# CONTROL AND PROTECTION TECHNOLOGIES FOR POWER GENERATION AND DISTRIBUTION



PRIME MOVER CONTROL AND PROTECTION SOLUTIONS



**GENERATOR SYSTEM** CONTROL AND PROTECTION SOLUTIONS





www.woodward.com

# WOODWARD ENHANCES THE GLOBAL QUALITY OF LIFE AND SUSTAINABILITY BY OPTIMIZING ENERGY USE THROUGH IMPROVED EFFICIENCY AND LOWER EMISSIONS.

Our technologies and services enhance energy conversion of renewable and fossil fuels, energy extraction and distribution, and electric power generation and distribution. With Woodward's combination of combustion control, motion control, and electronic controls technologies, we enable more responsible energy use by reducing emissions, improving fuel utilization, and enabling power system integration.

#### BENEFITS

- → Seamless integration of protection and control products
- → Performance to meet demanding applications
- → Fuel efficiency and emissions compliance
- → Reliable products for increased uptime





**PRIME MOVER** CONTROL AND PROTECTION SOLUTIONS

No matter what type of prime mover is driving your generator – be it steam or gas turbine or a gas or diesel reciprocating engine – Woodward makes products that control speed, fuel, exhaust emissions, and manage load that are tailored for your specific prime mover. Woodward's supplementary prime mover protection products provide independent over-speed protection separate from that found in the speed controller with additional monitoring functions to quickly shut down the prime mover in the event of an unsafe condition.

#### CAPABILITIES

- → Highly flexible and configurable
- → Integrated parameter monitoring and data logging
- → Speed controls that accept external biasing signal







# **GENERATOR SYSTEM** CONTROL AND PROTECTION SOLUTIONS

Woodward has a legacy as the "benchmark" in the distributed power generation industry for high-quality, reliable synchronizers, load sharing controls and generator controllers. These modern integrated engine-generator controllers provide full control and protection capability for a multitude of generator applications – from isolated, emergency standby gensets to parallel operation of multiple generators in complex distribution systems.

#### CAPABILITIES

- $\rightarrow$  Digital generator and transformer protection
- → Automatic synchronizing, dead bus closing, breaker control and load sharing
- → Load management for base loading, import/export control and peak shaving
- $\rightarrow$  Load-dependent start and stop functionality for fuel savings



# **POWER SYSTEM DISTRIBUTION** CONTROL AND PROTECTION SOLUTIONS

Woodward circuit breaker controls, protection relays, and multi-function protection relays provide effective, reliable operation of complex distribution systems, protect valuable equipment, and ensure the safety of personnel for feeders, motors, and transformers in mediumand low-voltage electrical systems. Woodward's automatic transfer switch controllers provide the same functionality common in more expensive, PLC-based control systems.

#### CAPABILITIES

- → Advanced communications protocols
- $\rightarrow$  Integrated fault simulator function for testing trip levels
- $\rightarrow$  Flexible internal logic to master complex transfer operations
- → Integrated in-phase monitoring for smooth, synchronized, and fast transfers

# GLOBAL SUPPORT

Woodward's global support network and our partners provide an extensive range of technical and after-sales support services. This global presence allows us to respond quickly to the needs of our customers anywhere in the world. In today's complex control world, customers have come to recognize our people's expertise beyond the control system and depend on our global teams as critical plant support assets.

### WOODWARD, INC.

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## **DISTRIBUTORS & SERVICE**

Woodward has an international network of distributors and service facilities. For distributor information, visit us at: www.woodward.com/directory

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