

**PROVIDING  
INNOVATIVE ENGINE  
CONTROL SOLUTIONS  
SINCE 1986.**



PROVIDING SOLUTIONS SINCE 1986

**SPEED CONTROLLERS  
ACTUATORS • MAGNETIC PICKUPS  
GASEOUS CONTROL SYSTEMS • GENERATOR CONTROLS**





## OUR COMPANY

### ABOUT US

Governors America Corp. (GAC) is a worldwide leader in the development and manufacturing of innovative engine control products. Our solutions support the world's most popular engines in almost every imaginable application and in the harshest environments.

As a veteran-owned and -operated family business, our dedication and focus on our customers' needs has shaped us into a vertically integrated company with complete design, development and manufacturing capabilities. We provide electromechanical and electronic devices for precise engine control and system integration. The design baseline for GAC actuators and speed controllers incorporates fast response times, multi-voltage usage and proven reliability. With distributors around the world, we are a powerhouse of solutions.

At GAC, we are committed to diversifying our product catalog with a growing range of engine controls. While our traditional product line consists of speed control governors and actuators for mechanical and electronic engine applications, our focus is aligned with the ongoing trend in engine-powered and motion control markets.

## CERTIFICATIONS



Governors America Corp is ISO 9001:2015 and AS9100:D certified.

GAC's industry expertise ensures our products conform to recognized industry quality standards and international certifications to meet the rigorous demands placed upon them. Certifications and Type Approvals for many GAC devices have been issued by several classification societies. Please see our certifications on the website at [governors-america.com/certifications](http://governors-america.com/certifications).

# Table of Contents

Actuators.....	1
Throttle Body .....	1
CSA Approved Throttle Body .....	2
Pump Mounted.....	3
Universally Mounted.....	5
Engine Mounted.....	7
Actuator Accessories.....	8
Speed Controllers.....	9
Digital Speed Controllers.....	9
Analog Speed Controllers.....	11
Magnetic Speed Pick Ups.....	15
Generator Accessories.....	17
Gaseous Fuel and Ignition Management System (FIMS).....	19
Air Fuel Ratio (AFR) Control System.....	20
Ignition Control System (ICM).....	23

# ACTUATORS

## Carefully Designed to Outlive the Life of an Engine

GAC's electronic actuators are designed to deliver fast, precise control. Electronic actuators are integral to an electronic governing system when combined with an electronic speed controller and a magnetic pickup sensor. GAC actuators require no maintenance and are field proven for universal, engine, pump and throttle body control.

### THROTTLE BODY

The ATB Series integral throttle body electric actuators control the air or air/fuel mixture to a gaseous-fueled engine. Available as standard or CSA-approved versions, the ATB Series incorporates fast response and proven reliability to allow for efficient and precise control. Standard ATBs are sealed at 0.5 Bar and provide a Packard or military style connector. CSA-approved versions are sealed to 1.5 Bar and include an Amphenol military style connector. All ATB Series actuators directly drive the throttle plate with internal return springs, ensuring the throttle plate returns to the minimum fuel position when the actuator is de-energized. Options include position feedback sensors, mechanical position indicator, and high temperature.

#### ATB T1 SERIES INTEGRATED ACTUATORS/THROTTLE BODY 25-40 MM BORE



- 12 or 24 V DC
- Packard Connector
- Sealed to 0.5 Bar

PRODUCT NO.	DESCRIPTION
ATB251T1F-12 or -24	25 mm   Position Feedback Sensor (Novotechnik)   200 °F [95 °C] Ambient
ATB251T1N-12 or -24	25 mm   200 °F [95 °C] Ambient
ATB301T1F-12 or -24	30 mm   Position Feedback Sensor (Novotechnik)   200 °F [95 °C] Ambient
ATB301T1N-12 or -24	30 mm   200 °F [95 °C] Ambient
ATB351T1F-12 or -24	35 mm   Position Feedback Sensor (Novotechnik)   200 °F [95 °C] Ambient
ATB351T1N-12 or -24	35 mm   200 °F [95 °C] Ambient
ATB401T1F-12 or -24	40 mm   Position Feedback Sensor (Novotechnik)   200 °F [95 °C] Ambient
ATB401T1N-12 or -24	40 mm   200 °F [95 °C] Ambient

#### ATB T4 SERIES INTEGRATED ACTUATORS/THROTTLE BODY 75-95 MM BORE



- 24 V DC
- MIL Connector
- Sealed to 0.5 Bar

PRODUCT NO.	DESCRIPTION
ATB75T4F14	75 mm   Position Feedback Sensor (Novotechnik)   High Temperature; 250 °F [125 °C] Ambient
ATB75T4N14	75 mm   High Temperature; 250 °F [125 °C] Ambient
ATB85T4F14	85 mm   Position Feedback Sensor (Novotechnik)   High Temperature; 250 °F [125 °C] Ambient
ATB85T4N14	85 mm   High Temperature; 250 °F [125 °C] Ambient
ATB95T4F14	95 mm   Position Feedback Sensor (Novotechnik)   High Temperature; 250 °F [125 °C] Ambient
ATB95T4N14	95 mm   High Temperature; 250 °F [125 °C] Ambient

#### ATB T2 SERIES INTEGRATED ACTUATORS/THROTTLE BODY 45-65 MM BORE



- 12 or 24 V DC
- Packard Connector
- Sealed to 0.5 Bar

PRODUCT NO.	DESCRIPTION
ATB452T2F14-12 or -24	45 mm   Position Feedback Sensor (AB)   High Temperature; 250 °F [125 °C] Ambient
ATB452T2N-12 or -24	45 mm   200 °F [95 °C] Ambient
ATB452T2N14-12 or -24	45 mm   High Temperature; 250 °F [125 °C] Ambient
ATB552T2F14-12 or -24	55 mm   Position Feedback Sensor (AB)   High Temperature; 250 °F [125 °C] Ambient
ATB552T2N-12 or -24	55 mm   200 °F [95 °C] Ambient
ATB552T2N14-12 or -24	55 mm   High Temperature; 250 °F [125 °C] Ambient
ATB652T2F14-12 or -24	65 mm   Position Feedback Sensor (AB)   High Temperature; 250 °F [125 °C] Ambient
ATB652T2N-12 or -24	65 mm   200 °F [95 °C] Ambient
ATB652T2N14-12 or -24	65 mm   High Temperature; 250 °F [125 °C] Ambient

#### ATB T2



# CSA-APPROVED THROTTLE BODY ACTUATORS

GAC CSA-approved throttle bodies are CSA Class I, Division 2, Groups ABCD, Class 3228 02 and Class 3228 82 approved.

## CSA ATB T1 SERIES INTEGRATED ACTUATORS/ THROTTLE BODY 25–35 MM BORE



- 12/24 V DC
- Sealed to 1.5 Bar

PRODUCT NO.	DESCRIPTION
ATB25T1F-CSA	25 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB25T1N-CSA	25 mm   221 °F [105 °C] Ambient
ATB30T1F-CSA	30 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB30T1N-CSA	30 mm   221 °F [105 °C] Ambient
ATB35T1F-CSA	35 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB35T1N-CSA	35 mm   221 °F [105 °C] Ambient

## CSA ATB T2 SERIES INTEGRATED ACTUATORS/ THROTTLE BODY, 40–55 MM BORE



- 12/24 V DC
- Sealed to 1.5 Bar

PRODUCT NO.	DESCRIPTION
ATB40T2F-CSA	40 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB40T2N-CSA	40 mm   221 °F [105 °C] Ambient
ATB45T2F-CSA	45 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB45T2N-CSA	45 mm   221 °F [105 °C] Ambient
ATB55T2F-CSA	55 mm   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB55T2N-CSA	55 mm   221 °F [105 °C] Ambient

## CSA ATB T4 SERIES INTEGRATED ACTUATORS/ THROTTLE BODY, 65–95 MM BORE



- 24 V DC
- Sealed to 1.5 Bar

PRODUCT NO.	DESCRIPTION
ATB65T4F-CSA	65 mm   12 or 24 V DC   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB65T4N-CSA	65 mm   12 or 24 V DC   221 °F [105 °C] Ambient
ATB75T4F-CSA	75 mm   24 V DC   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB75T4N-CSA	75 mm   24 V DC   221 °F [105 °C] Ambient
ATB85T4F-CSA	85 mm   24 V DC   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB85T4N-CSA	85 mm   24 V DC   221 °F [105 °C] Ambient
ATB95T4F-CSA	95 mm   24 V DC   Position Feedback Sensor   221 °F [105 °C] Ambient
ATB95T4N-CSA	95 mm   24 V DC   221 °F [105 °C] Ambient

## ATB SERIES INSTALLATION KITS



PRODUCT NO.	DESCRIPTION
KT225-T1	ATB T1 Series to Impco 225   Adapter Plate, Gaskets and Bolts
KT41760	ATB T2 Series to Two-Barrel Intake with Same Mounting   Adapter Plate and Bolts
KT41761	ATB T2 Series for Big or Small Block Chevy, or Big Block Ford with Square-Bore Holley or Quadrajet Carb   Adapter Plate, Gaskets and Bolts
KT425	ATB T2 Series to Impco 425   Adapter Plate, Gaskets and Bolts
KT552	ATB T2 Feedback Position Sensor Add-on Kit
KT555	ATB T1 Feedback Position Sensor Add-on Kit
KT556	ATB T4 Feedback Position Sensor Add-on Kit
KT855	ATB T2 to Cummins 855 Intake Adapter   Natural Gas   Bolts
PL680	ATB T2 Series to Replace Bosch 68 mm   Adapter Plate Only



# ACTUATORS

## Pump Mounted

GAC Pump Mounted Actuators are field-proven, proportional actuators designed to mount directly to fuel injection pumps to achieve an integrated proportional servo fuel package. The design has no sliding parts, and its components are sealed, providing outstanding reliability with no maintenance required. Various mounting kits are available to adapt to other fuel pumps.

