



## // COMPANY PROFILE

**ROTATING EQUIPMENT CONTROLS LTD.**  
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## About REC

**Rotating Equipment Controls Ltd (REC)** is the leading aftermarket supports facility for engine controls, protections and monitoring products from Woodward Inc and Regulateur Europa in Nigeria. Our technical support team is strategically trained at Woodward and Regulateur Europa training facilities to provide aftermarket supports from mechanical and electronic governors to turnkey control solutions for oil & gas; marine; manufacturing; power generation and distribution applications. We are available 24 hours a day, 7 days a week to provide parts, technical supports and emergency field services.

## Our Services Include

*As the authorized service center of Woodward Inc and Regulateur Europa in Nigeria, our services includes the following:*

- Repairs and overhauls of all types of governors; such as Woodward, Regulateur Europa, Heinzmann and Diesel Kike.
- REC repairs all analog and digital speed controls and we calibrate to OEM specification.
- REC factory trained application engineers provide comprehensive system supports from technical advises, installation, testing and commissioning. They also provide hands on training for the operators.
- REC recognizes the fact that at some point, there is an urgent need for governors or speed controls for emergency situation to prevent loss of revenue due to unplanned shutdown. In view of this, we have some governors and speed controls ready to be dispatched in fast response on exchange basis.
- REC's factory trained application engineers are available 24 hours a day and 7 days a week to provide on-site governors and speed controls repair, servicing and troubleshooting for unscheduled shutdowns.
- REC provides on-site product practical training program that includes scheduled classes for specific products.



TESTING OF WOODWARD UG8L



SHIP ENGINE CONTROL WITH CURRENT TO PRESSURE CONVERTER



INSTALLATION OF OVERHAULED WOODWARD UG GOVERNOR ON ENGINE



PLC PANEL WITH WOODWARD SPMA SYNCHRONIZER

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PROUD PARTNERS

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PROUD PARTNERS





**OUR GENSET CONTROLLERS SOLUTIONS**



**Woodward easYgen-1000** series is designed for single generator set used in stand-by or prime power applications. The controllers include purpose built algorithms and logic to start, stop, control, and protect the genset, open/close circuit breakers and – if applicable – mains supply monitoring with automatic changeover. Equipped with state of the art communication interfaces, Woodward's easYgen-1000 Series AMF genset controllers provide exceptional versatility and value for the OEM genset packagers.

The easYgen-1000 Series is available in two variants:

**easYgen-1800** advanced AMF controller comes with a large liquid crystal display (LCD), I/O expansion possibility, Ethernet and SD card **connectivity**

**easYgen-1600** compact AMF controls offer a state of the art LCD, adequate on-board I/Os and common industrial connectivity.

Easy-to-use software ToolKit-SC simplifies configuring the controllers for standard system application as well as making it easy to customize it for individual solutions. Additionally, the module's integral front panel allows adjustment of several parameters.

## EasYgen -1600/1800



## EasYgen 600/800



Woodward easYgen-x00 series is designed for single generator set used in isolated stand-by or prime power applications. The controllers include purpose built algorithms and logic to start, stop, control, and protect the genset, and open/close circuit breakers. Equipped with state of the art communication interfaces, Woodward's easYgen-x00 Series AMF genset controllers provide exceptional versatility and value for the OEM genset packagers.

The easYgen-x00 Series is available in two variants:

**easYgen-600** compact start/stop controller offers a state of the art liquid crystal display (LCD), adequate on-board I/Os and common industrial connectivity

**easYgen-800** advanced start/stop controller comes with a large LCD, I/O expansion possibility, Ethernet and SD card connectivity.

## EASYGEN RUN-UP Synchronization





Equipped with enhanced and powerful features, the new **easYgen-3000XT** series has the same form and fit as the previous generations to easily slip into your current and future control panel. All functions of the **easYgen-3000XT** are backward compatible so they can synchronize, load share, and perform load dependent starting and stopping as needed.

