

## SDG500 Series Smart Digital Governor



### Introduction

The SDG500 Series (Smart Digital Governor) is designed to regulate engine speed on diesel and gas/gasoline reciprocating engines. The SDG 500Series (Smart Digital Governor) is a suitable replacement for any mechanical system that needs more flexibility, precision or control in governing speed. The SDG500 Series is an integral part of a closed loop control. When connected to an electric actuator and supplied with a magnetic speed sensor signal, the governor will direct the engine to the desired speed setting. The SDG500 Series (Smart Digital Governor) is designed for industrial applications ranging from generators and mechanical drives to pumps and compressors.

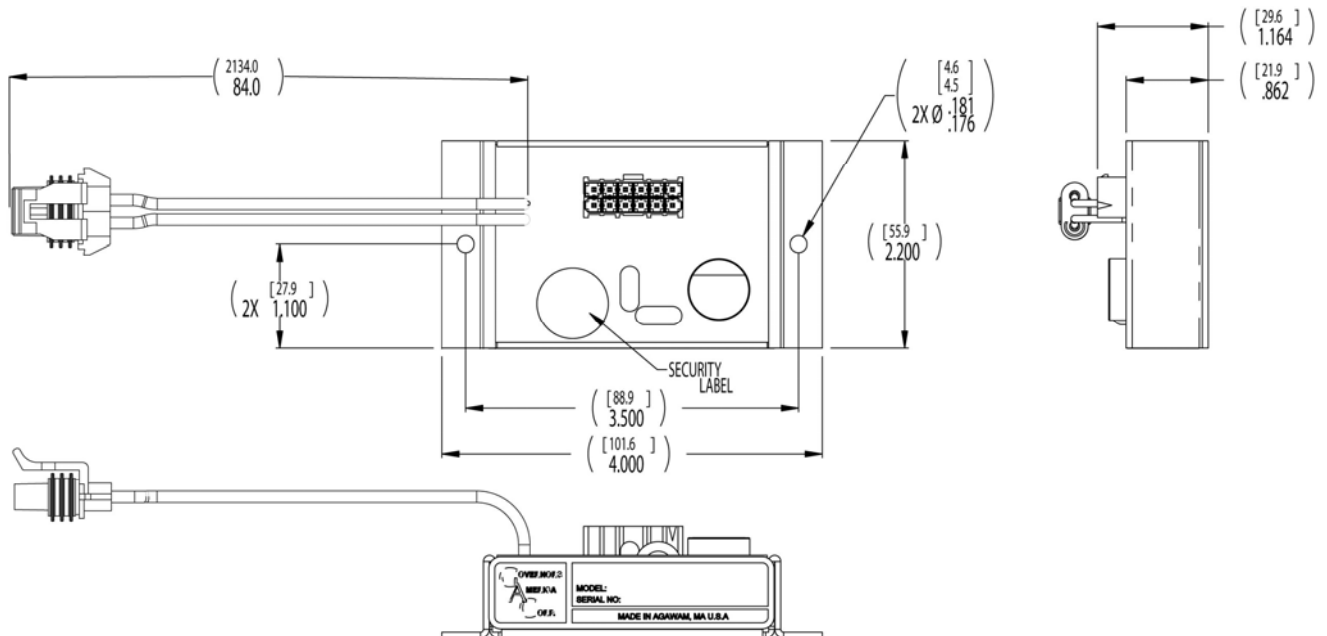
### Description

The SDG500 Series (Smart Digital Governor) is a solid state microprocessor based speed control unit that offers precise ( $\pm 0.25\%$ ) speed control with fast response to transient load changes in isochronous and droop modes. Designed for high reliability and ruggedly built, the SDG500 Series is hard potted to withstand the harsh engine environment and can be mounted directly in the engine compartment. The SDG500 Series has several built in configurable features: three fixed and variable speed with correlating droop settings; engine overspeed shutdown protection; speed ramping from idle to operation speed; and starting fuel control for lower engine exhaust emissions.