### 100 SERIES ACTUATORS



- 12 or 24 V DC
- Stanadyne D Series Fuel Injection (DB, DB2, DB4, DM2, DM4) Pumps

PRODUCT NO.	DESCRIPTION
ADC100-12 or -24	Packard Connector without Mating Connector and GA 102
FI280	90° Fuel Fitting for John Deere (and other) Applications
GA102	Spare Actuator Mounting Gasket
HW13-001	5-Star Torx Bit   Pump Cover Screws (Service Tool)

### 103 SERIES ACTUATORS



- 12 or 24 V DC
- For Delphi DPG/DPGE/DP210G Pump
- Fast Response; < 45 ms

PRODUCT NO.	DESCRIPTION
ADD103B-12 or -24	Includes Packard Connector with Mating Connector Kit EC1300 and Installation Kit KT292 (O-Ring, Bolts)



**ADD103B-12**

### 175 SERIES ACTUATORS



- 12 or 24 V DC
- Bosch Style P (A/P, Zexel, BYC, MW and RP) Pumps
- Directly Connects to Fuel Rack
- Manual Shut-Off Mechanism
- Stop Lever

PRODUCT NO.	DESCRIPTION
ADD175A-12 or -24	Packard Connector without Mating Connector   Bosch Installation Kit (KT289)
ADD175F-12 or -24	Position Feedback Sensor (Novotechnik)   Packard Connector without Mating Connector (EC1523) and Bosch Installation Kit (KT289)

### 175 SERIES INSTALLATION KITS



PRODUCT NO.	DESCRIPTION
KT153	Motorpal Mi Series   PPxM10P1i Fuel Injection Pumps   Plate, Linkage and Mounting Hardware
KT175-RS-R	Bosch RS/RSV Governor   Right Hand Rack   Mounts Actuator Directly to Intermediary Mechanical Governor Housing   Adapter Plate, Linkage, Gasket and Hardware
KT175-RS-R-ZEXEL	Zexel RS/RSV Governor   Right Hand Rack   Mounts Actuator Directly to Intermediary Mechanical Governor Housing   Adapter Plate, Linkage, Gaskets (Governor Housing and Actuator) and Hardware
KT175A-R	Bosch A Pump / Right Hand Rack   Adapter Plate, Bearing Retainer (KT176A), Spring, Gaskets, Linkage and Hardware
KT197	Bosch EDC Governor   Mounting Plate, Linkage, Gasket and Hardware
KT289	Spare (Included with Actuator)   Hardware, Gasket, Shutoff Plate, Spring, Retainer and Linkage [Note: KT289 includes all of KT283]

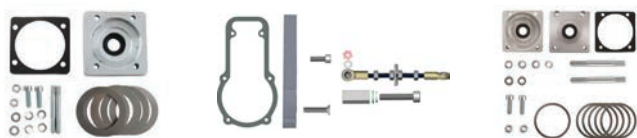
## 275 SERIES ACTUATORS



- Bosch Style P 3000, 7100, 8000 and RP21 Fuel-Injected Pumps
- Pumps on Engines up to 12 Cylinders
- Optional Camshaft Bearing Retainer Kit, Position Feedback and Heavy-Duty Bearing Retention Available

PRODUCT NO.	DESCRIPTION
ACB275C	24 V DC   Military-Style Amphenol Connector without Mating Connector   Specially Designed for MTU   Stop Lever LE1400-4
ACB275H	Multi-V DC   Military-Style Amphenol Connector without Mating Connector   Stop Lever LE1400-4
ACE275H-24	24 V DC   Packard Connector without Mating Connector   Stop Lever LE1400-4
ACE275HD-24	24 V DC   Packard Connector without Mating Connector   Heavy Duty Bearing Retention   No Stop Lever
ACE275J-24	24 V DC   Packard Connector without Mating Connector   Oil Drain Fitting   Designed for Deutz 1015 Engines   Stop Lever LE1400-4
ACE275K	24 V DC   Packard Connector without Mating Connector   Heavy Duty Bearing Retention   Position Feedback Sensor   Stop Lever LE1400-4

## 275 SERIES INSTALLATION KITS



PRODUCT NO.	DESCRIPTION
KT166	275 Series to Bosch MW Pumps   Plates, Gasket, Linkage and Hardware
KT275	Bosch P 3000 Series Camshaft Bearing Retainer Kit   Plate, Gasket, Seal, Shims and Hardware
KT276	Bosch P 7000 Series Camshaft Bearing Retainer Kit   Plate, Gasket, Seal, Shims and Hardware
KT278-1	RP21 Series   Adapter Plate, Link and Hardware
KT3000-MT	MTU   Bosch P 3000   Bearing Retainer Kit   Plate, Gasket, Seal, Shims and Hardware
KT7001-MT	MTU   Bosch P 7000   Bearing Retainer Kit   Plate, Gasket, Seal, Shims and Hardware

## 295 SERIES ACTUATORS



- Bosch Style P 9000 and 10000 Fuel-Injected Pumps
- Pumps on Engines up to 16 Cylinders

PRODUCT NO.	DESCRIPTION
ACE295-24	24 V DC   Packard Connector without Mating Connector and KT295 Installation Kit
ACE295F-24	24 V DC   Packard Connector without Mating Connector and KT295 Installation Kit   Position Feedback Sensor (AB)

## 295 SERIES INSTALLATION KITS

PRODUCT NO.	DESCRIPTION
KT295	Spare (Included with Actuator)   Rack Linkages and Hardware



**ACE275J-24**

GAC's universal electromechanical actuators provide engine fuel control positioning. An internal spring provides fail-safe operation by forcing the actuator to the fuel shutoff position when the actuator is de-energized. Capable of providing a stable and rapid response to transient conditions, the design combines fast operation and proven reliability.

### 104 SERIES UNIVERSAL ROTARY ACTUATOR



- Mounts Directly to 2 Cylinder Engines Including Briggs & Stratton and Kohler 12-30 hp Engines
- < 25 ms Response
- 0.3 lbf-ft [0.4 N-m] Net Torque, 25° Rotation

PRODUCT NO.	DESCRIPTION
ADD104-12	12 V DC   Packard Connector without Mating Connector   Lever Included

### 120 SERIES UNIVERSAL ACTUATORS



- Rotary Actuator
- 1.0 lbf-ft [1.35 N-m] torque, 25° Rotation
- Engines up to 150 hp and Small Inline Fuel Pumps or Carburetors

PRODUCT NO.	DESCRIPTION
ACB120	Multi-V DC   Military-Style Amphenol Connector without Mating Connector   Sand-Cast Housing   Ideal for Fuel Systems on Engines up to 150 hp [112 kW]
ADB120	Multi-V DC   Military-Style Amphenol Connector without Mating Connector   Die-Cast Housing   Ideal for Fuel Systems on Engines up to 150 hp [112 kW]
ADC120S-12 or -24	Commercial Connector with Mating Harness CH251-2134   Ideal for Fuel Systems on Engines up to 150 hp [112 kW]
ADD120S-12 or -24	Packard Connector without Mating Connector   Ideal for Fuel Systems on Engines Up to 150 hp [112 kW]

### ADB120E4 SERIES ACTUATOR



- Multi-V DC
- Cummins P.T. Fuel System

PRODUCT NO.	DESCRIPTION
ADB120E4- GAC	Fuel Delivery Rates up to 1700 lb/hr   Military-Style Connector Without Mating Connector
BK114	Mounting Bracket for Cummins 855 Engines
VA410065	Check Valve Service Replacement Kit

### 225 SERIES UNIVERSAL ACTUATORS



- 2.2 lbf-ft [3.0 N-m] Net Torque
- 25° Rotation, <45 ms Response with Internal Spring
- Multi-Plunger Fuel Pumps and Carburetors

PRODUCT NO.	DESCRIPTION
ACB225	Multi-V DC   Military-Style Connector without Mating Connector   Sand-Cast Housing
ADB225	Multi-V DC   Military-Style Connector without Mating Connector   Die-Cast Housing
ADC225GAS-12 or -24	12 or 24 V DC   Commercial Connector with Mating Harness CH251-2134   Lesser Rate Return Spring SP203   Thin Rubber Stop 26° Travel
ADC225GS-12 or -24	12 or 24 V DC   Commercial Connector with Mating Harness CH251-2134   Lesser Rate Return Spring SP203
ADC225JS-12 or -24	12 or 24 V DC   Commercial Connector with Mating Harness CH251-2134   Greater Rate Return Spring SP207
ADC225KS-24	24 V DC   Commercial Connector with Mating Harness CH251-2134   High-Temperature Coil for Full Duty Cycle Operation
ADC225S-12 or -24	12 or 24 V DC   Commercial Connector with Mating Harness CH251-2134
ADD225GSC-24	24 V DC   Packard Connector with Mating Connector EC1300   Lesser Rate Return Spring SP203
ADD225S-12 or -24	12 or 24 V DC   Packard Connector without Mating Connector
BK267	225 Series to Woodward Dyna 8000 Footprint (Raised Base so Shafts Line-Up)   Installation Bracket Only



## 335 SERIES HEAVY-DUTY UNIVERSAL ROTARY ACTUATORS



- Military-Style Amphenol Connector without Mating Connector
- 3.3lb·ft [4.5 N·m] Net Torque
- 65° Rotation
- Single Sided Shaft

PRODUCT NO.	DESCRIPTION
ADB335-24	24 V DC   SR128 Vibration Mounts (4)   Compatible with ESD5330/5340
ADB335F-24	24 V DC   Position Feedback Sensor (Novotechnik)   SR128 Vibration Mounts (4)   Compatible with ESD5330/5340

## 2001 SERIES HEAVY-DUTY UNIVERSAL ACTUATOR



- 12.0 lbf·ft [16.3 N·m] Torque
- 35° Rotation, <80 ms Response
- For 400–1800 hp Engines

PRODUCT NO.	DESCRIPTION SR 128
ACB2001	24 V DC   Lever (M8 Holes)   Terminal Strip   SR128 Vibration Mounts (4)   Compatible with ESD5330/5340
SR128	Vibration Mount (spare)