### EasYgen 3000XT



Woodward's **easYgen-3000™** Series paralleling genset controllers provide exceptional versatility and value for OEM switchgear builders, generator packagers, and system integrators. The **easYgen-3000** combines complete engine-generator control and protection with advanced, peer-to-peer paralleling functionality and innovative features in a robust, attractive and user-friendly package. Its integrated LogicsManager™ programmable logic functionality provides outstanding application flexibility and can often eliminate the need for additional PLC control, yet can easily integrate with SCADA or PLC-based control systems where desired. The **easYgen-3000** gives you the advantage of standardizing on a single, affordable genset controller for many different distributed power generation applications--from stand-alone emergency backup power to parallel load sharing of up to 32 gensets in complex, segmented distribution systems with multiple utility feeds and tie breakers.

### Easygen-3000™



The **easYgen-2000** Series is a compact, affordable genset control and protection package for load sharing up to 16 gensets in island operation, or parallel operation of a single unit with a utility. Its integrated load-dependent start/stop programming allows you to define how gensets are brought on- and off-line to support changing load demands. It even works with a mix of different sized engines, so you can maintain the spinning reserve you need while optimizing fuel efficiency.

### EasYgen 2000Series



The **easYgen-300** Series are affordable, value-packed genset controllers for auto-start and transfer switch operations. They provide all the essential functionality for standby diesel genset applications with monitoring, protection, and event recording options common to high-end controls.

### EasYgen 300 Series



## OUR PROTECTIVE RELAYS SOLUTIONS

With the **HighPROTEC Line** Woodward offers an outstanding solution for the reliable protection of distribution and generator applications. The innovative device handling and PC tool with plausibility check and internal fault simulator, combined with high flexible hardware minimized commissioning, training costs and setting failures. With the focus to an optimized menu overview not relevant functions could be hidden. The line is easily applicable for generator differential protection, directional and non directional feeder transformer differential protection, and motor protection. The all in one protection concept for the different application guaranties an high availability of your electrical equipment and your GRID.

### APPLICATION of MCA4 Protective Relay for Feeder

The MCA4 is a precise and reliable protection, control and monitoring relay for feeder, grid and generator applications. The latest generation series from SEG/Woodward, the MCA4 incorporates all the ANSI and IEC concepts to comply with ever changing grid interconnection requirements. Flexibility in hardware, software, application, user interface and communications makes the MCA4 adaptable to requirements today and in the future. The hardware is designed for all nominal values in combination with protection and control functionality. The parameterizing and analyzing software Smart view is usable for each HighPROTEC device and free of charge.



### APPLICATION of MCDGV4 Protective Relay for Generator Differential Protection

The generator differential protection relay MCDGV4 is a high precision protection for medium and high power generators. The step-up transformer can be integrated into the protection zone (unit protection/block protection). In addition to the phase and earth differential protection, the device provides a variety of generator-specific protection functions. The package comprises phase, earth current, voltage, frequency and power protection. In addition to that the device offers an undervoltage directional reactive power protection with reconnection function and an adjustable Fault Ride Through (FRT) with AR detection. The intuitive operating concept with plausibility checks and extensive commissioning functions such as the built-in fault simulator allows a safe and time-optimized maintenance and commissioning. The parameter setting and evaluation software Smart view SE can be used consistently across the entire family of devices.





### **APPLICATION of MCDTV4 Protective Relay for Transformers**

The MCDTV4 offers an all-in-one solution for HV, MV and LV transformers and it offers much more than just a differential protection package. Furthermore it can detect critical operation states based on voltage measurement (e.g. Overexcitation). The MCDTV4 provides in addition to that an Interconnection package. This can be used for mains protection at the point of common coupling (e.g. for directional reactive power undervoltage protection). The integrated backup protection package enables the MCDTV4 to act as backup protection (e.g. for downstream breakers). Additional features like demand management are available without extra charge.



