

# **APECS**<sup>TM</sup>

ADVANCED PROPORTIONAL  
ENGINE CONTROL SYSTEM



## CLEAN ENERGY TECHNOLOGIES

*Always Innovating for a Better Future*



## CONTROL SOLUTIONS FOR ANY ENGINE APPLICATION

Woodward's worldwide reputation as a leading manufacturer of governor systems is enhanced by a full line of controllers and actuators for small industrial engines. These APECS (Advanced Proportional Engine Controls System) products provide isochronous or multispeed engine governing through a wide speed range. The complete APECS system consists of a powerful microprocessor-based controller driving a precision proportional actuator, which is connected to the engine's throttle or fuel pump speed lever to precisely control engine speed.

### ACTUATOR OVERVIEW

The APECS line of actuators provides proportional fuel control for construction, industrial, and agricultural equipment, forming the foundation of full electronic governing systems. These actuators are suitable for speed governing on generator sets, forklifts, pump sets, wood chippers, pleasure boats, and many types of off-road vehicles.

- Designed to minimize heat buildup, resulting in consistent force and improved position repeatability
- Works with the APECS 500, 4500, and 4800 controllers
- Push or pull actuation
- Spring return to minimum fuel
- Can be mounted in any position
- Fully customizable for any application



#### APECS GBA Rotary Actuator

The APECS GBA (Golf Ball Actuator) is a laminated, electric actuator that accurately controls fuel flow. Roughly the diameter of a golf ball, it is suitable for power generation (stationary and mobile gensets) and industrial equipment applications.

- Reference product specification 36510



#### APECS 0175 Linear Actuator

APECS 0175 Series Actuators provide proportional fuel control for construction, industrial, and agricultural equipment. 1.75" (44.4 mm) diameter spring-return actuator, pull or push application, with three spring types available.

- Reference product specification 03399



#### APECS 0154 Linear Actuator

APECS 0154 Actuators are purpose built to be an integral part of PF fuel pumps. The APECS 0154 has a retracting force of .6 lb (2.7 N), working in conjunction with a fuel pump action force. The actuator is also available with position sensing feedback for the control.

- Contact Woodward for specific application info.



## CONTROLLER OVERVIEW

APECS controllers manage engine speed by adjusting the fuel control lever with an actuator. The core of the system is a powerful microprocessor-based controller that processes the signal received from a speed sensor and compares it to the desired speed setting. These controllers are well-suited for generator sets, compressors/pumps, utility vehicles, and construction equipment.

- Can be used for diesel, gasoline, propane, and CNG
- Compatible with Woodward APECS GBA, 0175, and 0154 actuators
- APECS 4500 and 4800 provide engine protection by monitoring engine coolant and oil pressure
- Compatible with magnetic pickup, coil ignition, magneto ignition, and Hall-effect sensors
- CAN /J1939 bus interface



### APECS 500 Speed Control

The APECS 500 controller provides basic speed control and combines the convenience of manual adjustments with the flexibility of a computer-based calibration tool. Electrical connections consist of six wires to battery, actuator and magnetic pickup. For most applications, the APECS 500 can be connected and adjusted with simple hand tools. This single speed controller is designed to meet the needs of the small gen-set market where simplicity, ease of operation, and low cost are key features.

- Reference product specification 36710



### APECS 4500 Controller

Advanced electronics in the APECS 4500 provide maximum control and optimal engine performance. Adaptive features include autocrank, droop governing, glow plug control, and analog input (remote speed pot). CAN / J1939 bus interface allows communication and diagnostics among engine components. The APECS 4500 controller is integrated into commercial and construction vehicles, and industrial engine systems and compressors by original equipment manufacturers.

- Reference product specification 51439



### APECS 4800 Controller

The APECS 4800 48-pin digital controller provides isochronous speed control, actuator position control, torque limiting, droop, glow plug control, CAN /J1939 based communications, and additional engine management and protection functions to optimize engine operating efficiency. The 4800 provides NOx control through EGR and particulate control with smoke limiting technology using actuator position feedback control. Torque limiting protects the engine from over loading.

- Reference product specification 36717

	FIXED SPEED GEN-SETS	GEN-SETS & TRACTORS	GEN-SETS, TRACTORS & INDUSTRIAL
	Speed control for simple, low-cost, fuel systems	Speed control for mechanical fuel systems with engine health and more I/O features	Speed control for mechanical fuel systems with engine health and smoke control
APECS 500	████████████████████		
APECS 4500		██	
APECS 4800			██
APECS GBA	██	██	██
APECS 0175	██	██	██
APECS 0154	██	██	██

EMISSION LEVELS

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