governors and/or speed switches.



Speed Monitoring



The GCS HMI (Human Machine Interface) provides a window into the control system by displaying current / historical information and alarm handling. The HMI allows operators and supervisory personnel to view a series of screens to troubleshoot and remotely monitor their control systems using a sophisticated hardware platform combined with powerful, customizable software.



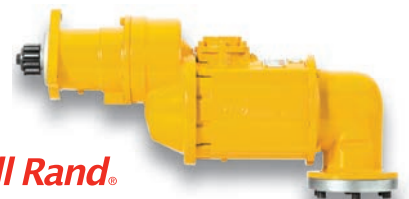
GCS HMI Data Logger



Spinner II Oil Cleaning

## SPINNER II<sup>®</sup> PRODUCTS

Spinner II Oil-Cleaning Centrifuges, produced by Mann & Hummel, remove the most damaging by-products of the combustion process using centrifugal force to spin contaminants out of your oil – including soot and other particles as small as one-tenth of a micron.



ST1000 Series

Ingersoll Rand air starters are flexible, efficient alternatives to electric sources. They create sheer power from the natural environment, and are perfect for a wide range of industrial, marine and automotive applications. Ingersoll Rand offers over 200 cataloged models of vane and turbine air starters with extensive options.



# WOODWARD



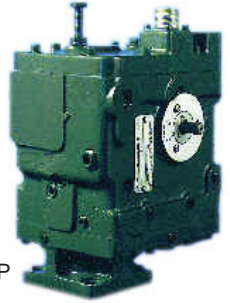
## Governing & Actuation, Power Management, Safety Systems, PLC



PGG-EG200

Frequently used on generator applications, PGG-EG governor/actuators are vibration resistant, have externally adjustable droop on the backup governor and load limit, adjustable load limit and droop with indicators, electrical signal sets mechanical governor speed.

The Woodward EGB Governor/Actuator is used with Woodward electronic controls that provide a proportional 20-160 mA signal to control engines driving electrical or mechanical loads. During normal operation, the EGB regulates fuel to the prime mover.



EGB-58P



easYgen 3400-3500

The Woodward easYgen-3000 Series control units are used in engine and generator management applications. Numerous inputs and outputs, along with a modular software structure facilitate use in a wide range of applications: AMF, peak shaving, import-export, cogeneration or distributed generation. The easYgen-3000 Series is compatible for single to multiple unit main parallel operations and is able to control up to 32 gensets.



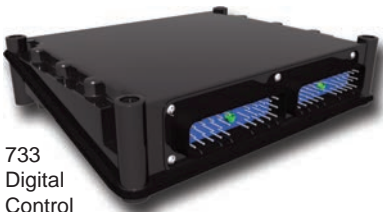
DSL2CII

The Woodward DSL2CII™ control is a microprocessor-based synchronizer and load control designed for use on three-phase AC generators. The DSL2CII™ control combines synchronizer, load sensor, load control, dead bus closing system, VAR, power factor and process control, all integrated into one powerful package. Applications allow up to 32 generators to be precisely paralleled and controlled.

The Woodward AtlasII™ control system has flexible software tools, many I/O configurations and scales up and down extremely well. Whether used as an engine control or an entire package control, the Woodward AtlasII™ system is an ideal solution for many applications.

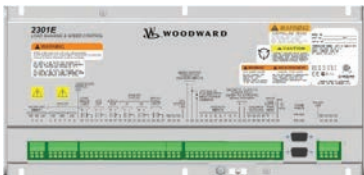


Atlas II



733 Digital Control

Woodward's 733 digital control manages and controls reciprocating engines used in power generation or marine propulsion. Designed for direct mounting on the engine, the 733 can also be mounted inside control cabinets.



2300/2301E

Woodward's 2300/2301E provides load sharing and speed control of generators being driven by diesel or gaseous engines. Application variations may be programmed to accommodate engine speed range, gear teeth, and select forward or reverse acting. The 2300/2301E controller is backward compatible with existing 2301D products using the same footprint and mounting configuration with enhanced features.



# Control System Health Check

**GCS Service Engineers perform Control System Health Checks to identify potential problems BEFORE they cause you and your plant costly downtime.**

**Governor Control Systems, Inc. (GCS)** is authorized by Woodward to perform warranty evaluations, training, repair, and field service work for Woodward products worldwide.



GCS' on-site engineer will listen to your needs and make recommendations for your specific control system.

Our thorough inspection report contains details about governor and auxiliary equipment usage, settings and linkage. We will work with your team to create a plan to tackle potential problems so you can make informed decisions about your plant's governor and control system. And GCS governor experts will recommend options and support your needs to ensure your system keeps running at optimum performance.

### ***Control System Health Check Inspection:***

- Inspection of all governor internal components & oil condition, fuel pump linkages & pins
- Tune governor dynamics for optimum performance
- Educate personnel on correct installation & setup of governor system
- Document governor running hours, if available
- Document part numbers & serial numbers of all governor, auxiliary & control system equipment
- Complete control & monitoring system troubleshooting
- Specify recommended spare parts
- Identify discontinued equipment & propose replacements
- Address any immediate control system concerns or needs
- Detailed report for recommended, immediate or future recommended services
- Suggest product training on Woodward governors and controls

*To take advantage of this cost-effective program or for additional information, contact [service@govconsys.com](mailto:service@govconsys.com).*



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