### **APPLICATION of MRU4 Protective Relay for Voltage and Frequency**

The MRU4 is a protection relay which uses the latest Dual-Core-Processor Technology to provide precise and reliable protective functions and is very easy to operate. It is designed to protect electrical equipment from dangerous voltage fluctuations. For example protection against under voltages caused by mains shortcircuits, or overvoltages due to load shedding or failure of a generator voltage controller. Its compact design makes the MRU4 ideal for installation within the LV terminal compartments of compact SF6-insulated MV systems.



### **APPLICATION of MCDLV4 Protection Relay for Cables and Lines upto 24KM**

The MCDLV4 protection system protects cables and lines up to 24 km. The system is able to replace up to six protection devices. 2 Cable and Line Differential Devices + 2 Directional Feeder Backup Devices + 1 In-Zone Transformer Differential Device + 1 Mains Decoupling Device = 6 devices combined in one system



The MRA4 is a high precision and reliable protection and control relay. The intuitive setting concept with plausibility test enables reliable and time optimized configuration of the extensive protection function to a variety of applications such as incoming or outgoing feeder protection, network protection and generator protection. The implemented switchgear management guarantees an efficient and safe control and supervision. The device is a bench mark in flexibility and usability and offers various communication options. The hardware is designed for all nominal values in combination with protection and control functionality. The parameterizing and analyzing software Smart view SE is usable for each HighPROTEC device and free of charge.

### **APPLICATION of MRI4 for Non Directional Overcurrent and Earth Fault Relay**

The MRI4 is a protection relay which uses the latest Dual-Core-Processor Technology to provide precise and reliable protective functions and is very easy to operate. The MRI4 provides a number of three phase protection elements to safeguard against overcurrent, short-circuit and earth fault, all with inverse time (INV) and definite time (DEFT) tripping characteristics. The MRI4 is also ideal for the protection of isolated, resonant, resistive and solidly earthed neutral systems. It is designed to be used in both radial networks and single fed open ring main systems. It can also serve as backup protection for differential protection systems on generators, transformers, bus bars and electrical lines. For overhead line protection the MRI4 is also available with an optional auto reclosing function.



### **APPLICATIONS of MRM4 Protective Relay for Motor Protection Device**

The MRM4 is a protection relay which uses the latest Dual-Core-Processor Technology to provide precise and reliable protective functions and is very easy to operate. The MRM4 provides all necessary functions to protect low and medium voltage motors at all power levels. The protection functions are based on current measurement. They supervise the motor start sequence (motor start), they detect a stall or locked rotor condition and they monitor the thermal condition of the motor. Overcurrent and earth overcurrent protection as well as unbalanced load protection are included in the protection package. The status and operation of the motor will also be monitored by means of the statistic and trend recorder. All important events and measuring values will be logged by means of the start, event, failure and disturbance recorder.



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# Mechanical Governors and Speed Controls for Gas and Diesel Engines

Engine manufacturers and users depend on Woodward hydraulic-mechanical governors and speed controls to provide reliable and precise regulation and controlling of engine speed and output in virtually every type of engine application. Shown below is the work output ratings from 10.8 inch-pounds up to 500 foot-pounds, Woodward governors and controls are used in power generation, marine, pump, compression, and vehicle applications etc



The Woodward 3161 mechanical-hydraulic governor is designed for speed control of diesel engines, gas engines, or steam turbines. The variety of standard features and available options makes the governor ideal for use in a wide variety of applications which require work capacity of up to 24 Nxm (18 lb-ft). Applications include off-highway vehicles, industrial, marine, generator set, compressor, or pump drives.



