

G A C OVERNORS MERICA CORP.®

Distinction in the World of Engine Governing & System Controls

genset controls & accessories digital management engine systems magnetic pickups custom control systems actuators

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ACTUATORS

DESIGNED TO OUT LIVE THE LIFE OF THE ENGINE

When a GAC actuator is installed on an engine and electronically connected to compatible GAC governing system components, a high performance speed control system results. The design baseline for GAC actuators incorporates fast responses, multi-voltage usage, and proven reliability to allow for more precise control. All of GAC actuators are easy to install with no maintenance required.

THROTTLE BODY

The ATB Series integral throttle body electric actuators are designed to control the air or air/fuel mixture to a gas or gaseous-fueled engine. They are typically used to control an engine by working in tandem with a conventional fuel mixer. The design baseline for the ATB Series incorporates fast response and proven reliability to allow for efficient and more precise control. The ATB Series actuator directly drives the integrated throttle plate. Internal return springs provide for a normally closed valve for fail-safe operation. This ensures that the throttle plate returns to the minimum fuel position when the actuator becomes de-energized. Available with throttle plate position feedback sensor, higher temperature rating, or internal sealing for turbo-charged applications.

ATB T1 Series



- ▶ 12 or 24 VDC
- ▶ 25mm to 40mm Bore Size
- ▶ Packard Connector

ATB251T1N-12 or -24	25mm
ATB251T1F-12 or -24	25mm / Position Feedback Sensor
ATB301T1N-12 or -24	30mm
ATB301T1F-12 or -24	30mm / Position Feedback Sensor
ATB351T1N-12 or -24	35mm
ATB351T1F-12 or -24	35mm / Position Feedback Sensor
ATB401T1N-12 or -24	40mm
ATB401T1F-12 or -24	40mm / Position Feedback Sensor

ATB T2 Series



- ▶ 12 or 24 VDC
- ▶ 45mm to 65mm Bore Size
- ▶ Packard Connector

ATB452T2N-12 or -24	45mm
ATB452T2N14-12 or -24	45mm / High Temperature / Sealed
ATB452T2F14-12 or -24	45mm / Position Feedback Sensor / High Temperature / Sealed
ATB552T2N-12 or -24	55mm
ATB552T2N14-12 or -24	55mm / High Temperature / Sealed
ATB552T2F14-12 or -24	55mm / Position Feedback Sensor / High Temperature / Sealed
ATB652T2N-12 or -24	65mm
ATB652T2N2-12 or -24	65mm / Mechanical Position Indicator
ATB652T2N124-12 or -24	65mm / High Temperature / Sealed Mechanical Position Indicator
ATB652T2N14-12 or -24	65mm / High Temperature / Sealed
ATB652T2F14-12 or -24	65mm / Position Feedback Sensor / High Temperature / Sealed

ATB T3 Series



- ▶ 12 or 24 VDC
- ▶ 75mm Bore Size
- ▶ Packard Connector

ATB753T3N4-12 or -24	75mm / Sealed
ATB753T3N24-12 or -24	75mm / Mechanical Position Indicator / Sealed
ATB753T3N14-12 or -24	75mm / High Temperature / Sealed
ATB753T3N124-12 or -24	75mm / High Temperature / Sealed / Mechanical Position Indicator
ATB753T3F14-12 or -24	75mm / Position Feedback Sensor / Sealed High Temperature

* Call GAC for sizes 95mm and above

ATB T4 Series



- ▶ 12 or 24 VDC
- ▶ 85mm to 120mm Bore Size
- ▶ Packard Connector
- ▶ High Temperature

ATB85T4N14-12 or -24	85mm / Sealed	ATB95T4N14-12 or -24	95mm / Sealed
ATB85T4N124-12 or -24	85mm / Sealed / Mechanical Position Indicator	ATB95T4N124-12 or -24	95mm / Sealed / Mechanical Position Indicator
ATB85T4F14-12 or -24	85mm / Sealed / Position Feedback Sensor	ATB95T4F14-12 or -24	95mm / Sealed / Position Feedback Sensor
		ATB110T4N4-12 or -24	110mm / Sealed
		ATB110T4N124-12 or -24	110mm / Sealed / Mechanical Position Indicator
		ATB110T4F14-12 or -24	110mm / Sealed / Position Feedback Sensor
		ATB120T4N14-12 or -24	120mm / Sealed
		ATB120T4N124-12 or -24	120mm / Sealed / Mechanical Position Indicator
		ATB120T4F14-12 or -24	120mm / Sealed / Position Feedback Sensor

PUMP MOUNTED

GAC's Pump Mounted Actuators are field proven proportional actuators designed to mount directly to fuel injection pumps to achieve an integrated proportional servo fuel package. Since the design has no sliding parts and its components are sealed; outstanding reliability results with no maintenance required.