## ALN SERIES LINEAR PUSH-TYPE ACTUATORS



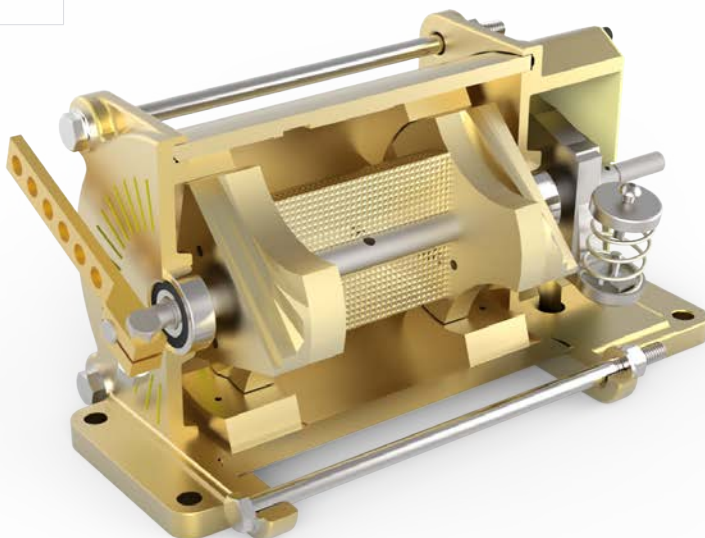
- 12 or 24 V DC
- Precision Anti-Friction Linear Bearings
- 22 mm Stroke
- Operates in Any Position

PRODUCT NO.	DESCRIPTION
ALN025-12 or -24	6.5 lbf [3.0 kgf]   0.25 lbf·ft [0.34 J] Work   Male Push-On Terminals   < 35 ms Response
ALN050-12 or -24	13.0 lbf [6.0 kgf]   0.50 lbf·ft [0.68 J] Work   Male Push-On Terminals   < 35 ms Response

## ALN SERIES INSTALLATION KITS

PRODUCT NO.	DESCRIPTION
KT130	Clevis Kit Only
BK265	Installation Bracket   ALN025 Starter Plate
BK266	Installation Bracket   ALN050 Starter Plate
KT231M	Bosch RSV   Left Side   Bracket, Bearings, Rod, Stop Lever, Clevis and Installation Hardware
KT232M	Bosch RSV   Right Side   Bracket, Bearings, Rod, Stop Lever, Clevis and Installation Hardware
KT682	ALN Throttle Linkage Kit with Hardware

## 2001 SERIES



GAC's engine-mounted actuators are designed for high-temperature applications, mounting directly on the engine and outperforming externally mounted electric actuators. These actuators provide outstanding reliability, fast response and no maintenance.

### 110 SERIES ENGINE MOUNTED ACTUATORS



- 12 or 24 V DC
- Deutz 1011 & 2011, 2-, 3- and 4-Cylinder Engines
- Use in Place of Electric Stop Solenoid
- No External Linkages or Brackets Required and No Extra Deutz Parts Needed

### ALR SERIES PULL-TYPE LINEAR ACTUATORS



- Pull Electrical Linear Actuators
- Mounts Directly to Engine Fuel Pump in Place of Stop Solenoid
- Built with Precision Linear Ball Bearings instead of Bushings
- Variable or Fixed Speed Control over the Entire Engine Speed Range

PRODUCT NO.	DESCRIPTION
ACD110-12 or -24	Deutsch Connector without Mating Connector

### 180 SERIES ENGINE-MOUNTED ACTUATORS



- 12 or 24 V DC
- For Deutz 1012/1013/2012 and Volvo 520/720 Engines

PRODUCT NO.	DESCRIPTION
ADD180G-12 or -24	Includes Packard Connector with Mating Connector EC1300 and KT188 Installation Kit
KT188	180 Series Installation Kit Spare

PRODUCT NO.	DESCRIPTION
ALR160-S04-12	Shibaura (Perkins) N843-C, N844L-C, N844LT-C (Caterpillar C-series or Volvo D2, Contact GAC)   12 V DC   Packard Connector without Mating Connector
ALR190-I03-12 or -24	Isuzu L-Series 3LB1, 3LD1, 3LD2, 4LE1, 4LE2   12 or 24 V DC   Male Push-On Terminals
ALR190-K04-12 or -24	Kubota Super 05 Series D905, D1005, D1105, D1105-T, V1305, V1505, V1505-T and V3 Industrial Series V3300, V3600, V3600-T, V3800 (not DI-T)   12 or 24 V DC   Packard Connector without Mating Connector
ALR190-KV03-12 or -24	Kubota 03 Series V2003, V2203, V2403   12 or 24 V DC   Packard Connector without Mating Connector
ALR190-KV03DIT-12 or -24	Kubota V3800 DI-T Engine   12 or 24 V DC   Packard Connector without Mating Connector
ALR190-KV07-12	Kubota 07 Series V2607, V3007, V3307   12 V DC   Packard Connector without Mating Connector
ALR190-M04-12	Mitsubishi L-Series L2E, L3E and S-Series S3L, S3L2, S4L, S4L2   12 V DC   Packard Connector without Mating Connector
ALR190-P04-12 or -24	Perkins 404D-15, 404D-22 and Caterpillar C2.2T, C3.4   12 or 24 V DC   Packard Connector without Mating Connector
ALR190-Y04-12 or -24	Yanmar TNE and TNV Series 2TNE, 3TNE, 4TNE and 2TNV, 3TNV, 4TNV and Isuzu C-Series 2CA, 3CA, 3CB, 3CD, 3CE   12 or 24 V DC   Packard Connector without Mating Connector

### ALR SERIES



# ACCESSORIES – ACTUATORS

## CABLE HARNESES



PRODUCT NO.	DESCRIPTION
CH1203	ACB, ADB, ATB-T4 Military-Style (Amphenol) Actuators   12 ft. [3.6 m] Harness   Straight Connector EC1000   6-Terminal
CH1206	ADC Commercial Actuators   4 ft. [1.2 m] Harness   2-Terminal
CH1210	ACB, ADB, ATB-T4 Military-Style (Amphenol) Actuators   12 ft. [3.6 m] Harness   90° Connector EC1010   6-Terminal
CH1215	ADD (Packard) Actuators   6 ft. [1.8m] Harness with EC1300   2 Terminal
CH1515	ACE275K, ACE295F, ATBT2/T3-F (AB Position Sensor) Actuators   6 ft. [1.8 m] Shielded Harness with EC1515   6-Terminal
CH1243	ATB T1/T4-F, ADB335F (Novotechnik Position Sensor) Actuators   6 ft. [1.8 m] Shielded Harness with EC1523   3-Terminal
CH251-2134	ADC (Commercial) Actuators   7 ft. [2.13 m] Harness   2-Terminal

## BEARING ROD ENDS AND THREADED RODS



PRODUCT NO.	DESCRIPTION
BR200	1/4 in. ID End and 1/4-28 UNF-2B Thread 0.719 in. Deep
BR300	M5 ID End and Thread 14 mm Deep
BR400	M6 ID and Thread
BR500	M8 ID End and Thread
RD102	1/4-28 Precut to 1 ft. [0.3 m]   Zinc Plated
RD233	M6 Thread Precut to 8.75 in. [222 mm]   Zinc Plated

## MATING CONNECTORS



PRODUCT NO.	DESCRIPTION
EC1000	ACB, ADB, ATB-T4   Military-Style Actuators   Mating Connector Kit   Straight   6-Terminal
EC1010	ACB, ADB, ATB-T4   Military-Style Actuators   Mating Connector Kit   90°   6-Terminal
EC1120	110 Series   Mating Connector Kit   2-Terminal
EC1300	ADD (Packard) Actuators   Mating Connector Kit   2-Terminal
EC1310	ADD (Packard) Actuators   Connector Kit Replacement   2-Terminal
EC1515	ACE275K, ACE295F, ATBT2/T3-F, 175 (AB Position Sensor) Actuators   Mating Connector Kit   6-Terminal
EC1523	ATB T1/T4-F, ADB335F (Novotechnik Position Sensor) Actuators   Mating Connector Kit   3-Terminal

## LEVERS



PRODUCT NO.	DESCRIPTION
LE1400-2	4.3 in. [110 mm]   Actuator Control Lever   1/4 in. [6.35 mm] Holes   Serrated Shaft
LE1400-4	3.3 in. [84 mm]   Actuator Stop Lever for 275 Series   1/4 in. [6.35 mm] Holes   Serrated Shaft

# DIGITAL SPEED CONTROLLERS

GAC's digital speed controllers regulate engine speed on diesel and gaseous fueled engines. Our digital controllers are suitable replacements for any mechanical governor system that needs flexibility, precision or accurate control of governed speed. From industrial engine applications on generator sets and mechanical drives to pumps or compressors, our control units will improve your engine's productivity.