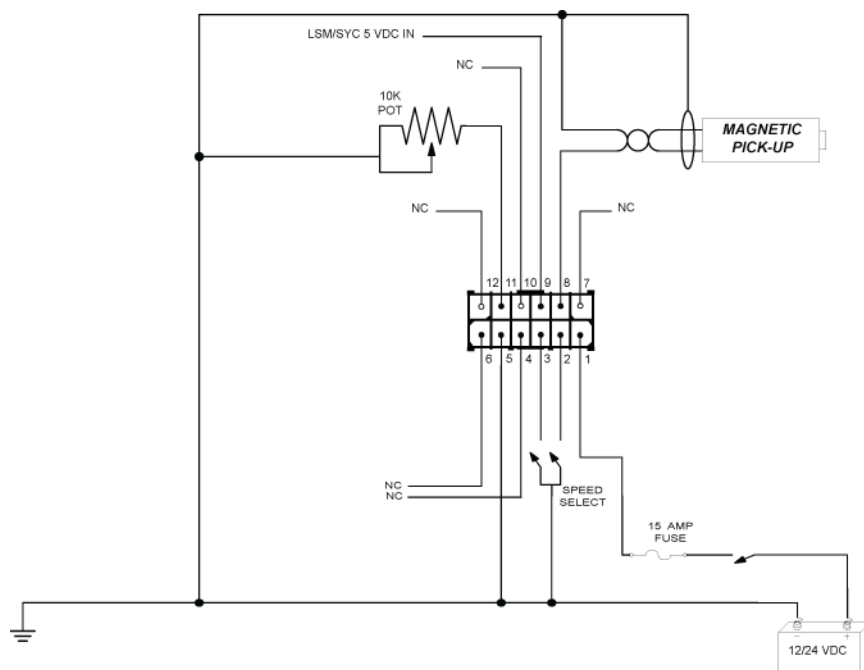
The factory standard SDG500 Series can be pre-programmed to OEM's specifications. The SDG512/13 is equipped with a single turn gain trim potentiometer for field adjustments.

If needed, configuration and tuning of the SDG500 Series can be accomplished by the OEM via **GAC's** configuration software. The configuration software allows users to save the configuration to a file. Saved settings can be utilized for configuring multiple units.