100 Series



- ▶ For Stanadyne 'D' Series Pumps
- ▶ For Delphi DPG Pumps
- ▶ 12 or 24 VDC

ADC100-12 or -24	Stanadyne 'D' Series Pump / Commercial Connector
ADD103B-12 or -24	Delphi DPG / DP210G Pumps / Packard Connector / Mating Connector
ADE103B-12 or -24	Delphi DPG / DP210G Pumps / Packard Connector with Mating Connector Harness

175/176 Series



- ▶ For Bosch 'P' and 'A' Pumps
- ▶ Connects Directly to the Fuel Rack
- ▶ Manual Shut-Off Mechanism
- ▶ 12 or 24 VDC

ADD175A-12 or -24	Bosch 'P' Pump / Packard Connector
ADE175A-12 or -24	Bosch 'P' Pump / Packard Connector with Mating Connector
ADD176A-12 or -24	Bosch 'A' Pump / Left Hand Rack / Packard Connector
ADE176A-12 or -24	Bosch 'A' Pump / Left Hand Rack / Packard Connector with Mating Connector
ADE176AA-12 or -24	Bosch 'A' Pump / Left Hand Rack / Packard Connector with Mating Connector / Cold Start Assist

275 Series



- ▶ Bosch 'P' 3000 - 7000 Fuel Injection Pump
- ▶ Controls Pumps on Engines up to 12-Cylinders
- ▶ Manual Shut-Off Mechanism

ACB275H	Multi VDC / MIL Connector
ACE275H-24	24 VDC / Packard Connector
ACE275HD-24	24 VDC / Packard Connector / Heavy Duty Bearing Retention
ACE275J-24	24 VDC / High Torque Return Spring with Oil Drain Fitting
ACE275K	24 VDC / Heavy Duty Bearing Retention / Packard Connector / Position Feedback Sensor

295 Series



- ▶ Bosch 'P' 9 and 10 Pumps
- ▶ Control Pumps on Engines up to 16 Cylinders
- ▶ 24 VDC

ACE295-24	Packard Connector
ACE295F-24	Packard Connector / Position Feedback Sensor

ENGINE MOUNTED

GAC's Engine Mounted Actuators exhibit a high quality construction design for high temperature applications and are uniquely optimized to outperform externally mounted electric actuators and other competitive designs. Since GAC's fast responding fuel control design has no sliding parts and its components are sealed; outstanding reliability results with no maintenance required.

110 Series



- ▶ For Deutz 1011 Engines
- ▶ For 2,3, and 4 Cylinder.
- ▶ 12 or 24 VDC

ACD110-12 or -24

Deutsch Connector

ACE110-12 or -24

Deutsch Connector with Mating Connector

180 Series



- ▶ 12 or 24 VDC
- ▶ Deutz 1012/1013 & 2012 Engines
- ▶ Volvo 520/720 Engines

ADD180G-12 or -24

Packard Connector with Mating Connector

ALR Series



- ▶ Pull Electrical Linear Actuators
- ▶ Mounts Directly to Engine's Fuel Pump
- ▶ Utilizes Precision Linear Ball Bearings instead of Bushings

ALR160-S03-12 or -24	12 or 24 VDC / Spade Connector / Shibaura Series
ALR190-I03-12 or -24	12 or 24 VDC / Spade Connector / Isuzu L-Series 3LB1 3LD1 3LD2 4LE1 4LE2
ALR190-I04-12 or -24	12 or 24 VDC / Packard Connector / Isuzu L-Series 3LB1 3LD1 3LD2 4LE1 4LE2
ALR190-K04-12 or -24	12 or 24 VDC / Packard Connector / Kubota Super 5 Series D905, D1005, D1105, D1105-T, V1305, V1505, V1505-T 3300 Series 3800
ALR190-KM03-12 or -24	12 or 24 VDC / Packard Connector / M03 Engines
ALR190-KV2403-12 or -24	12 or 24 VDC / Packard Connector / V2403 Engines
ALR190-KV3073-12 or -24	12 or 24 VDC / Packard Connector / V3073 Engines
ALR190-KV3307-12 or -24	12 or 24 VDC / Packard Connector / V3307 Engines
ALR190-M04-12 or -24	12 or 24 VDC / Packard Connector / Mitsubishi L-Series L2E L3E, S3L Series S3L, S4L Series S4L S4L2
ALR190-P04-12 or -24	12 or 24 VDC / Packard Connector / Perkins 404 700
ALR190-Y03-12 or -24	12 or 24 VDC / Spade Connector / Yanmar TNV Series 2TNV70 3TNV70 3TNV76 3TNV82A 3TNV84 3TNV84T 3TNV88 4TNV84 4TNV94L 4TNV88 4TNV98 4TNV98T / Isuzu C-Series 2CA 3CA 3CB 3CD 3CDT
ALR190-Y04-12 or -24	12 or 24 VDC / Packard Connector / Yanmar TNV Series 2TNV70 3TNV70 3TNV76 3TNV82A 3TNV84 3TNV84T 3TNV88 4TNV84 4TNV94L 4TNV88 4TNV98 4TNV98T / Isuzu C-Series 2CA 3CA 3CB 3CD 3CDT

UNIVERSAL

GAC's Universal actuators are proportional electro servo designed for mechanical actuation of fuel system control levers. They exhibit GAC's uniquely optimized fuel control and will outperform externally mounted electric actuators. GAC's sealed integral actuators are simple to install and possess no sliding parts, resulting in outstanding reliability and no maintenance required.