## EEG SERIES ENHANCED ELECTRONIC CONTROLLERS



- Multi-V DC
- Multiple PID Control for Full Tuning of Operation Range
- Isochronous, Variable or Customizable Droop Governing
- Adjustable Starting Fuel Strategy, Speed Ramp Control, Load Sharing/Synchronizing
- Support Gaseous or Diesel
- SAE J1939 TSC ECU Capable

PRODUCT NO.	DESCRIPTION
EEG6500	2 Fixed (Rated, Idle) and Variable Speed; Selectable Isochronous, Droop and Variable Governing   5KΩ resistive, 0-2.5 V Variable Speed Input   Lockable LCD Display Setup
EEG6550	2 Fixed Speeds or Variable Speed 0-5 V DC or 4-20 mA Input   Rated, Idle and Variable Speed   Simple LCD User Display Setup
EEG7000	3 Fixed Speeds or Variable Speeds with Direct 0-5 V DC, 5KΩ or 4-20 mA Input   Isochronous, Variable or Customizable Droop Governing   Requires EC1502 or CH1520 (Not Included)   Free PC Software for Setup
EEG7500	Inputs: 5 Analog, 2 Digital   Outputs: 1 Analog, 3 Digital   0-5 V DC or 4-20 mA Input   3-Control Modes: Standard – Feedback – Positioner   Supports Bidirectional Motors or Proportional Actuators with or without a Position Feedback Signal   Free PC Software for Setup

## EDG SERIES ELECTRONIC SPEED CONTROLLERS



- Multiple PID Control for Full Tuning of Operation Range
- Multi-V DC
- Wide Operating Temperature Range
- Selectable Isochronous and Droop Governing
- Adjustable Starting Fuel Strategy
- Designed for Industrial Engine Applications from Generator Sets and Mechanical Drives to Pumps or Compressors

PRODUCT NO.	DESCRIPTION
EDG5500	2 Fixed Speeds (Rated/Idle) and Variable Speed   LCD Display
EDG6000	4 Selectable Speeds: 3 Fixed Speeds with Idle, 1 Variable Speed   Free PC Software   Requires EC1502 or CH1520

## DPG SERIES INTEGRATED GOVERNOR/ACTUATOR



- 12 or 24 V DC
- For BQ-Series Inline Fuel Injection Pump
- DPG Series Actuator and Governor Combination (Foton/Forward Calibration is DFT)
- Wide Operating Temperature Range, Immune to Analog Drift
- 2 Selectable Speeds: Rated and Idle

PRODUCT NO.	DESCRIPTION
DPG101-FR-12 or -24	IP67 Sealed Case and Connector   Tamper-Resistant, No External Adjustable Pots or Switches

## SDG SERIES SMART DIGITAL GOVERNORS



- Multi-V DC
- Fast, Compact Digital Engine Speed Governor
- Solid-State, Microprocessor-Based Device Designed to Control Engine Speed with Precise Response to Transient Load Changes
- Overspeed Shutdown Protection
- Speed Ramping from Idle to Operation Speed
- Starting Fuel Control

PRODUCT NO.	DESCRIPTION
SDG514-01-01	Resistive Variable Speed Input 5KΩ   3 Fixed Speeds and 1 Variable Speed with Droop Governing Capability   Deutsch Connector without Mating Connector
SDG524-01-01	0-5 V DC Variable Speed Input   3 Fixed Speeds and 1 Variable Speed with Droop Governing Capability   Deutsch Connector without Mating Connector
SDG725-01-01	Speed Range 400-10 kHz   3 Fixed Speeds and 1 Variable Speed with Droop Capability   PID Parameters for Optimized Performance

# ACCESSORIES – DIGITAL SPEED CONTROLLERS

## CABLE HARNESSES



PRODUCT NO.	DESCRIPTION
CH1330	SDG514/524 Programming Harness with Serial Port
CH1520	EEG7000 and EDG6000 Series   8 ft. [2.4 m] Harness Kit with EC1502 14-Terminal Mating Connector and 14 Loose Pre-Terminated Wires
EAM211	DPG Programming Adapter   USB to PC Adapter

## MATING CONNECTORS



PRODUCT NO.	DESCRIPTION
EC1330	SDG514/524   Deutsch Mating Connector Kit   12-Terminal
EC1502	EEG7000, and EDG600 Series  Mating Connector Kit   14-Terminal

EEG7000



SDG514-01-01



EEG6550





# ANALOG SPEED CONTROLLERS

GAC's analog speed controllers are all-electronic devices designed to control engine speed with fast and precise response to transient load changes. When connected to a proportional electric actuator, and supplied with a magnetic speed sensor signal our analog controllers support a wide variety of engines, each one designed to withstand a harsh environment.

## ECC SERIES GEN-SET FREQUENCY CONTROLLERS



- 12 or 24 V DC
- Isochronous Operation
- No Magnetic Speed Pickup (MSP) Required
- For Speed Signal Input 40 to 80 Hz
- Lower System Cost
- Gain and Stability Adjustment
- Rugged Hard Potted Design

PRODUCT NO.	DESCRIPTION
ECC328-12 or -24	Light-Force (Low-Current Optimized PID)   For Genset Only   260 V AC MAX

## SLC SERIES SPEED LOAD CONTROLLER



- Controls electrical load using a target voltage, not speed
- Voltage Range: 12 - 75 V DC

PRODUCT NO.	DESCRIPTION
SLC103	12 or 24 V DC   PWM Output Duty Cycle 0 - 100% Frequency 50 - 450 Hz   Maximum Current: 6 A DC   Voltage Regulation 0.1 V DC   Simple design with built-in Potentiometers

## ESD1000 SERIES ISOCHRONOUS CONTROLLERS



- 12 or 24 V DC
- Simple, Low-Cost Isochronous Operation
- Gain Adjustment, Hard Potted

PRODUCT NO.	DESCRIPTION
ESD1000-12 or -24	Flying Leads
ESD1100-12 or -24	Terminal Strip   High Reliability

## ESD2100 SERIES ISOCHRONOUS CONTROLLER



- Multi-V DC
- Isochronous and Variable Operation
- Gain and Stability Adjustment

PRODUCT NO.	DESCRIPTION
ESD2110	Standard Unit   Adjustable PID   Speed Trim Input   Sheet Metal Case

## ESD2200 SERIES ISOCHRONOUS CONTROLLERS



- 12 or 24 V DC
- Precise Speed Control
- 8:1 Speed Range Control

PRODUCT NO.	DESCRIPTION
ESD2210-12 or -24	Standard Unit with Adjustable PID
ESD2241-24	Standard Unit with Idle Control and Adjustable PID
ESD2244-12 or -24	Light-Force (Low-Current Optimized PID)

## ESD2400 SERIES ISOCHRONOUS CONTROLLERS



- 12 or 24 V DC
- Anti-Windup Circuit (Diesel or Gaseous)
- Idle Control
- Hard Potted

PRODUCT NO.	DESCRIPTION
ESD2401-12 or -24	Standard Force   Speed Trim   Adjustable PID
ESD2402-12 or -24	Adjustable Low-Current Optimized PID (Light Force)   Lower Gain Adjustable

## ESD5100 SERIES ISOCHRONOUS, DROOP AND VARIABLE SPEED CONTROLLERS



- Multi-V DC
- Adjustable PID
- Auxiliary Accessory Input and +10 V DC Supply
- Idle Speed Adjustment

PRODUCT NO.	DESCRIPTION
ESD5111	Standard Unit
ESD5111T	Temperature Compensated
ESD5119	Cummins EFC Reverse-Acting (Normally Open)
ESD5120	Cummins EFC Forward Acting (Normally Closed)   Adjustable Light-Force (Low-Current Optimized PID)
ESD5131	Switchable Soft Coupling and Lead Circuit
ESD5159	Expanded Frequency Range 14 kHz
ESD5160	Cummins EFC Reverse Acting for Fire Pump Applications   Expanded Frequency Range 10.5 kHz

## ESD5200 SERIES ISOCHRONOUS, DROOP, AND VARIABLE SPEED CONTROLLERS



- Multi-V DC
- Overspeed Switch

PRODUCT NO.	DESCRIPTION
ESD5221	LED Indicator   Idle Control   Dead-Time Compensation   Reverse Voltage Protection   Auxiliary Accessory Input and +10 V DC Supply   Speed Anticipation



**ESD2210-12**

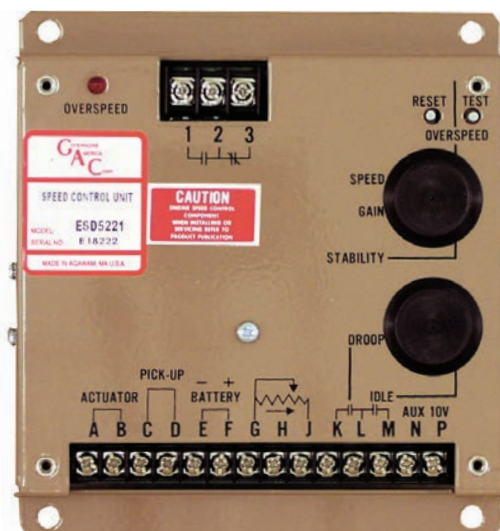
## ESD5300 SERIES ISOCHRONOUS, DROOP AND VARIABLE HEAVY DUTY SPEED CONTROLLERS



- 24 V DC
- Two-Element Speed Switch, Idle, Speed Trim, Dual Gain, Speed Ramping, Starting Fuel Adjustment, Anti-Windup
- Auxiliary Accessory Input and +10 V DC Supply
- Supports All GAC Actuators Including Heavy Duty ACB2001 and 335 Series
- Protection Against Transient and Reverse Battery Voltage

PRODUCT NO.	DESCRIPTION
ESD5330	Standard Unit
ESD5340	Full-Fuel Starting Aid

## ESD5221



# ANALOG SPEED CONTROLLERS

## ESD5500E SERIES ISOCHRONOUS, DROOP AND VARIABLE SPEED CONTROLLERS



- Multi-V DC
- Adjustable PID
- Soft Coupling and Lead Circuit, Droop, Idle Control
- Starting Fuel and Speed Ramping Adjustment
- Auxiliary Accessory Input and +10 V DC Supply

PRODUCT NO.	DESCRIPTION
ESD5500E	Standard Unit
ESD5520E	Light-Force (Low-Current Optimized PID)   Enhanced Droop
ESD5522E	Light-Force (Low-Current Optimized PID)   Enhanced Droop for Cummins EFC Forward Acting (Normally Closed)
ESD5526E	Light-Force (Low-Current Optimized PID)   Anti-Windup Circuit (Gaseous)   Recommended for ATB T1/T2
ESD5528E	Anti-Windup Circuit (Gaseous)   Recommended for ATBT4

## ESD5500-II SERIES ISOCHRONOUS, DROOP AND VARIABLE SPEED CONTROLLER



- Multi-V DC
- LEDs and Auxiliary Accessory Input and +10 V DC Supply
- Replaces Most ESD55XXE in a Single Unit
- High Frequency (HF) Version Available to 14 kHz Input

PRODUCT NO.	DESCRIPTION
ESD5500-II	Selectable Light-Force and Dither   Idle, Droop and Integrated Anti-Windup for Diesel and Gaseous Application   Soft Coupling and Lead Circuit Options

## ESD5550/5570 SERIES ISOCHRONOUS, DROOP AND VARIABLE SPEED CONTROLLERS



- Multi-V DC
- Idle Speed Adjustment, Adjustable PID
- Starting Fuel and Speed Ramping
- Auxiliary Accessory Input and +10 V DC
- Overspeed Contacts with Test and Reset

PRODUCT NO.	DESCRIPTION
ESD5550	Single-Element Overspeed Switch
ESD5550M	Expanded Gain and Stability Range (Replaces Ghana Controls)   Single-Element Overspeed Switch
ESD5570	Light-Force (Low-Current Optimized PID)   Single Element Overspeed Switch

## DUAL DRIVER MODULE (DDM)



The DDM drives two feedback-equipped electric actuators so each engine's bank or cylinder group receives equal fuel levels.