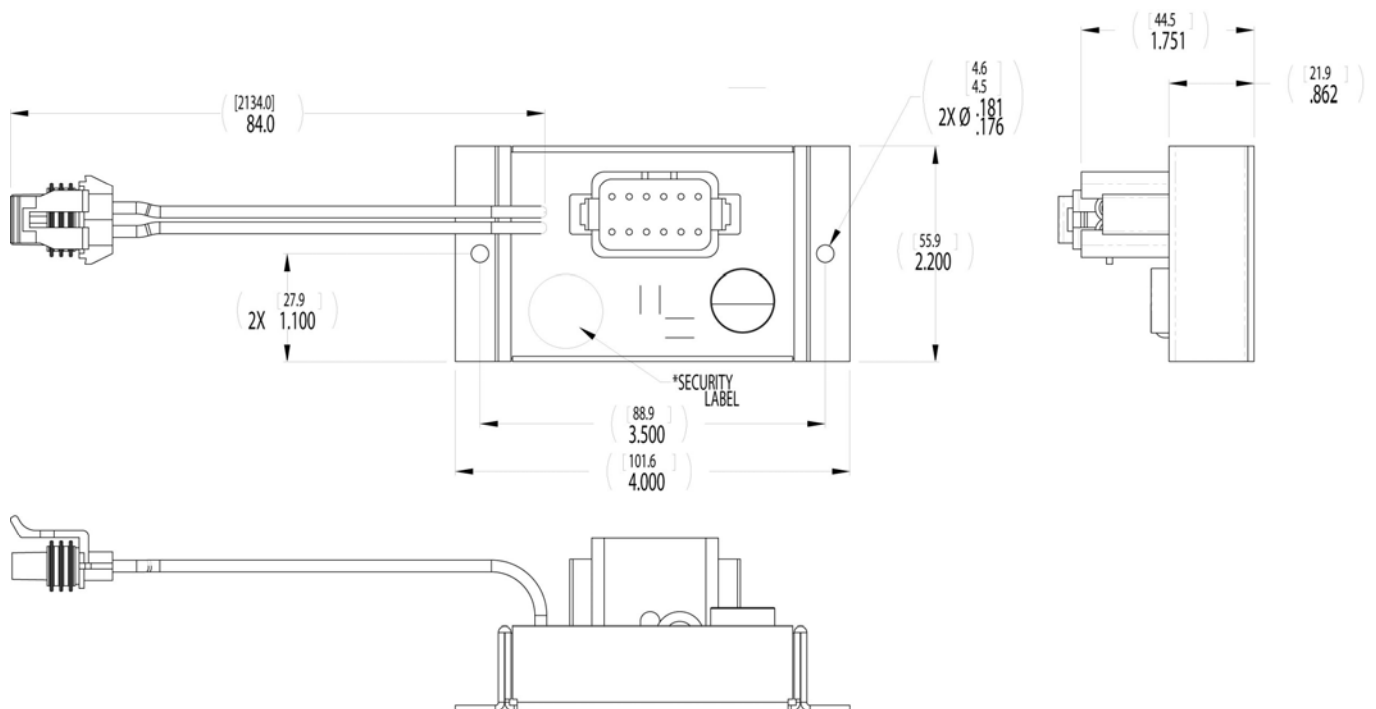
**Mounting Diagram 1.**



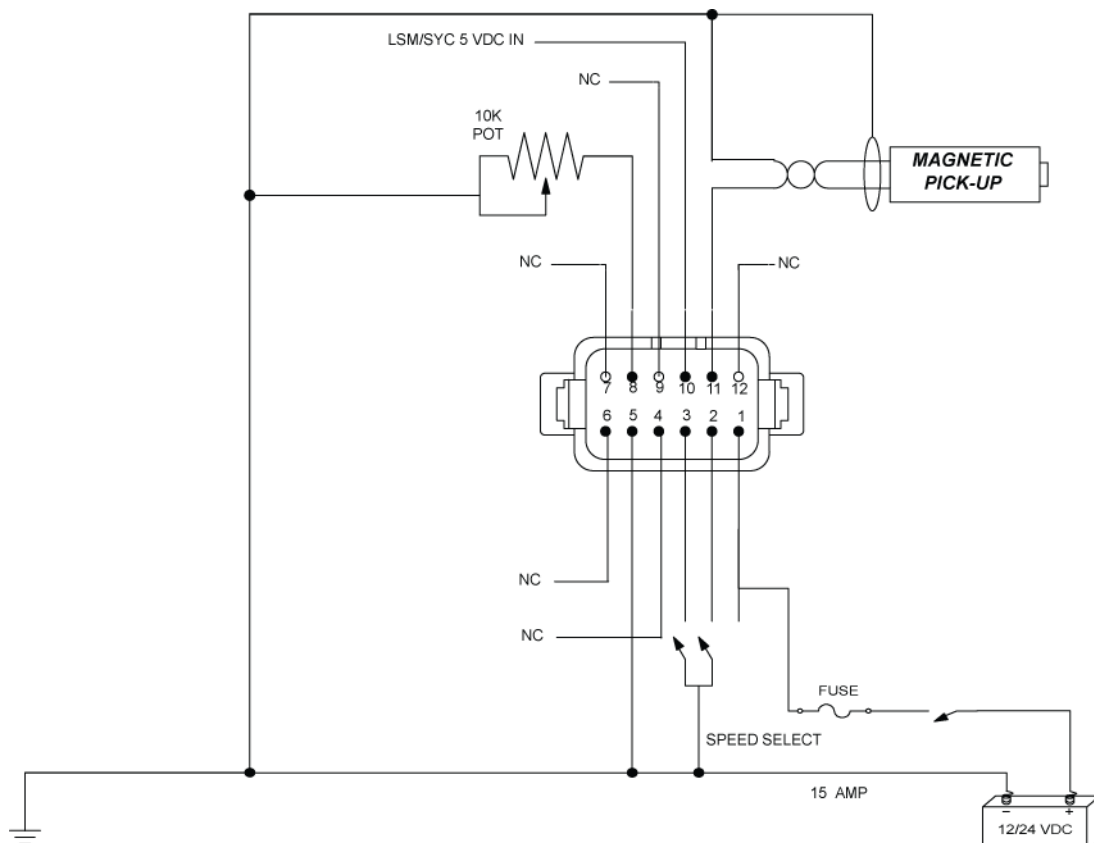
**Wiring Diagram 1.**



### Mounting Diagram 2.



### Wiring Diagram 2.



## Performance

sochronous Operation/Steady State Stability .....	± 0.25%
Speed Range/Governor .....	400-10KHz
Speed Drift w/ Temp .....	< ± 1% Max.
Idle Adjust .....	Full Range
Droop Range .....	1-17% Regulation
Speed Trim Range .....	± 5% of Rated Speed

## Environmental

Ambient Operating Temperature Range .....	-40° to +85°C
.....	(-40° to +180°F)
Relative Humidity .....	Up to 95%

## Reliability

Vibration .....	7G@20-100Hz
Testing .....	100% Functionally Tested

## Input/Output Parameters

Supply .....	12 - 24 VDC Battery Systems (6.5VDC to 33VDC)
Polarity .....	Negative Ground (Case Isolated)
Ground Power Consumption .....	70 mA max. continuous plus actuator current
Speed Sensor Signal .....	0.5-120 VRMS
Load Share/Synchronizer Input .....	for GAC / Comap
Discrete Output .....	Supply up to 25m rated 20mA@12Vdc

## Configuration Parameters

Flywheel Teeth .....	50-250
Range (Gain/Stability multiplier) .....	1-10
Fixed Speed Settings* .....	0-max RPM
Variable Speed Settings* .....	0-max RPM
Overspeed Setting* .....	0-max RPM
Starting Fuel Preset* .....	0-max Fuel

\* Maximum RPM is based on the Flywheel Teeth.  $RPM = \text{Frequency} \times 60 / \text{Flywheel Teeth}$ .  
Maximum Frequency is 10,000Hz.