104 Series



- ▶ Briggs & Stratton Engines
- ▶ Kohler 12 - 30 HP Engines
- ▶ <25 msec Response
- ▶ Environmentally Sealed

ADD104-12 12 VDC / 0.29 lb-ft Torque / Male Spade

120 Series



- ▶ Rotary Actuators
- ▶ Sized for Engines up to 150 hp
- ▶ 1.0 lb-ft Torque
- ▶ For Small Inline Fuel Pumps or Carburetors

ACB120 Multi VDC / MIL Connector / 25° Rotation

A DB120 Multi VDC / MIL Connector / 25° Rotation

A DB120E4 Multi VDC / MIL Connector / Fuel Metering / Cummins PT Fuel System

ADC120S -12 or -24 12 or 24 VDC / Commercial Connector / 25° Rotation / Serrated Shaft

2001 Series



- ▶ Rotary Actuator
- ▶ 12.0 lb-ft Torque
- ▶ < 80 msec Response
- ▶ Sized for engines from 400 - 1800 hp

ACB2001 24 VDC / 12.0 Max lb-ft Torque / 35° Rotation

225 Series



- ▶ 2.2 lb-ft Torque
- ▶ 25° Rotation
- ▶ < 45 msec Response
- ▶ For Multi-Plunger Fuel Pumps & Carburetors

ACB225 Multi VDC / MIL Connector

A DB225 Multi VDC / MIL Connector / Diecast Housing

ADC225S -12 or -24 12 or 24 VDC / Commercial Connector / Serrated Shaft

ADC225GS -12 or -24 12 or 24 VDC / Commercial Connector / Serrated Shaft / Lesser Rate Return Spring

ADC225JS -12 or -24 12 or 24 VDC / Commercial Connector / Serrated Shaft / Greater Rate Return Spring

ADC225KS -12 or -24 12 or 24 VDC / Commercial Connector / Serrated Shaft / High Temperature Applications

ALN Series



- ▶ Push Linear Actuators
- ▶ High Quality Antifriction Bearings
- ▶ Replaces Competitive Models
- ▶ 22mm Stroke

ALN025-12 or -24 12 or 24 VDC / 0.25 ft.lb. / Spade Connector

ALN025A-12 or -24 12 or 24 VDC / 0.25 ft.lb. / Spade Connector / Clevis Kit

ALN050-12 or -24 12 or 24 VDC / 0.50 ft.lb. / Spade Connector

ALN050A-12 or -24 12 or 24 VDC / 0.50 ft.lb. / Spade Connector / Clevis Kit

ACCESSORIES - ACTUATORS

Cable Harnesses



CH1203	Actuator - 12' - 6 pin MIL Connector ACB/ADB Actuators (MIL)
CH1210	Actuator - 12' - 90° Connector (MIL)
CH1212	Actuator - 30' - 6 pin MIL Connector
CH1215	Packard - Actuator Mating Half
CH1515	AB Position Sensor Mating Half - 6' Shielded / Feedback Sensor

Installation Kits



KT130	ALN Series Actuators
KT153	ACE175A Series - Motorpal Pump PP4M10P1N13021
KT175-RS-R	ADD175 Series / Bosch 'A' Pump / Right Hand Rack
KT176A	ADE176A Series - Bosch 'A' Pump
KT231J	Bosch RSV - Left Side - Used With ALN050
KT232J	Bosch RSV - Right Side
KT275	ACB275 - Bosch 3000 Pump / Camshaft Bearing Kit
KT276	ACB275 - Bosch 7000 Pump / Camshaft Bearing Kit
KT278	ACB275 Actuators - RB RP21 with RB Plate
KT278-1	ACB275 Actuators - RP21
KT283	ACD175 BYC 'P' Pump
KT295	ACE295 Actuators
KT289	ADD175 - Bosch 'P' Pump / Governor Only

Custom Specific Installation Kits Available, Contact GAC

Service Items



GA102	Mounting Gasket for 100 Series
HW13-001	5 Star Torx Bit / Stanadyne
KT6724	Fuel Valve Only / ADB120E4

Mating Connectors



EC1000	Actuator Straight / Military Style Connector
EC1010	Actuator 90° / Military Style Connector
EC1120	110 Series - Mating Half
EC1300	Packard - Electric Actuator
EC1515	AB Feedback Sensor Mating Half Connector

Lever



LE1100-3	4.8" - ADC Actuators - 3/16" Holes / Smooth Shaft
LE1200-3	4.8" - ACB/ADB Actuators - 1/4" Holes / Serrated Shaft
LE1400-1	4.3" - ACB/ADB Actuators - 3/16" Holes / Serrated Shaft
LE1400-2	4.3" - ACB/ADB Actuators - 1/4" Holes / Serrated Shaft
LE1400-4	3.3" - ACB/ADB Actuators - 1/4" Holes / Smooth Shaft
LE1500-1	4.3" - ADC Actuators - 3/16" Holes / Smooth Shaft
LE1500-2	4.3" - ADC Actuators - 1/4" Holes / Smooth Shaft
LE2000	4.4" - ACB2001 - M8 Holes

Threaded Rod



RD100	1/4 - 28 (Price per Inch of Length)
RD102	1/4 - 28 - Precut to 12"

Bearing Rod Ends



BR100	3/16" I.D. - 10-32 Thread
BR101	3/16" I.D. - 10-32 Left Hand Thread
BR200	1/4" I.D. - 1/4-28 Thread
BR201	1/4" I.D. - 1/4-28 Left Hand Thread
BR300	M5 I.D. and Thread
BR400	M6 I.D. and Thread

Governors

GAC's Speed Control Units are precise speed controls designed and manufactured in various configurations to meet application requirements using the latest analog and digital control technologies. Reverse battery polarity and fail-safe protection in the event of loss of speed sensor signal or battery voltage is incorporated in every GAC Speed Control Unit. A wide variety of application needs can be satisfied with GAC's constant or variable speed governing, in isochronous or droop operation. All circuit boards are hard potted or conformally coated to be vibration and moisture resistant.