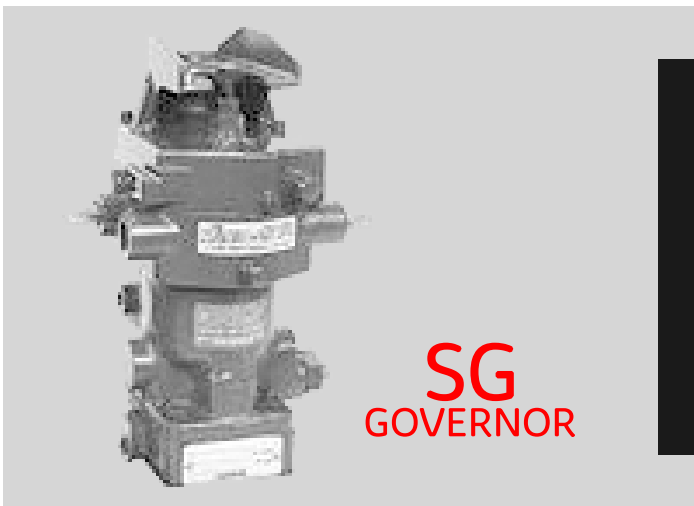
The Woodward EG-3P (proportional) and EG-3PC (proportional with compensation)actuators are designed for use on diesel, gas, and gasoline engines, or turbines, and are particularly well suited for use in control systems requiring a proportional mechanical output of a proportional electrical input.



The Woodward PG-PL is a pressure compensated, isochronous control type governor widely used for controlling speed for all types of diesel or gas engines and steam turbines, driving pumps and compressors. It produces output in the 12 to 58 ft-lb range.



The Woodward PSG governor is a pressure compensated, speed-droop or isochronous governor for controlling the speed of small diesel, gas, and gasoline engines, or small steam or industrial gas turbines. The governor is used to control engines or turbines driving alternators, dc generators, pumps, or compressors.



The Woodward SG governor hydraulic speed-droop type governor is designed for use on small diesel, gas, or gasoline engines where isochronous control is not required. The governor operates at a slower speed as engine load increases achieving system stability and load division between paralleled units.



The Woodward UG-25+ governor is a microprocessor-controlled, mechanical-hydraulic amplified, governor for controlling diesel, gas, and dual fuel engines, and steam turbines. The UG-25+ offers enhanced control capabilities, such as start fuel and boost limiting schemes. The additional transient fuel limiting (jump-rate) improves the engine load acceptance and reduces transient emissions significantly. The UG-25+ concept offers a fast-acting and high-work-output governor, without the need for any auxiliary devices such as a start booster.





**DYNA 2000 & 2500  
LINEAR ACTUATORS**

The Woodward Dyna 2000 and Dyna 2500 linear actuators provide accurate precise positioning with a minimal number of moving parts. This simple design has a sliding armature whose magnetic force is proportional to the input coil current. Easy to install by mounting near the fuel system and direct connecting to the fuel control rod or lever. Suitable for installation on diesel, gasoline, or natural gas engines with fuel system force requirements of less than 13 pounds (58 N) of force.



**DYNA 7000  
ROTARY ACTUATOR**

The Woodward Dyna 7000 Rotary Actuator provides a new dimension in size and versatility for spark-ignited and diesel engines. This proven rotary design has been field tested over the last ten years. This simple design of a proportional electric solenoid has a rotating armature whose angular position is proportional to input coil current. The 70 degrees of rotation and small size enhance the overall mounting and interface with a variety of fuel systems. The actuator is suitable for installation on gasoline, natural gas, and diesel engines. On carbureted and throttle body applications, a direct connection between actuator shaft and butterfly shaft is possible, thus eliminating external linkage.



**EG-3P and EG-3PC**

The Woodward EG-3P (proportional) and EG-3PC (proportional with compensation) actuators are designed for use on diesel, gas, and gasoline engines, or turbines, and are particularly well suited for use in control systems requiring a proportional mechanical output of a proportional electrical input.



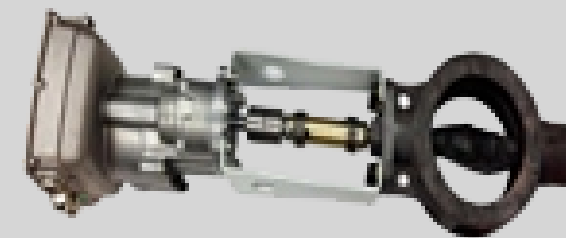
**EPG**  
Actuation/Governing Systems

The Woodward 512/524 and 1712/1724 EPGs are three-component governing systems for 12 or 24 Vdc operation. All EPG systems include an actuator, an electronic speed control, and magnetic pickup. Both isochronous and droop controls are available. The EPG is designed for precise speed control of diesel, gas, or gasoline engines, and gas turbines. The governor is especially suited to prime movers without a mechanical drive or hydraulic oil supply for the governor, and which have low-mass, low-friction fuel linkages.