PRODUCT NO.	DESCRIPTION
DDM101	24 V DC   Dual Actuator Applications (Diesel or Gaseous)

## ESC SERIES ELECTRONIC SPEED CONTROLLERS



- Variable Speed Operation
- Adjustable Speed Range 33:1
- Simple Installation

PRODUCT NO.	DESCRIPTION
ESC61C-7	12–32 V DC   Accepts Various Standard Battery Voltages
ESC63C-17	12–32 V DC   Accepts Various Standard Battery Voltages
ESC63C-23	12–32 V DC   Accepts Various Standard Battery Voltages

## RSC CONTROL MODULES



The RSC control modules accelerate and decelerate the engine at independently adjustable rates, softening speed changes.

PRODUCT NO.	DESCRIPTION
RSC671	10 V DC   Ramp Speed Control (Adjust Accel-Decel)   Variable Speed - Off-Road   Use with ESD5100/5200
RSC672	10 V DC   Ramp Speed Control (Adjust Accel-Decel)   Fixed Speed   Use with ESD5100/5200

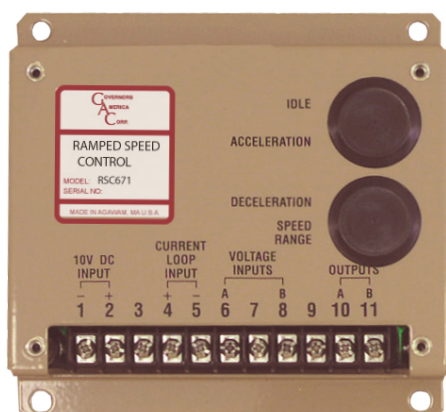
## SSW SERIES SPEED SWITCHES



- Multi-V DC
- Tachometer Output
- Overspeed Test Function
- Indicator LEDs

PRODUCT NO.	DESCRIPTION
SSW674	1-Element Speed Switch   Overspeed
SSW675	2-Element Speed Switch   Overspeed, Crank
SSW676	3-Element Speed Switch   Overspeed, Crank, Parallel

### RSC671

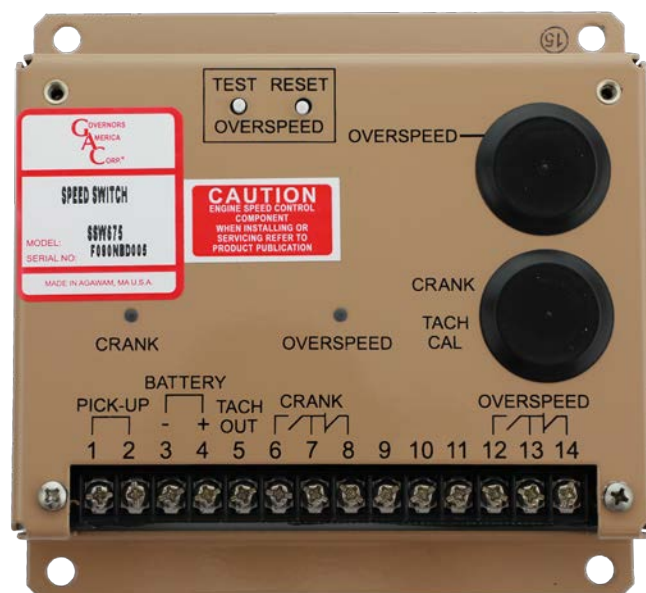


## TP SERIES TRIM POTENTIOMETERS



PRODUCT NO.	DESCRIPTION
TP501	1 Turn   5KΩ   With Knob
TP502	10 Turn   5KΩ   With Knob
TP503	10 Turn   5KΩ   With Locking Shaft
TP504	1 Turn   20KΩ   With Knob   Droop Control
TP508	10 Turn   20KΩ   With Locking Shaft
TP509	10 Turn   20KΩ   With Knob
TP510	10 Turn   1KΩ
TP511	10 Turn   10KΩ
TP521	10 Turn   5KΩ   Multiple Variable Speed Control   Vernier Dial

### SSW675



# MAGNETIC SPEED PICKUPS

GAC's 35+ styles of magnetic speed pickups (MSP) are a rugged and economical solution for detecting engine speed. An MSP detects when ring gear teeth or other ferrous projections pass the tip of the sensor. The signal from the MSP is directly proportional to engine speed.



- Various Lengths in both U.S. and Metric Threads
- Require No Energizing Circuit from Control
- -65 °F to +255 °F (-54 °C to +107 °C) Operating Temperature
- Available for Hazardous Location Installation (Not Certified)
- Support All GAC Electronic Speed Controllers

	PART. NO.	THREAD LENGTH	HARNESS LENGTH	CONNECTOR / MATE	MATERIAL	RESISTANCE
<b>3/8 - 24 UNF-2A Threaded</b>	MSP6729	2.70 in. [69 mm]	6.0 ft. [1.8 m] Shielded Cable	Flying Leads / No	Stainless	550-960Ω
	MSP6730	1.70 in. [43 mm]	6.0 ft. [1.8 m] Shielded Cable	Flying Leads / No	Stainless	550-960Ω
	MSP6731	4.00 in. [102 mm]	6.0 ft. [1.8 m] Shielded Cable	Flying Leads / No	Stainless	550-960Ω
	MSP6737	2.70 in. [69 mm]	6.00 in. [152 mm] Shielded Cable	Push-On Terminals / No	Stainless	550-960Ω
	MSP6740	1.70 in. [43 mm]	6.0 ft. [1.8 m] Shielded Cable	Packard Connector / No	Stainless	550-960Ω
	MSP6742	2.70 in. [69 mm]	1.0 ft. [0.3 m] Shielded Cable	Flying Leads / No	Stainless	550-960Ω
<b>5/8 - 18 UNF-2A Threaded</b>	MSP674	3.00 in. [76 mm]	None	MIL Connector / No	Stainless	High Output 913Ω
	MSP675	3.19 in. [81 mm]	7.00 in. [178 mm]	Flying Leads / No	Stainless	144-250Ω
	MSP676	5.00 in. [127 mm]	12.00 in. [305 mm]	Flying Leads / No	Stainless	144-250Ω
	MSP677	3.00 in. [76 mm]	None	MIL Connector / No	Stainless	144-250Ω
	MSP678	4.86 in. [123 mm]	None	MIL Connector / No	Stainless	144-250Ω
	MSP679	3.00 in. [76 mm]	None	MIL Connector / Yes	Stainless	144-250Ω
	MSP6710	4.86 in. [123 mm]	None	MIL Connector / Yes	Stainless	144-250Ω
	MSP6719	2.37 in. [60 mm]	1.0 ft. [0.3 m]	Flying Leads / No	Aluminum Clear Anodized	144-250Ω
	MSP6720	3.86 in. [98 mm]	1.0 ft. [0.3 m]	Flying Leads / No	Aluminum Clear Anodized	144-250Ω
	MSP6721	3.19 in. [81 mm]	2.75 in. [70 mm]	Automotive Connector / No	Stainless	144-250Ω
	MSP6721C	3.19 in. [81 mm]	2.75 in. [70 mm]	Automotive Connector / Yes	Stainless	144-250Ω
	MSP6722	2.37 in. [60 mm]	6.00 in. [152 mm]	Push-On Terminals / No	Aluminum Gold Anodized	144-250Ω
	MSP6728	3.19 in. [81 mm]	6.25 in. [159 mm]	Packard Connector / No	Stainless	144-250Ω
	MSP6728C	3.19 in. [81 mm]	6.25 in. [159 mm]	Packard Connector / Yes	Stainless	144-250Ω
	MSP6732	3.16 in. [80 mm]	3.25 in. [83 mm]	Dual Packard Connector / No	Stainless	144-250Ω
	MSP6732C	3.16 in. [80 mm]	3.25 in. [83 mm]	Dual Packard Connector / Yes	Stainless	144-250Ω
	MSP6743	3.50 in. [89 mm]	None	#8-32NC-2A Stud Terminals / No	Aluminum	High Output 1.2KΩ
<b>3/4 - 16 UNF-2A Threaded</b>	MSP6724	3.45 in. [88 mm]	3.00 in. [76 mm]	Automotive Connector / No	Aluminum Gold Anodized	144-250Ω
	MSP6724C	3.45 in. [88 mm]	3.00 in. [76 mm]	Automotive Connector / Yes	Aluminum Gold Anodized	144-250Ω
	MSP6734	3.45 in. [88 mm]	4.25 in. [108 mm]	Flying Leads / No	Aluminum Gold Anodized	144-250Ω
	MSP6735	3.45 in. [88 mm]	3.00 in. [76 mm]	Packard Connector / No	Aluminum Gold Anodized	180Ω
	MSP6744	2.30 in. [58 mm]	None	#8-32NC-2A Stud Terminals / No	Aluminum Gold Anodized	High Output 1.2KΩ