Digital

GAC digital governors are solid state microprocessor based speed control unit that offer precise ($\pm 0.25\%$) speed control with fast response to transient load changes in isochronous and droop modes. GAC digital governors are highly reliable and not subject to drift. This suitable replacement for any mechanical governor is well built to withstand the harshest of engine environments. Its designed to regulate the engine speed on diesel and gas reciprocating engines for generator sets, mechanical drives, pumps, and compressors.

EDG Series

These governors are based on GAC's revolutionary EDGe™ algorithm, incorporating all of the features and performance of GAC analog governors along with the stability, accuracy, flexibility and communication capabilities digital controls are known for.

- ▶ No Analog Drift
- ▶ Variable Speed Governing
- ▶ GAC AUX/Load Sharing
- ▶ Overspeed Sensing
- ▶ Adjustable Starting Fuel Strategy (Black Smoke Reduction)



EDG5500

- ▶ Simple LCD User Interface
- ▶ Fast Set-up with 5 Push Buttons, No Potentiometers
- ▶ A Near Drop in Replacement for ESD5500E



EDG6000

- ▶ Multiple PID Control for Full Tuning of Operating Range
- ▶ IP67 Sealed Case and Connector
- ▶ RS232 and CAN J1939 Communications
- ▶ SmartVU PC Software

NEW!



EDG6010-DM

- ▶ Directly Mounts to 175/176 Actuators
- ▶ Multiple PID Control for Full Tuning of Operating Range
- ▶ Sealed Electronics & Flying Leads
- ▶ RS232 and CAN J1939 Communications

IGC



IGC745-02-04

- ▶ Integrated Governor & Engine Control
- ▶ Fixed Speeds plus Variable Speed Range
- ▶ LED Bar Graph for Set-Up & Troubleshooting
- ▶ Non Volatile EEPROM Memory

Integrated Governor Engine Control

SDG Series



SDG514-01-01

- ▶ Smart Digital Governor
 - ▶ Three Fixed and 1 Variable Speed
 - ▶ Overspeed Shutdown Protection
 - ▶ SmartVU PC Software
- (CE) Deutsch Connector / Resistive (10K Potentiometer) Variable Speed Input

SDG524-01-01

(CE) Deutsch Connector / 0-5 VDC Variable Speed Input

ACCESSORIES - GOVERNORS - DIGITAL

Cable Harnesses



- CH1330 Cable Harness for the SDG514 / SDG524
- CH1520 Cable Harness for the EDG6000

Mating Connectors



- EC1330 Deutsch 12 pos. Mating Connector for SDG514 / SDG524
- EC1502 14-Pin Mating Connector for EDG6000
- EC1528 Connector Kit for EDG6010-DM

Test Equipment



- TSE050 Magnetic Speed Pickup Simulator
- TSE307 EDG6000 Programming Interface

Analog

SSW Series



- ▶ 12 or 24 VDC Operation
- ▶ Reverse Voltage Protection
- ▶ Overspeed Test Function

SSW674 One Element / Speed Switch / Tachometer Output / Factory Adjusted For Most Applications

SSW675 Two Element / Speed Switch / Tachometer Output / Overspeed to 10000Hz

SSW676 Three Element / Speed Switch / Tachometer Output

ECC Series



- ▶ Isochronous Speed Control
- ▶ Full PID Setting
- ▶ Designed to Govern from Frequency Signal of an AC Generator
- ▶ No Magnetic Speed Pickup Needed

ECC328-12 (CE) 12 VDC / Light Force

ESC Series



- ▶ Electronic Speed Control
- ▶ Wide Speed Control Units
- ▶ 12 - 32 VDC

ESC61C-7 Standard Unit / MIL Connector

ESC61C-17 Variable Speed / MIL Connector / 12-32 VDC

ESC63C-7 Standard Unit

ESC63C-17 Variable Speed / 12-32 VDC

ESC63C-23 Idle-Run Feature / 12-32 VDC

ESD1000 Series



- ▶ 12 or 24 VDC
- ▶ Isochronous Operation
- ▶ Steady State Stability
- ▶ Reverse Voltage Protected
- ▶ Gain Adjustment

ESD1000-12 or -24 (CE) Standard Unit

ESD1100-12 or -24 (CE) Terminal Strip

ESD2100



- ▶ 12 or 24 VDC
- ▶ Isochronous Operation
- ▶ Adjustable PID Functions

ESD2110 Multi VDC Standard Unit

ESD2200 Series



- ▶ Transient Voltage Protection
- ▶ Expanded Speed Range to 9400Hz
- ▶ 8:1 Speed Range Control
- ▶ Removal Jumpers for Expanded Range

ESD2210-12 or -24 (CE) Hard Potted

ESD2241-24 24 VDC Standard Unit with Idle Circuit

ESD2244-12 or -24 (CE) Hard Potted / Light Force

ESD2300 Series



- ▶ 12 VDC
- ▶ Adjustable PID Functions
- ▶ Foot Pedal

ESD2349-12 (CE) 12 VDC / Off Road / Variable Speed / Foot Pedal

ESD2351-12 12 VDC / Operates with Williams Foot Pedal

ESD2352-12 12 VDC / Operates with Morse Foot Pedal

ESD2400 Series



- ▶ Dynamic Control Circuit
- ▶ Idle Function
- ▶ Lower Gain Adjustable
- ▶ Anti Wind-Up Circuit