**F Series**  
MODULAR ACTUATOR

The Woodward F Series Modular Actuator is an electric bi-directional actuator with an integral driver. The actuator accepts a position demand signal from a master controller and drives the 0-70 degree output shaft to the demanded position based on an internal shaft position sensor. The actuator can accept a PWM, J1939 CAN, 4-20 mA, or 0-5 V position demand signal. The electric actuator requires no hydraulics, pneumatics, or gear train. The Woodward F Series Modular Actuator is designed to be engine-mounted for various position control functions on reciprocating engines used in industrial service.



**Glo-Tech Hot Valve  
with R-Series Actuator system**

Woodward's Glo-Tech hot valve system provides precise control of high temperature gases in an on-engine environment. The Glo-Tech hot valve system is a high-temperature butterfly valve and electric actuator combination that can be used to regulate high-temperature gases in single and two-stage turbocharged reciprocating engines. The valve is designed to be positioned by an R-Series electric rotary actuator through an anti-backlash coupling capable of handling considerable misalignment.





**L-Series  
Position Controller**

The Woodward L-Series Position Controller provides a building block approach to total engine management. The microprocessor-based bi-directional actuator design easily attaches to fuel pumps, mixers, or throttle bodies. The L-Series Position Controller accepts a position command and drives the 0°/60 degree output shaft to the commanded position based on an internal shaft position sensor. The high-efficiency torque motor delivers 0.34 Nxm (0.25 lb-ft) nominally over 60° travel range to operate fuel or air control devices.



**ProAct™  
Integrated Speed Control (ISC)**

The Woodward ProAct™ Integrated Speed Control (ISC) is an electric actuator with an integrated electronic driver capable of diesel or gaseous engine speed control or positioning tasks. The ProAct™ ISC can be mounted on-engine to control a diesel fuel rack or gaseous throttle via linkage or integrated throttle body. The ProAct™ ISC accepts a speed input from a MPU and can accept a position command signal from another device in the system, such as an engine control module. May be configured as a speed control or a positioner.



**PG-PL  
Actuator/Driver**

The Woodward PG-PL Actuator/Driver is an electrohydraulic actuator with a proportional driver interface which can be used with electronic controls providing a 0 to 200 mA position signal. The actuator is designed for use with Woodward 2301A and D series, 700-series, Peak® 150, and 505 digital controls.



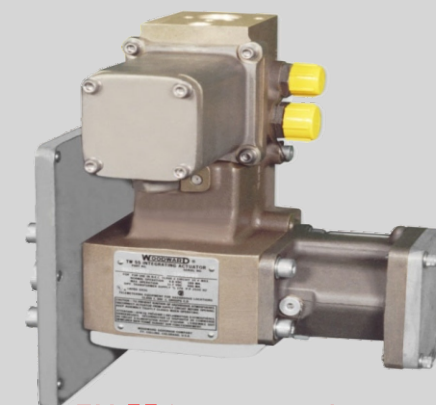
**R-Series Electric Actuators  
with Integral Drivers**

Woodward's R-11 and R-30 electric actuators provide high torque rotary travel to precisely position various types of control valves and other mechanisms that operate in high-temperature, highvibration locations. In reciprocating engine applications, these valves may include: fuel throttles, wastegates, exhaust gas recirculation, compressor recirculation (bypass), waste heat recovery, and exhaust. Additional applications on reciprocating engines include variable turbine geometry turbocharger actuation.