	PART. NO.	THREAD LENGTH	HARNESS LENGTH	CONNECTOR / MATE	MATERIAL	RESISTANCE
<b>M16 x 1.5 Threaded</b>	MSP6714	3.00 in. [76 mm]	None	MIL Connector / No	Stainless	144–250Ω
	MSP6715	3.00 in. [76 mm]	None	MIL Connector / Yes	Stainless	144–250Ω
	MSP6723	3.13 in. [79 mm]	3.00 in. [76 mm]	Automotive Connector / No	Stainless	144–250Ω
	MSP6723C	3.13 in. [79 mm]	3.00 in. [76 mm]	Automotive Connector / Yes	Stainless	144–250Ω
	MSP6739	3.13 in. [79 mm]	3.00 in. [76 mm]	Packard Connector / No	Stainless	144–250Ω
	MSP6745	5.00 in. [127 mm]	None	MIL Connector / No	Stainless	144–250Ω
<b>M18 x 1.5 Threaded</b>	MSP6741	2.29 in. [58 mm]	9.00 in. [228 mm]	Metri-Pack 150 Series (Unsealed) / No	Aluminum	Integrated
	MSP6746	2.70 in. [69 mm]	18.00 in. [0.46 m]	Automotive Connector / No	Aluminum	Integrated

## MSP MATING CONNECTOR

PRODUCT NO.	DESCRIPTION
EC1100	MSP Military-Style (Amphenol) Sensor   Mating Connector Kit   With Straight Cable Clamp and Weather Boot
EC1110	MSP Military-Style (Amphenol) Sensor   Mating Connector Kit   With 90° Cable Clamp and Weather Boot
EC1350	MSP Packard Sensors   Mating Connector Kit
EC1360	MSP Packard Sensors   Connector Kit Replacement
EC1518	MSP6741   Mating Connector Kit   Metri-Pack 150 Series (Unsealed)

## TSE SERIES TEST/SERVICE EQUIPMENT



PRODUCT NO.	DESCRIPTION
TSE050	MSP   Engine Speed Simulator   Alligator Clips   General Usage
TSE307	EDG6000   Programming Interface Assembly with Serial Port

## MSP CABLE HARNESS

PRODUCT NO.	DESCRIPTION
CH1204	MSP Military-Style (Amphenol) Sensors   10 ft. [3 m] Shielded Harness   Straight Connector EC1100
CH1205	MSP Military-Style (Amphenol) Sensors   10 ft. [3 m] Shielded Harness   90° Connector EC1110
CH1206	MSP Automotive Sensors   4 ft. [1.2 m] Unshielded Cable
CH1207	MSP Automotive Sensors   10 ft. [3 m] Shielded Cable
CH1211	MSP Military-Style (Amphenol) Sensors   27 ft. [8.2 m] Shielded Harness   Straight Connector EC1100
CH1219	MSP Packard Sensors   10 ft. [3 m] Shielded Harness
CH1235	MSP Military-Style (Amphenol) Sensors   13 ft. [4 m] Shielded Harness   Straight Connector EC1100

# GENERATOR ACCESSORIES

GAC provides a complete line of accessory modules specifically designed for use with your generator sets. Module functions include load sharing, synchronizing, voltage regulation, speed ramping and interface modules between common non-GAC products. Military Gen-Set control system replacement parts are also available.

## EAM SERIES ELECTRONIC ACCESSORY MODULES



- All-Electric Sensing
- Accurately Measures True Power
- Load Anticipation and Droop Adjustment
- Small, Compact Size

MODULE	INTERFACES WITH NON-GAC PRODUCT	DESCRIPTION	TO GAC PRODUCT
EAM100	Cummins EFC Speed Control	24 V DC   5KΩ Potentiometer Input	LSM/SYC
EAM101	Barber-Colman Dyna 1 and 8000 Speed Control	24 V DC   5KΩ Potentiometer Input	LSM/SYC
EAM103	Barber-Colman Dyna 2 Load Sharing (80100, 80101, 80104, 80105)	24 V DC	ESD
EAM104	Detroit Diesel DDEC 3 Controller	24 V DC	LSM/SYC
EAM105	Heinzmann EG or KG6-04/10-04 Speed Control	24 V DC	LSM/SYC
EAM108	Woodward (8290-038)	24 V DC	LSM/SYC
EAM110	Cummins QST30 and QSK45-78	Multi-V DC	LSM/SYC
EAM111	MTU M-DEC	Multi-V DC	LSM/SYC
EAM113	Caterpillar 3406 PEEC HUEI	Multi-V DC	N/A
EAM115	Perkins 1306-E87 7M351	Multi-V DC	LSM/SYC
EAM116	Universal; Galvanic Isolation   Accepts One of Four Different Speed Setting Signals (0-10 V DC, (Two) 0-5 V DC, 4-20 mA) and Converts Signal Across an Isolation Barrier to Provide a 0-5 V DC Output Signal	Multi-V DC	N/A
EAM120-24	Woodward 2301A	24 V DC	LSM/SYC
EAM121-24	Woodward Load Sharing and Synchronizing Module (±3 V DC Output) to Nominal 5.0 V   Includes DEC2	24 V DC	ESD
EAM122-24	Volvo EMS I and II EFI Control (2.875V Nominal Input)	24 V DC	LSM/SYC
EAM125	Universal   1-4 V DC Input   4-20 mA Output   Deutz Position Interface	24 V DC	N/A
EAM127-24	Scania S6 (EMS) EFI SY   Nominal 5 V DC Input   1.6 V DC Output	24 V DC	LSM/SYC
EAM210	Caterpillar and Cummins Engines   4-20 mA or 0-5 V DC Load Sharing Input   100% Max Duty Cycle Output	24 V DC	N/A

## LAM SERIES LOAD ANTICIPATION MODULE



- Measures Generator Line Current and Increases Voltage on Load Detection

## SYC SERIES SYNCHRONIZATION MODULE



- Multi-V DC
- AC Phase Synchronization

PRODUCT NO.	DESCRIPTION
LAM100	Hard Potted   Adjustable Time Constant and Amplitude

PRODUCT NO.	DESCRIPTION
SYC6714	Equalizes the AC Phase Relationship between a Generator and Main Bus (Mains)   Stability Adjustment   Automatic Synchronizer with Sync Check Relay

## LSM SERIES LOAD SHARING MODULES



- All-Electric Sensing, Accurately Measures True Power
- Isochronous Load Sharing

PRODUCT NO.	DESCRIPTION
LSM100	10 V DC (From Speed Control)   Load Anticipation   Droop
LSM201	24 V DC   Load Anticipation and Droop Adjustment   Forward and Reverse Power Monitoring and Reset Capability   Power Monitor Adjustment Control   Generator Power Ramping and Control   Accurately Measures True Power
LSM201N	24 V DC   Use with GAC Speed Control Units on Generator Set Applications Requiring Isochronous Paralleling and Mains Power Control   Load Anticipation and Droop Adjustment   Forward and Reverse Power Monitoring and Reset Capability   Power Monitor Adjustment Control   Generator Power Ramping and Control   Accurately Measures True Power   Small, Compact Size
LSM672	24 V DC   Load Anticipation and Droop Adjustment   Forward and Reverse Power Monitoring and Reset Capability   Accurately Measures True Power   Small, Compact Size
LSM672N	24 V DC   Load Anticipation and Droop Adjustment   Forward and Reverse Power Monitoring and Reset Capability   Accurately Measures True Power   Small, Compact Size

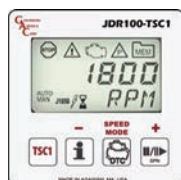
## PCI POWER CONTROL INTERFACE



- Multi-V DC

PRODUCT NO.	DESCRIPTION
PCI105	50–60 Hz Switching Module   Use with ESD5XXX Series

## JDR SERIES J1939 DATA READERS



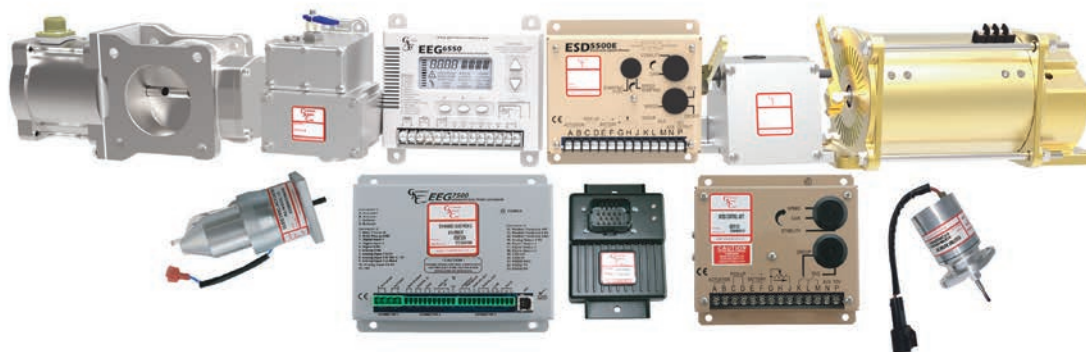
- J1939 Diagnostic Trouble Code Reader (DTC)
- Built-in CAN Bus Termination Resistor
- Self-Contained, Configuration Software Not Required But Available
- Fits in 2 in. [51 mm] Round Panel Opening
- IP67 Sealed Case, Non-Fogging Display

PRODUCT NO.	DESCRIPTION
JDR050	No Live Engine Data
JDR050-IV	JDR050 with Diesel Particulate Filter Regeneration Support
JDR100	Live Engine Parameter Reader
JDR100-IV	JDR100 with Diesel Particulate Filter Regeneration Support
JDR100-TSC1	Enable TSC1 Speed Control Including Step Size and 3 Speed Modes   Includes all JDR100 Capabilities