ESD2401-12 or -24 (CE) Standard Unit / Idle Speed Adjustment / Designed for Non-Feedback GAC Actuators

ESD2402-12 or -24 (CE) Light Force / Idle Speed Adjustment / Designed for Non-Feedback GAC Actuators

ESD5100 Series



- ▶ 10 VDC Supply for Accessories
- ▶ Adjustable PID Functions
- ▶ Switchable Droop and Idle Control
- ▶ Auxiliary Power Supply

ESD5111	(CE) Standard Unit / Isochronous, Variable & Droop Operation / Variable Speed Trim Range
ESD5111T	(CE) Temperature Compensated / Isochronous, Variable & Droop Operation / Dead Time Compensation
ESD5119	(CE) EFC Reverse Acting / Isochronous, Variable & Droop Operation / Adjustable Droop Range / Light Force
ESD5120	(CE) Light Force / Isochronous, Variable & Droop Operation
ESD5131	(CE) Soft Coupling Option / Isochronous, Variable & Droop Operation
ESD5143	Enhanced Speed Detector Circuit / Speed Range to 10.5 KHz
ESD5150	Same As ESD5111 / 4-20 mA Output
ESD5159	Same As ESD5111 / Extended Frequency Range 14 KHz
ESD5160	Same as ESD5119 / Extended Speed Range
ESD5161	(CE) Expanded Auxiliary Input Range

ESD5400 Series



- ▶ Adjustable PID Functions
- ▶ Actuator Loop Control
- ▶ Two Speed or Variable Speed
- ▶ Overspeed Control

ESD5402	24 VDC / Isochronous, Variable & Droop Operation / Designed for Feedback Actuator Operation
ESD5403	Use with AB Sensor Feedback Actuators / Isochronous, Variable & Droop Operation / Designed for Feedback Actuator Operation

ESD5500E Series



- ▶ Switchable Droop Control
- ▶ Soft Coupling
- ▶ Overspeed Control Switch
- ▶ Auxiliary Output

ESD5500E	(CE) Standard Unit / Isochronous, Variable & Droop Operation / Speed Ramping / Starting Fuel Control / Enhanced Droop Control
ESD5520E	(CE) Light Force / Isochronous, Variable & Droop Operation / Speed Ramping / Starting Fuel Control / Adjustable Speed Ramping Control
ESD5522E	(CE) Light Force / EFC Forward Acting / Enhanced Droop / Isochronous, Variable & Droop Operation / Speed Ramping / Starting Fuel Control / Dead Time Compensation

ESD5221



- ▶ Speed Anticipation Circuit
- ▶ Adjustable PID Functions
- ▶ Reverse Voltage Protection
- ▶ Overspeed Contact

ESD5221	10 Amp Relay Output / Isochronous, Variable & Droop Operation / Single Element Speed Switch
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ESD5300 Series



- ▶ Power Driver Circuit
- ▶ Adjustable PID Functions
- ▶ Idle Speed Adjustment
- ▶ Auxiliary Accessory Outputs

ESD5330	Isochronous, Variable & Droop Operation / 2 Element Speed Switch / Speed Ramping / Starting Fuel Control / Dual Gain / Unique Actuator Power Drive Circuit / Soft Coupling
ESD5340	Dynamic Starting Aid Equipped / Isochronous, Variable & Droop Operation / 2 Element Speed Switch / Speed Ramping / Starting Fuel Control / Dual Gain / Unique Actuator Power Drive Circuit / Soft Coupling

ESD5550/5570 Series



- ▶ Crank Termination Circuit
- ▶ Overspeed with LED
- ▶ Fuel Ramping Control
- ▶ Auxiliary Output

ESD5550	(CE) Single Element Speed Switch / Isochronous, Variable & Droop Operation / Speed Ramping / Starting Fuel Control / Soft Coupling / Gain Adjustment 33:1 / Transient Voltage Protection
ESD5570	(CE) Single Element Speed Switch / Light Force / Isochronous, Variable & Droop Operation / Speed Ramping / Starting Fuel Control / Soft Coupling / Integrated Wind-Up Protection

ACCESSORIES - GOVERNORS - ANALOG

Modules



RSC671	Ramp Generator - Ramp Up / Down - Programmable
RSC672	Ramp Generator - Ramp Up / Down Generator Set Applications
SLM100	Smoke Limiting Module
DDM101	Dual Driver Module
DFM100	Dual Fuel Module

Foot Pedals



FP201	Foot Pedal / Vertical Mount
FP202	Foot Pedal / Horizontal Mount

Mating Connector



EC1200	ESC61C - Straight
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Potentiometers



TP501	1 Turn - 5K with Knob	TP509	10 Turn - 20K with Knob
TP502	10 Turn - 5K with Knob	TP510	10 Turn - 1K
TP503	10 Turn - 5K with Locking Shaft	TP511	10 Turn - 10K
TP504	1 Turn - 20K with Knob / Droop Control	TP521	Multiple Variable Speed Control / Vernier Dial
TP508	10 Turn - 20K with Locking Shaft		