**ProAct™  
Digital Plus Actuator**

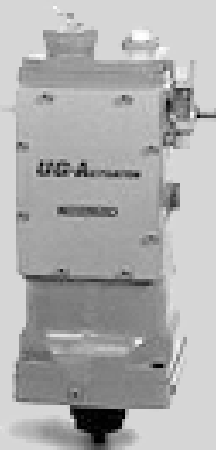
The Woodward ProAct™ Digital Plus Actuator is intended to be mounted on-engine to control varying functions including, but not limited to: fuel rack positioning, timing control, throttle valve, and wastegate positioning. The actuator is a positioner with an integral driver, which will accept a position command signal from another device in the system. The ProAct™ Digital Plus Actuator includes an integral digital driver capable of controlling the actuator, communicating with the outside control system, and containing on-board software and intelligence to realize monitoring and customizing functions.



**TM 55 Integrating Actuator /  
55P Proportional Actuator**

The Woodward TM 55 is an integrating type actuator used for controlling diesel and gas engines or steam and industrial gas turbines, and is designed for use with an adapter to Woodward liquid and gas fuel valves. Woodward TM 55P Actuator is an electrohydraulic, proportional actuator that is well suited for use in control systems requiring a rotary mechanical output that is proportional to electrical input. The Woodward TM 55 has an electrical position sensor which provides a feedback signal to Woodward electronic controls. This combination allows closed loop control of the actuator output-shaft.





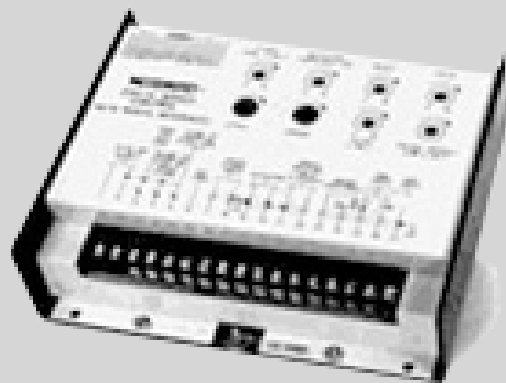
**UG-Actuator**

The Woodward UG-Actuator offers the advantages of electronic control and load sharing systems while using the convenient, existing UG8-type drives and linkages. The actuator provides the muscle for Woodward analog controls such as the 2301A, as well as Woodward digital controls such as the 2301D and the 723 Plus. The UG-Actuator can be used with diesel or natural gas engines, as well as with steam and industrial gas turbines. The UG-Actuator has a self-contained oil sump so a separate oil supply is not required.



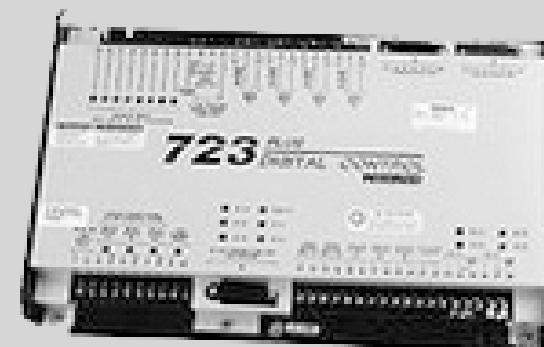
**2301E Digital Load Sharing and Speed Control**

Woodward's 2301E provides load sharing and speed control of generators being driven by diesel or gaseous engines. Using an external computer (PC) and built-in configuration software, application variations may be programmed to accommodate engine speed range, gear teeth, and select forward or reverse acting. The 2301E controller is backward compatible with existing 2301D products using the same footprint and mounting configuration with enhanced features.



**2301A Full Authority Speed Control**

The Woodward 2301A Full Authority Speed Control sets the speed or load of a diesel engine, gas engine, steam turbine, or gas turbine according to the demand of a process or a computer control signal of 4-20 mA or 1-5 Vdc. The unit provides isochronous operation, with droop control available through an externally-wired potentiometer. The isochronous mode is used for constant speed of the controlled prime mover as long as it is able to provide power to satisfy the load. Droop control is provided when parallel-bus operation is required.