## JDR SERIES ACCESSORIES



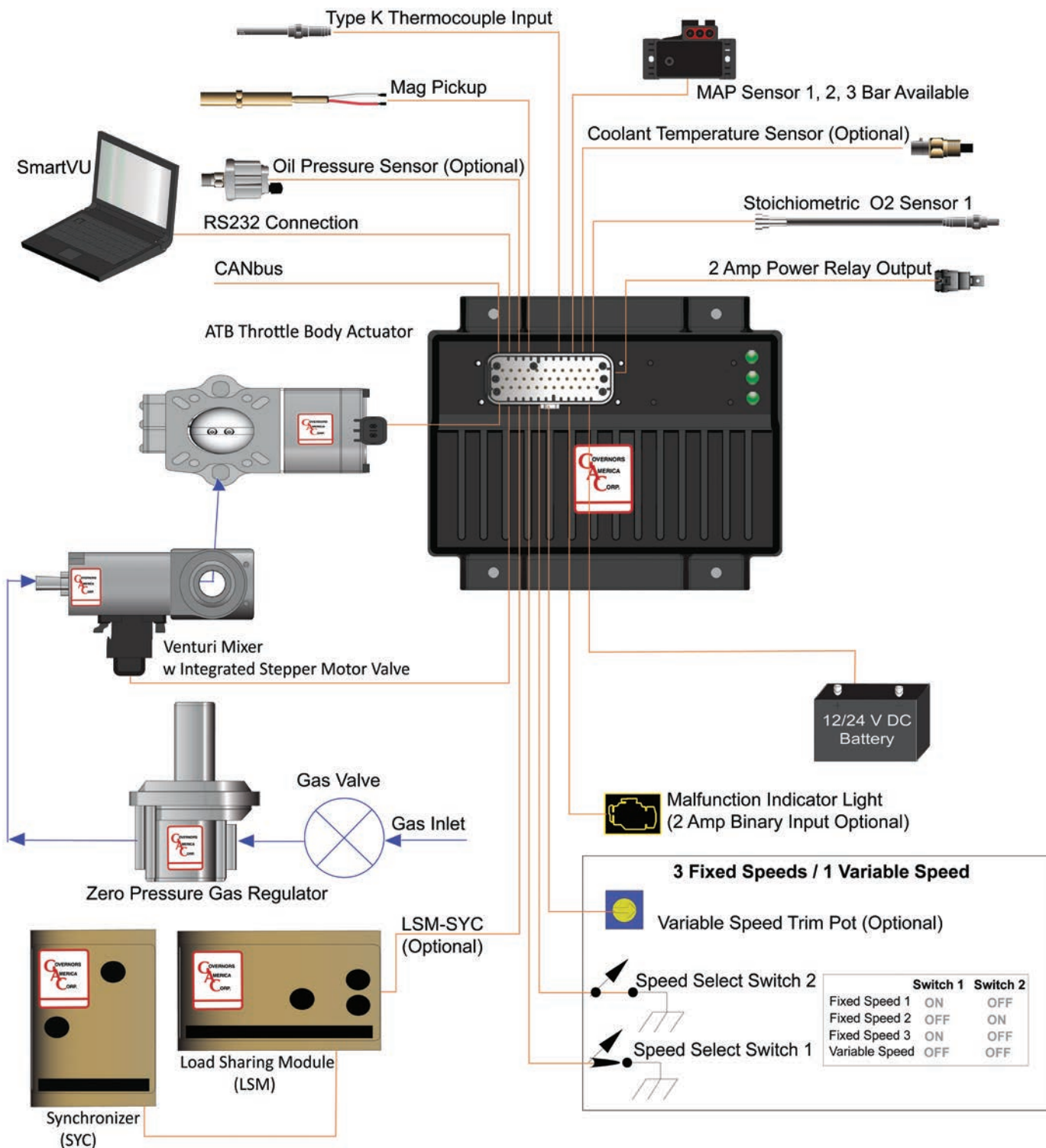
PRODUCT NO.	DESCRIPTION
CH417-4572	15 ft. [4.6 m] Harness   Built-in CANbus Termination Resistor 120Ω   6-Terminal
EC1331	Mating Connector Kit   6-Terminal



# GASEOUS FUEL AND IGNITION MANAGEMENT SYSTEM (FIMS)

GAC offers an advanced gaseous-fueled engine management system. The Air Fuel Ratio (AFR) 200 Series Controller is part of the GAC comprehensive fuel management system for gaseous-fueled, spark-ignited engines ranging from 1 L to 13 L+. The AFR200 Series Controllers, when used in conjunction with the ICM200 (Ignition Control Module), offer a complete Fuel and Ignition Management System (FIMS) referred to as the FIMS500 system. Each of these controllers has the ability to work independently.

## AFR SYSTEM



# AIR FUEL RATIO (AFR) CONTROL SYSTEM

The AFR200 System performs closed-loop air-fuel ratio control using an exhaust oxygen sensor for feedback in addition to providing a built-in speed governor. Easy to configure and easy to install it is built for the extreme environments of industrial engines.

## AFR SERIES AIR-FUEL RATIO & SPEED CONTROLLER



- Multi-V DC
- Optimal Closed-Loop Air-Fuel Ratio and Delivery Control
- Actuator Throttle Body Control
- Built-in Engine Speed Governor
- Engine Sensor and Data Monitoring
- CAN / Serial Communication

PRODUCT NO.	DESCRIPTION
AFR210	One Oxygen Sensor Input and EGT (Type-K Thermocouple) Input

## AFR MATING CONNECTOR

PRODUCT NO.	DESCRIPTION
EC1501	Connector #1 Kit   35-Terminal
CH1519	8 ft. [2.4m] Harness   Flying Leads   35-Wires

## LEAN BURN ADAPTER (WIDEBAND) KIT



PRODUCT NO.	DESCRIPTION
KT317WB-AFR-12	12 V DC   Includes EAM212 (Lean Burn Adapter), Wideband UEGO Sensor Bosch LSU 4.2 and Harnesses
KT317WB-AFR-24	24 V DC   Includes EAM212 (Lean Burn Adapter), Wideband UEGO Sensor Bosch LSU 4.2, Harnesses and 12 to 24 DC/DC Converter
SOX104	Replacement Bosch LSU4.2 Wideband Oxygen Sensor

## INLINE STEPPER FUEL CONTROL VALVE ASSEMBLY



PRODUCT NO.	DESCRIPTION
VFC106	1 in. [25.4 mm] NPT Female Threaded Connections   No Mixer Included   Use with MX Series or Aftermarket Mixers (Including Diaphragm Type)

## VENTURI MIXER AND STEPPER FUEL CONTROL VALVE ASSEMBLIES



PRODUCT NO.	DESCRIPTION
MXSB20-STM	Small-Bore - Size 20/32 in. [15.88 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXSB22-STM	Small-Bore - Size 22/32 in. [17.46 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXSB24-STM	Small-Bore - Size 24/32 in. [19.05 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXSB26-STM	Small-Bore - Size 26/32 in. [20.64 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXSB28-STM	Small-Bore - Size 28/32 in. [22.23 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXSB30-STM	Small-Bore - Size 30/32 in. [23.81 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T1 Bolt Pattern   2 in. [51 mm] Air Hose Connection
MXMB40-STM	Medium-Bore - Size 40/32 in. [31.75 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T2 Bolt Pattern   3 in. [76 mm] Air Hose Connection
MXMB44-STM	Medium-Bore - Size 44/32 in. [34.93 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T2 Bolt Pattern   3 in. [76 mm] Air Hose Connection
MXMB46-STM	Medium-Bore - Size 46/32 in. [36.51 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T2 Bolt Pattern   3 in. [76 mm] Air Hose Connection
MXMB48-STM	Medium-Bore - Size 48/32 in. [38.1 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T2 Bolt Pattern   3 in. [76 mm] Air Hose Connection
MXMB50-STM	Medium-Bore - Size 50/32 in. [39.69 mm] Throat Diameter   3/4 in. NPT Fitting   ATB T2 Bolt Pattern   3 in. [76 mm] Air Hose Connection
MXLB75-STM	Large Bore - Size 2.14 in [54.38 mm] Throat Diameter   1 in. NPT Fitting   ATB T3 & T4 Bolt Pattern   3.5 in. [89 mm] Air Hose Connection
MXLB85-STM	Large Bore - Size 2.60 in. [66.10 mm] Throat Diameter   1 in. NPT Fitting   ATB T3 & T4 Bolt Pattern   3.5 in. [89 mm] Air Hose Connection



# AIR FUEL RATIO (AFR) CONTROL SYSTEM

## MX-STM AND VFC SERIES MATING CONNECTOR



PRODUCT NO.	DESCRIPTION
EC1507	Stepper Motor Mating Connector Kit   4-Terminal

## MX SERIES VENTURI MIXER ASSEMBLY – VENTURI MIXER IN CYLINDRICAL HOUSING WITH HOSE FITTINGS FOR AIR INLET AND FUEL INLET



PRODUCT NO.	DESCRIPTION
MX24	2.0 in. [51 mm] Air Inlet Hose Fitting   24 mm [0.95 in] Throat Diameter   5/8 in. [15.88 mm] Fuel Inlet Hose Fitting   57 mm [2.25 in.] Diameter Housing
MX32	2.5 in. [63.5 mm] Air Inlet Hose Fitting   32 mm [1.27 in] Throat Diameter   5/8 in. [15.88 mm] Fuel Inlet Hose Fitting   68 mm [2.68 in.] Diameter Housing
MX36	3.0 in. [77 mm] Air Inlet Hose Fitting   36 mm [1.42 in.] Throat Diameter   3/4 in. [19.05 mm] Fuel Inlet Hose Fitting   80 mm [3.15 in.] Diameter Housing
MX42	3.0 in. [77 mm] Air Inlet Hose Fitting   42 mm [1.65 in.] Throat Diameter   3/4 in. [19.05 mm] Fuel Inlet Hose Fitting   80 mm [3.15 in.] Diameter Housing
MX48	3.5 in. [90 mm] Air Inlet Hose Fitting   48 mm [1.89 in.] Throat Diameter   1 in. [25.4 mm] Fuel Inlet Hose Fitting   95 mm [3.75 in.] Diameter Housing
MX54	3.5 in. [90 mm] Air Inlet Hose Fitting   54 mm [2.14 in.] Throat Diameter   1 in. [25.4 mm] Fuel Inlet Hose Fitting   95 mm [3.75 in.] Diameter Housing
MX54-V	3.5 in. [90 mm] Air Inlet Hose Fitting   54 mm [2.14 in.] Throat Diameter   1 in. [25.4 mm] Fuel Inlet Hose Fitting x2 for V-Engines   95 mm [3.75 in.] Diameter Housing