Test Equipment



TSE050	Magnetic Speed Pickup Simulator
TSE307	EDG6000 Programming Interface

Magnetic Speed Pickups



3/8 - 24 UNF Threaded

MSP6729	6' Shielded Cable / 2.5"
MSP6730	6' Shielded Cable / 1.5"
MSP6731	6' Shielded Cable / 4"
MSP6742	1' Shielded Cable / 2.7"

3/4 - 16 UNF Threaded

MSP6724	3.5" With 3" Leads / Automotive Connector
MSP6724C	3.5" With 3" Leads / Automotive Connector / Mating Half Connector
MSP6734	3.5" With 4" Leads
MSP6735	3.5" With 3" Leads / Packard Connector
MSP6744	2.29" With 8/32 Stud Terminals / 1200 Ohms

5/8 - 18 UNF Threaded

MSP674	3" Without Mating Half Connector / High Output	MSP6720	4" With 6" Leads
MSP675	3" With 7" Leads	MSP6721	3" With 3" Leads / Automotive Connector
MSP676	5" With 12" Leads	MSP6721C	3" With 3" Leads / Automotive Connector / Mating Half Connector
MSP677	3" Without Mating Half Connector / Military Style Connector	MSP6728	3" With 10" Leads / Packard Connector
MSP678	5" Without Mating Half Connector / Military Style Connector	MSP6728C	3" With 10" Leads / Packard Connector / Mating Half Connector
MSP679	3" Mating Half Connector / Weather Boot / Military Style Connector	MSP6732	3" With 4" Leads / Dual Output / Dual Packard Connectors
MSP6710	5" Mating Half Connector / Weather Boot / Military Style Connector	MSP6732C	3" With 4" Leads / Dual Output / Dual Packard Connectors / Mating Half Connector
MSP6719	2.375" With 12" Leads	MSP6743	3.75" With 8/32 Stud Terminals / 1200 Ohms

M16 x 1.5 Threaded

MSP6714	3" Without Mating Half Connector / Military Style Connector
MSP6715	3" With Mating Half Connector / Weather Boot / Military Style Connector
MSP6723	3" With 3" Leads / Automotive Connector
MSP6723C	3" With 3" Leads / Automotive Connector / Mating Half Connector

M18 x 1.5 Threaded

MSP6741	3.25" With 9" Leads / Packard Connector
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ACCESSORIES - MAGNETIC SPEED PICKUPS

Cable Harnesses



- CH1204 MSP677/678 - 10' Shielded - Straight Connector (MIL)
- CH1205 MSP677/678 - 10' Shielded - 90° Connector
- CH1206 MSP6721/6724 and ADC Actuators - 4' Unshielded
- CH1207 MSP6721/6724/6723 - 10' Shielded (Automotive)
- CH1208 MSP675 - 10' Shielded
- CH1211 MSP677/678 - 27' Shielded - Straight Connector (MIL)
- CH1219 Packard - Sensors Mating Half - 10' Shielded

Mating Connectors



- EC1100 MSP677 with Straight Cable Clamp & Weather Boot
- EC1110 MSP677 with 90° Cable Clamp
- EC1350 Mating Packard Speed Sensor
- EC1518 Mating Connector for MSP6741

Generator Accessories

Load Sharing and Synchronizing



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

LAM100	Load Anticipation Module / Hard Potted	LSM672N	24 VDC / Isochronous Load Sharing / Forward-Reverse Power Monitors / Extra Filtering
LSM100	Isochronous Load Sharing / Load Anticipation / Droop	LSM672	(CE) 24 VDC / Isochronous Load Sharing / Forward-Reverse Power Monitors
LSM201N	24 VDC / Isochronous Load Sharing / Power Monitors / Power Ramping	SYC6714	(CE) Multi VDC / Automatic Synchronizer With Sync Check Relay
LSM201	(CE) 24 VDC / Isochronous Load Sharing / Power Monitors / Power Ramping		

Interface Modules



- ▶ Multi Voltage Units
- ▶ Adjustable PID
- ▶ Idle Speed Adjustment
- ▶ Auxiliary Accessory Inputs

EAM100	Cummins EFC	EAM116	Universal / 1.2x0-5VDC, 1x0-10VDC, 1x4 20mA / 0.0-5VDC
EAM101	B.C. Dyna 1 & 8000 / 24 VDC	EAM120-12 or -24	Woodward 2302A / 12 or 24 VDC
EAM101-12	B.C. Dyna 1 & 8000 / 12 VDC		Woodward Load Sharing & Synchronizing - GAC
EAM103	B.C. Load Sharing to GAC Speed Control Units	EAM121-24	Including DEC2 / 12 or 24VDC
EAM104	DDEC 3 Controller	EAM122-12	Volvo EMS / 12 VDC
EAM105	GAC Load Sharing To Heinzmann KG6-04/10-04	EAM122-24	Volvo EMS / 24 VDC
EAM106	Cummins Digital (3081313)	EAM125	Deutz Position Interface Module
EAM107	KCL (3873583)	EAM126	Voltage / Current Interface Module
EAM108	Woodward (8290-038) / 12VDC	EAM127-24	Interface Module Scania S6 (EMS) EFI SY / 24 VDC
EAM108-12	Woodward (8290-038) / 24VDC	EAM131	Universal / 4 -20mA Output
EAM110	Cummins ST30	EAM208	DC Generator / Current Transformer / 200 Amp / 0-8 VDC Output
EAM111	MTU M-DEC	EAM210	Cummins / 100% Duty Cycle / DC Generator
EAM113	CAT HEUI	PCI105	50-60 Hertz Module
EAM114-12 or -24	Deutz EMR - 12 or 24 VDC	PRC100A	Generator Voltage Matching Module
EAM115	Perkins 1306-E87 7M351	VMA100	Generator Voltage Matching Module