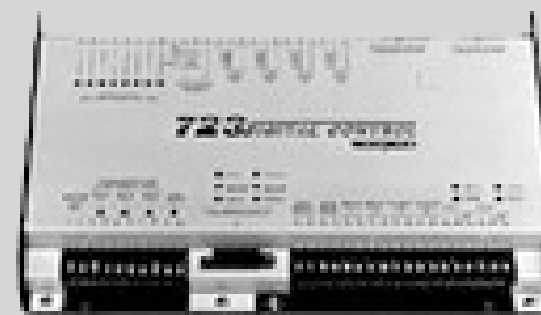
**723 Plus Digital Control**

The Woodward 723 Plus Digital Control manages and controls reciprocating engines (gas, diesel, or dual fuel) used in power generation, marine propulsion, and gas compression/distribution. The control may also be used in cogeneration, power transmission/distribution, process management, pipeline pump stations, utility power generation, emergency standby power, and remote control station operation. The 723 Plus provides state-of-the-art control for new and retrofit situations.



**2301A Load Sharing and Speed Controls**

The Woodward 2301A Load Sharing and Speed Controls are designed for use in electric generator systems where multi-unit load sharing is desired. 2301A controls may be used with diesel, gas or gasoline engines, or steam or gas turbines. Controls are available for applications requiring droop and/or isochronous speed control; in forward- or reverse-acting models; for single or tandem actuator installations; with accelerating or decelerating ramps; and in several speed ranges. Automatic, adjustable start fuel limiting regulates the maximum fuel setting while the engine is starting.



**723PLUS Compressor Performance Control**

The Woodward 723PLUS Compressor Performance Control controls the speed, air/fuel ratio, and ignition timing of reciprocating engines in variable speed/load applications. The control includes inputs for two speed sensors for monitoring engine and turbocharger speed, a notch filter to attenuate the effect of flexible coupling torsionals, a remote speed setting input, and inputs for air manifold pressure, fuel gas header pressure, and air manifold temperature.



733 Digital Control

The Woodward 733 Digital Control manages and controls reciprocating engines (gas, diesel, dual fuel) used in power generation, marine propulsion, locomotive and industrial engine, and process markets. It has been designed to enable to be mounted directly on the engine or inside control cabinets. The 733 is available as a stand-alone speed control and is the main control unit within an engine management system. Designed for network connectivity, it may be programmed to perform all engine functions: speed, air and fuel control, monitoring, alarms, engine protection and sequencing



E3 Gas Engine Controls

Available in three (3) configurations, Woodward E3 gas engine controls are capable of controlling all types of gas engines. The Woodward E3 systems accurately control the air-fuel ratio to achieve and maintain high engine efficiency and low emission levels.



E3 Rich-Burn Trim System

The Woodward E3 Rich-Burn Trim control system is designed for the most popular engines used in gas compression and many power generation or irrigation pump applications. The system analyzes and controls all of the functions of an engine and catalyst, optimizing the amount of time the engine is in compliance.



E3 Lean-Burn Trim System

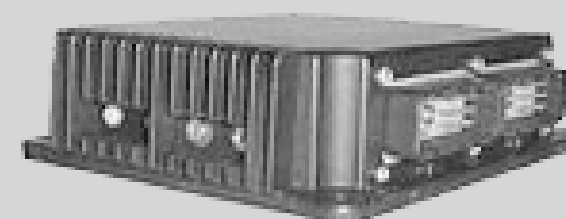
The Woodward E3 Lean-Burn Trim control system is designed to control lean-burn industrial gas engines used in many power generation, pumping, and other stationary applications ranging from 300 kW to 2,000 kW (400-2,700hp). The highly accurate, closed-loop control system helps customers meet regulated emissions levels, while maintaining engine performance over a very large range of fuel qualities.



E3 Full Authority System

The Woodward E3 Full Authority System is a fully integrated engine control solution with full authority over spark, fuel and air. Additionally, diagnostics such as detonation and misfire, as well as other health monitoring, are integrated into the system. This fully integrated approach permits precise governing and air-fuel ratio control while remaining flexible enough for large variations in fuel quality.