## MAP/LOAD SENSOR



PRODUCT NO.	DESCRIPTION
SPM200-1B	MAP   1-Bar Max Absolute Pressure   Green-Keyed Connector
SPM201-2B	MAP   2-Bar Max Absolute Pressure   Orange-Keyed Connector
SPM202-3B	MAP   3-Bar Max Absolute Pressure   Black-Keyed Connector

## EXHAUST GAS OXYGEN SENSORS



- Narrowband Sensor
- Not for Use with Lean Burn Kits

PRODUCT NO.	DESCRIPTION
SOX102	12 V DC   Narrow-Band Stoichiometric Operation   Not for Use with Lean Burn Kits   Built-In Heater   4-Terminal
SOX103	Multi-V DC   Narrow-Band Stoichiometric Operation   2-Terminal

## SOX AND SPM200 MATING CONNECTOR KITS



PRODUCT NO.	DESCRIPTION
EC1508	SOX102   4-Terminal
EC1509	SPM200-1B   Green   3-Terminal
EC1510	SPM201-2B   Orange   3-Terminal
EC1511	SPM202-3B   Black   3-Terminal
EC1520	SOX103   2-Terminal

## ENGINE MONITORING & PROTECTION SENSORS



PRODUCT NO.	DESCRIPTION
SPO100	Oil Pressure Sensor   0–180 psig [1.24 Mpa]   10–180Ω   1/8–27 NPTF Fitting   #10 Posts
STC101	Coolant Temperature Sensor   250°F [120°C] Max   0–90Ω   3/8–18 NPT Fitting   Male Push-On Terminals
STE101	Exhaust Gas Temperature Sensor   Type-K Thermocouple   1200°F [650°C] Max   Includes Mating Connector   Use With AFR210 & 211

## GAS PRESSURE REGULATORS



- Zero Pressure Regulator

PRODUCT NO.	DESCRIPTION
RPR102	Maxitrol R500Z   3/4 in. NPT Fittings
RPR103	Maxitrol R600Z   3/4 in. NPT Fittings
RPR104	Maxitrol 210DZ   1 in. NPT Fittings
RPR105	Maxitrol 210DZ   1-1/2 in. NPT Fittings
RPR106	Maxitrol R600Z   1 in. NPT Fittings

## FILTERS



- 15PSI [100 kPa] Maximum Inlet Pressure

PRODUCT NO.	DESCRIPTION
GFL107	3/4 in. NPT Fittings
GFL105	1 in. NPT Fittings
GFL108	1.5 in. NPT Fittings
GFL106	GF6066 & 6088 Service Kit   Replacement Filter and Hardware
GFL109	GF801212 Service Kit   Replacement Filter and Hardware

## SHUTOFF SOLENOIDS



- 12 or 24 V DC
- 2-Way Valves
- Normally Closed
- Aluminum Housing with Weatherproof Coils

PRODUCT NO.	DESCRIPTION
SOS100-12 or -24	3/4 in. [19.05 mm] NPT Fittings   Direct-Acting   Pressure Differential 0-3 psi [0-0.2 Bar] Min-Max
SOS101-12 or -24	1 in. [25.4 mm] NPT Fittings   Pilot-Operated Quick Open   Pressure Differential .015-3 psi [0.001-0.2 Bar] Min-Max
SOS102-12 or -24	1 in. [25.4 mm] NPT Fittings   Direct-Acting   Pressure Differential 0-0.75 psi [0-0.05 Bar] Min-Max
SOS103-12 or -24	1.5 in. [38.1 mm] NPT Fittings   Pilot-Operated Quick Open   Pressure Differential .015-3 psi [0.001-0.2 Bar] Min-Max

# ICM IGNITION CONTROL SYSTEM

The Ignition Control Module (ICM) System is an intelligent electronic control system that starts with the ICM module that triggers an inductive coil by charging the coil with the appropriate amount of energy for high-voltage induction into the engine's spark plugs.

## ICM SERIES IGNITION CONTROL MODULES



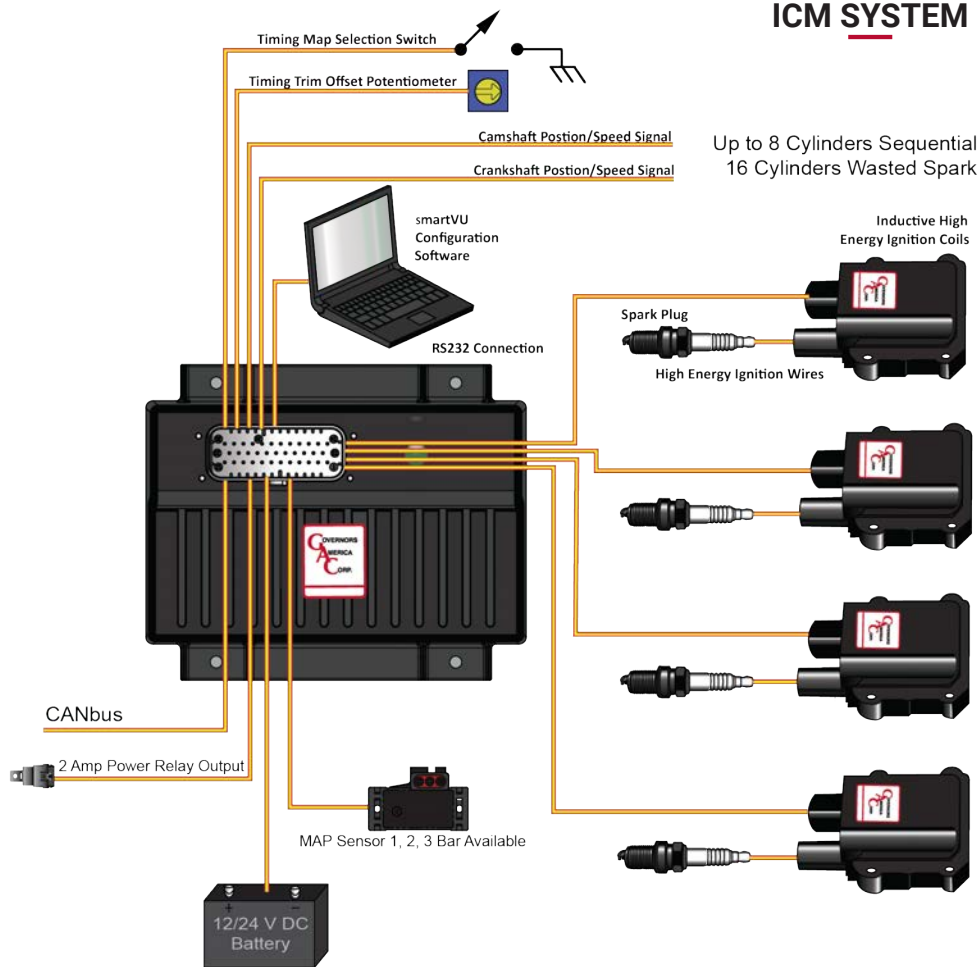
- Multi-V DC
- Up to 8 Cylinders Sequential or 16 Cylinders Wasted-Spark
- Supports Camshaft/Crankshaft Engine Position Sensors - Hall Effect or Variable Reluctance Type
- Fixed Timing with In-Field Global Trim Capacity
- Two Variable Timing Maps Based on Engine Speed and Load
- Easy Configuration with Free GAC Software
- Mating Connector Kits EC1500 or CH1521 Not Included

PRODUCT NO.	DESCRIPTION
ICM200-4	4-Output Channels Maximum
ICM200-6	6-Output Channels Maximum
ICM200-8	8-Output Channels Maximum

## ICM200 CABLE HARNESS

PRODUCT NO.	DESCRIPTION
CH1521	8 ft. [2.4 m] Harness   Flying Leads   35-Wires
EC1500	35-Terminal

## ICM SYSTEM



## ENGINE POSITION/TIMING SENSORS



PRODUCT NO.	DESCRIPTION
SCI100	Variable Reluctance   90° Connector   2-Terminal
SCI101	Variable Reluctance   Straight Connector   2-Terminal
SCI102	Hall Effect   Pigtail   3-Terminal
SCI103	Hall Effect   90° Connector   3-Terminal
GR104	Timing Trigger Wheel   68 mm (2.68 in.) OD   24-1 Arrangement

## ENGINE POSITION/TIMING SENSORS MATING CONNECTOR KITS



PRODUCT NO.	DESCRIPTION
EC1504	For SCI100   2-Terminal
EC1518	For SCI101   2-Terminal
EC1503	For SCI102   3-Terminal
EC1519	For SCI103   3-Terminal

## IGNITION COILS



PRODUCT NO.	DESCRIPTION
CL600	12 or 24 V DC   Single Output   Sequential Firing
CL601	12 or 24 V DC   Dual Output   Wasted-Spark Firing
CL602	12 V DC   Single Output   Sequential Firing
CL603	12 V DC   Dual Output   Wasted-Spark Firing

## IGNITION COIL MATING CONNECTOR KITS

PRODUCT NO.	DESCRIPTION
EC1504	For CL600 or CL602 Mating Connector Kit   2-Terminal
EC1517	For CL601 or CL603 Mating Connector Kit   3-Terminal

## MISCELLANEOUS COMPONENT CONNECTOR KITS



PRODUCT NO.	DESCRIPTION
EAM204	USB to RS232 Adapter for PC Interface, GAC Recommended
EC1505	Fuse Holder Connector Kit   2-Terminal
EC1506	Relay Holder Connector Kit   5-Terminal
EC1516	Serial Port Connector Kit   DB9-F with Backshell   9-Terminal
RLY02-1009	12 V DC   30A Power Relay   SPDT - Normally Open   Form C
RLY02-1011	24 V DC   40A Power Relay   SPDT - Normally Open   Form C

## SPARK PLUGS & WIRES



PRODUCT NO.	DESCRIPTION
SPG100-002	Iridium Tip Spark Plug   14 mm   Stoichiometric and Lean-Burn
SPW100	Single Ignition Wire Lead   High-Performance



PROVIDING SOLUTIONS SINCE 1986



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