Voltage Regulators



- ▶ Regulation Accuracy $\pm 0.5\%$ Steady State
- ▶ Low Voltage Build-Up, 6VAC
- ▶ Over Voltage and Internal Fuse Protection

CVR63-4R	Commercial Voltage Regulator / 4A 63V Field
CVR63-6	Commercial Voltage Regulator / 6A 63V Field

Instrumentation

J1939 Data Readers

GAC's low-cost JDR series of J1939 data readers allow users to monitor trouble codes and standard engine parameters. More advanced models support Tier IV engines with diesel particulate filters. Harsh applications are no match for JDR's rugged design. With installation and setup a breeze, users will be monitoring engine vital signs and configuring parameters in no-time.



JDR050



JDR050-IV



JDR100



JDR100-IV

- ▶ Wide Temperature Range
- ▶ Self Contained, No Configuration Software Required
- ▶ Built-in CAN bus Termination Resistor
- ▶ Customizable Overlay with OEM Logos

JDR050 J1939 Diagnostic Trouble Code Reader

JDR050-IV J1939 Diagnostic Trouble Code Reader / Tier IV Diesel Particulate Filter Capability

JDR100 J1939 Diagnostic Trouble Code Reader / 6 Live Engine Parameters

JDR100-IV J1939 Diagnostic Trouble Code Reader / 7 Live Engine Parameters / Tier IV Diesel Particulate Filter Capability

BEC



- ▶ Cost Effective Engine Control Solution
- ▶ Five Onboard LED Indicators
- ▶ Six Lamp Output Terminals & One Dual Function Input/Output Terminal
- ▶ Built-In Crank Pause & Overspeed Switch

BEC100 Basic Engine Mounting and Protection

BEC150 Basic Engine Mounting and Protection / Preheat

ECA - Analog to CAN Adapter



- ▶ Converts Analog Inputs and Outputs J1939 Messages for Non-Electronic Engines
- ▶ Standard Messages for: Oil Pressure, Coolant Temp, Fuel Engine Speed and Fuel Level Outputs
- ▶ Outputs Diagnostic Trouble Codes (DTC)
- ▶ OEM Definable Messages and Sender Curves

ECA050 4 Resistive Inputs / Ground Sense

ECA100 4 Resistive Inputs / Ground Sense / Mag Speed Pickup / +5VDC

ACCESSORIES - INSTRUMENTATION

Cable Harnesses



CH417-4572 JDR / 15' Cable Harness / Mating Connector /
Built-in CAN bus Termination Jumper

CH418-4572 JDR / 15' Cable Harness / Mating Connector /
Built-in CAN bus without Termination Jumper

Mating Connector



EC1331 Deutsch DT06-6S Mating Connector, Pins /
Plugs for the JDR

FIMS500 Fuel Ignition Management



The Air-Fuel Ratio (AFR) 200 Series and the Ignition Control Module (ICM) 200 Series controllers are part of GAC's comprehensive Fuel and Ignition Management System (FIMS) for gaseous-fueled, spark-ignited engines. The AFR200 performs closed-loop air-fuel ratio control using an exhaust oxygen sensor for feedback, in addition to providing a built-in engine speed governor with GAC's proprietary EDGe algorithm. Easy to configure, simple to install, and built for the extreme environments of industrial engines; GAC's AFR200 series delivers. When coupled with the Ignition Control Module (ICM) 200 series controller, the combination forms the FIMS500 platform.

AFR200 Series

- AFR200 One Oxygen Sensor Input
- AFR201 Two Oxygen Sensor Inputs
- AFR210 One Oxygen Sensor Input and EGT (Type-K) Input
- AFR211 Two Oxygen Sensor Inputs and EGT (Type-K) Input



- ▶ Integrated Venturi Mixer / Control
- ▶ Built-in Engine Speed Governor for GAC ATBs
- ▶ 3 Fixed Speeds, 1 Variable Speed, 1 Auxiliary Speed Trim
- ▶ GAC SmartVU Software

MC Series - Venturi Mixer and Fuel Control Valve Assembly

- MXSB##-STM Size 20 - 30, Small Bore, T1 Bolt Pattern / MXSB20-STM, MXSB22-STM, MXSB24-STM, MXSB26-STM, MXSB28-STM, MXSB30-STM
- MXMB##-STM Size 40 - 50, Medium Bore, T2 Bolt Pattern / MXMB40-STM, MXMB42-STM, MXMB44-STM, MXMB46-STM, MXMB48-STM, MXMB50-STM
- MXLB##-STM Size 75 - 120, Large Bore, T3 & T4 Bolt Pattern / MXLB75-STM, MXLB85-STM, MXLB95-STM, MXLB110-STM, MXLB120-STM

Venturi Mixers Only

- MX30 30mm Mixer MX75 75mm Mixer
- MX50 50mm Mixer MX85 85mm Mixer
- MX60 60mm Mixer

Zero Pressure Gas Regulators

- RPR102 3/4" Fittings / 1 PSI Maximum
- RPR103 1" Fittings / 1 PSI Maximum
- RPR104 1" Fittings / 5 PSI Maximum