The system is designed for gas engines used in applications where the energy quality of the fuel supply is variable - such as engines used in landfills, waste-water treatment plants, or bio-gas recovery plants.



FireFly™ Control

The Woodward FireFly™ Control detects the occurrence of knock in gas engines and adjusts the ignition timing to compensate. This provides protection from the harmful effects of knock and thereby increases efficiency. The FireFly uses knock sensors placed on the engine block. These sensors pick up vibration signals and the FireFly detects the specific vibrations associated with determining the knock condition. The FireFly ensures that only knock related vibration signals are acted upon, ignoring all usual vibration signals produced by a gas engine.



Gas Engine I/O-Node (GEION)

The Woodward Gas Engine I/O-Node (GEION) in combination with 723 DCS can be used for lean-burn gas engines running in both "closed or open loop" air fuel ratio control and for stoichiometric gas engines, naturally aspirated or turbocharged, in the power range of 20 to 2000 kW. In case of a V-engine, air fuel ratio control per bank is possible using two gas engine I/O-nodes and a 723 DCS, one for each bank. The gas engine I/O-node is specially designed to do the air fuel ratio control on carbureted turbocharged or non-turbocharged gas engines.



In-Pulse™ System

The Woodward In-Pulse™ system has been developed to control a range of Woodward electrical low pressure gas admission valves and electric-hydraulic high-pressure rail valves. These valves provide a means of injecting fuel or other fluids into engines operating within a speed range of 1 to 2100 rpm depending on the valve being driven. Plate type solenoid operated gas admission valves (SOGAVs) are suitable for in-manifold injection only, whereas the rail valve provides actuation of both in-cylinder and in-manifold type injection devices.





### 1102-4G

Popular hydraulic governor, providing mechanical speed control of diesel or steam turbine driven gensets. Option for electrically operated stop and/or start fuel limiter. Output range: 8, 12, 15, 25, 34 or 40 ft. lbf.

### 1115-4G

Common hydraulic governor, providing mechanical speed control of marine propulsion engines. Analogue 4-20 mA speed setting and digital raise lower speed command inputs. Option for electrically operated stop, start fuel limiter or boost pressure fuel limiter. Output range: 8, 12, 15, 25, 34 or 40 ft. lbf.



### 1800-2G

Powerful mechanical-hydraulic governor, providing mechanical speed control and featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on engines whose fuel control systems require a high work output. Option for start/boost pressure fuel limiter. Output range: 60-80 ft. lbf

### 1500-3G

Largest of the RE hydraulic governors, providing mechanical speed control and featuring a two-stage, high stiffness, backlash-free hydraulic servo mechanism for best possible control on engines whose fuel control systems require a high work output. Option for start/boost pressure fuel limiter. Output range: 120, 200 or 250 ft. lbf



### 2100

Hydraulic governor, providing mechanical speed control of high-speed engines, with options to provide electrical or pneumatic speed control and boost pressure fuel limitation. Output range: 8 or 11 ft. lbf.

### DG 2800.14

The DG 2800.14 governor is a microprocessor controlled hydraulic governor for diesel, gas or dual fuel engines and steam turbines. It consists of the well-proven Regulateurs Europa 2800 series actuator and the Heinzmann digital DC 14 governor controls the proportional solenoid of the actuator by means of a current signal. The DG 2800.14 includes an integrated speed pick-up, however if required an external pick-up can be connected. The DC 14 digital governor provides state-of-the-art speed control (steady State speed wander < 0.1 % at nominal speed), start fuel limit and functionality typical for generator application, including isochronous load sharing (optional). The software allows to set the gear ratio between crankshaft and governor drive. In this way all speed related settings in the software refer to "engine rpm". The DC 14 digital governor is set-up with the user-friendly interface program DcDesk. Also 20 selectable parameters can be edited using the units key pad and display (password protected). Marine certification pending.



PROUD PARTNERS



PROUD PARTNERS