Fuel Valve Only

- VFC103 In-Line Fuel Control Valve Only

Oxygen Sensors - Feedback Sensor for AFR

- SOX102 12V, 4-Wire, Narrow-Band, With Heater
- SOX103 12 or 24V, 2-Wire, Narrow-Band, No Heater

Engine Monitoring Sensors - Used for Engine Protection by the AFR

- SPO100 Oil Pressure Sensor, 150 PSI, 2 Terminal, Ring Posts
- STC101 Coolant Temperature Sensor, 250°F, Spade Terminals
- STE101 Exhaust Gas Temperature Sensor, Type K Thermocouple with Connectors

Manifold Absolute Pressure Sensors - Engine Load Sensor for AFR

- SPM200-1B MAP, 1-Bar SPM202-3B MAP, 3-Bar
- SPM201-2B MAP, 2-Bar

ICM200 Series

- ICM200-4 4 Output Channels Maximum
- ICM200-6 6 Output Channels Maximum
- ICM200-8 8 Output Channels Maximum
- ICM200-12 12 Output Channels Maximum



- ▶ Up to 8 or 16 Cylinders Sequential
- ▶ Supports Camshaft / Crankshaft Engine Position Sensors
- ▶ Fixed Timing or With In-Field Global Trim Capability
- ▶ Two Optional Variable Timing Maps

Spark Plugs & Wires

- SPG100-001 Iridium Tip Spark Plug
- SPG100-002 ISpark Plug / Turbocharge Lean Burn Application
- SPW100 Single Ignition Wire Lead, Performance

Timing Trigger Wheels

- GR104 24-1, 68mm, Trigger Wheel
- GR105 24-1, 150mm, Trigger Wheel

Manifold Absolute Pressure Sensors - Engine Load Sensor for ICM

- SPM200-1B MAP, 1-Bar
- SPM201-2B MAP, 2-Bar
- SPM202-3B MAP, 3-Bar

Ignition Coils

- CL602 Single Output, Sequential Firing
- CL603 Dual Output, Wasted-Spark Firing

Engine Position Sensors

- SCI100 Variable Reluctance / 90° Connector
- SCI101 Variable Reluctance / Straight Connector
- SCI102 Hall Effect / Pigtail Connector
- SCI103 Hall Effect / 90° Connector

Mating Connector Kits & Harnesses

AFR200 Series Mating Connector Kits & Harnesses



EC1501 AFR200 Series, Connector 1, 35-Terminal (All)*

EC1502 AFR200 Series, Connector 2, 14-Terminal (201/211 Only)

CH1519 AFR200 Series, Harness Kit, 35-Terminal, Flying Leads (All)

CH1520 AFR200 Series, Harness Kit, 14-Terminal, Flying Leads (201/211 Only)



MX Series Fuel Valve Mating Connector Kit

EC1507 MX Series Stepper Motor, 4-Terminal*

ICM200 Series Mating Connector Kit & Harnesses



EC1500 ICM200 Series, 35-Terminal

CH1521 ICM200 Series, Harness Kit, 35-Terminal, Flying Leads*

CH1522 Basic ICM200-6 Harness, 19-Terminal, Flying Leads

Manifold Absolute Pressure Sensor Mating Connector Kits



EC1509 SPM200-1B, Green, 3-Terminal*

EC1510 SPM201-2B, Orange, 3-Terminal

EC1511 SPM202-3B, Black, 3-Terminal



Oxygen Sensor Mating Connector Kits

EC1508 SOX102, 12V, 4-Terminal*

EC1520 SOX103, 24V, 2-Terminal

Engine Position Sensor Mating Connector Kits

EC1503 SCI102, 3-Terminal*

EC1504 SCI100, 2-Terminal

EC1518 SCI101, 2-Terminal

EC1519 SCI103, 3-Terminal

Miscellaneous Component Connector Kits

EC1505 Fuse Holder, 2-Terminal

EC1506 Relay Holder, 5-Terminal*

EC1516 Serial Port DB9-F, 9-Terminal

Power Relays

RLY02-1009 12V, Normally Open

RLY02-1011 24V, Normally Open

Ignition Coil Mating Connector Kits

EC1504 CL602, 2-Terminal*

EC1517 CL601, 3-Terminal

* image shown

Lean Burn for the AFR



The GAC KT317WB-AFR, ready to use lean burn adapter kit for the FIMS500 AFR2XX Series controllers determines how rich or lean an engine is running at any load and compensates for changes in temperature and sensor condition. Performance and operational settings are adjusted and viewed in "real time" using GAC's SmartVU software.

- ▶ Plug and Play Lean Burn Solution for GAC FIMS500 Fuel Management System
- ▶ Wide Band LSU 4.1 Sensor Included
- ▶ 0.5 to 1.5 λ Range
- ▶ Accurate Wideband to Narrow Band Conversion
- ▶ Integrated Dual-Color Status LED (Green/Red)
- ▶ Sensor Cable Harnessing Incorporated
- ▶ Positive Lock Connectors for All Connections

Kit Includes:

CH1523	EAM212 Lean Burn Adapter Controller Harness	EAM212	Lean Burn Adapter
HW11-025	Installation Spacer, Threaded, for SOX104 O2 Sensor Assembly	SOX104	O2 Sensor Assembly, LSU4.2



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