

# DKG-253

## GOVERNOR CONTROLLER



### DESCRIPTION

The DKG-253 is a low cost electronic governor control unit designed to control the engine speed with fast and accurate response to load changes.

The unit is housed in a metallic chassis and consists of a single enamel coated printed circuit board for reliable operation in harsh automotive environment.

The unit features an adjustable internal overspeed alarm relay with indicating led. This relay provides supplementary speed protection in case of speed control failure.

The DKG-253 connects to a **forward acting** proportional electric actuator and a magnetic speed sensor. It is able to control a wide variety of engines in constant speed (isochronous) or droop modes.

The DKG-253 has potentiometer-adjusted **IDLE** and **RATED** speed settings. The IDLE or RATED speed modes are selected with an external switch.

The **GAIN** and **STABILITY** adjustments control the dynamic performance of the unit and allow stable operation with most engine types.

The **STARTING FUEL** adjustment allows smoke free engine starting. During engine cranking the actuator output is partly energized and the shaft moves to the starting fuel position.

The **SPEED RAMP** adjustment allows smooth speed ramping from idle to rated speed.

In standard operation, the governor controller is in constant speed mode. If needed, a droop may be injected by connecting together terminals K and L. The droop range is then adjusted with the **DROOP** potentiometer.

An external speed trim potentiometer may be connected to the unit to adjust the engine speed from a remote location.

The auxiliary speed adjustment input allows voltage controlled speed trimming for synchronising and load sharing purposes.

If an adequate speed signal is not supplied to the unit, the speed signal monitoring circuit will detect this and shut-off the actuator output in order to prevent any damage.

The output circuit provides a switched output current in order to reduce the internal power dissipation. As the switching frequency is very high, there is no visible motion of the actuator shaft.

The unit is capable to deliver actuator currents as high as 10 Amps. However the output current limiting circuit will protect the unit against output short circuits.

Protection against reverse battery connection and transient voltages are provided.

### FEATURES

**12 and 24V operation**

**Capable of governing various engines**

**Forward acting actuator output**

**Fast and accurate response**

**Starting fuel adjustment**

**Speed ramp adjustment**

**Overspeed alarm output**

**Adjustable rated and idle speeds**

**Isochronous and droop operation**

**Gain and stability adjustments**

**External speed adjustment capability**

**Synchronizing and load sharing input**

**Switchmode output circuit**

**10 Amps continuous current output**

**Speed sensor failure detection**

**Battery reverse voltage protection**

**Output short circuit protection**

**Rugged design**

**Enamel protected electronic circuit**

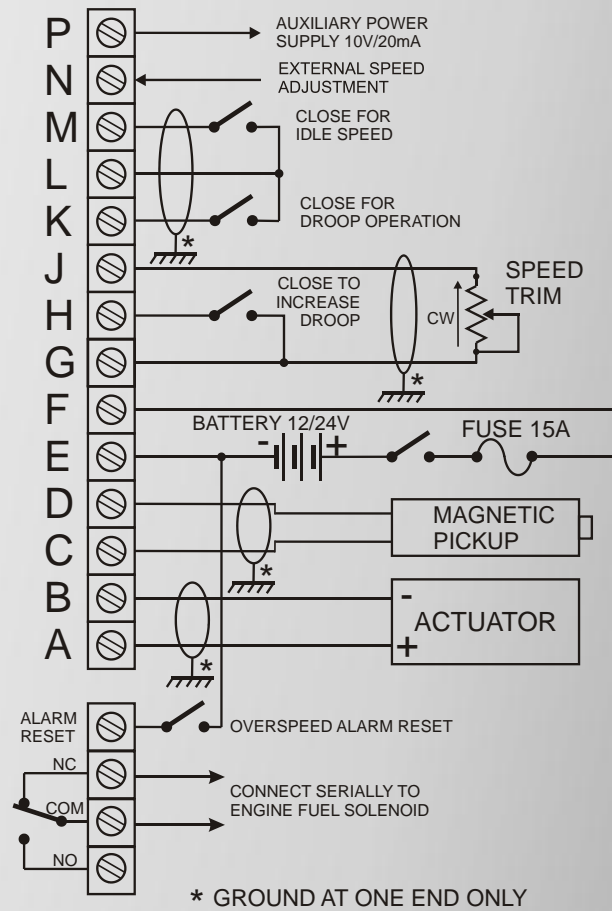
**Small dimensions (130x110x27mm)**

**Low cost**

## TECHNICAL SPECIFICATIONS

- DC Supply Range:** 10.0 to 33.0 V-DC
- Current consumption:** 100mA max (actuator not connected)
- Speed input range:** 500 Hz to 8000 Hz.
- Speed signal amplitude:** 1 to 35VAC-RMS
- Speed signal input impedance:** 10 K- ohms
- External speed trim:**  
5 K-ohms trimpot between terminals G and J
- External speed trim range:**  $\pm 6\%$  min @3000Hz
- Auxiliary input (terminal N):**  
Input voltage range: 0 to 10VDC  
Input impedance: 1M ohms.  
Adjustment range:  $\pm 25\%$  min @3000 Hz
- Steady state speed accuracy:**  $\pm 0.25\%$
- Drop adjustment range:** 1 to 5% minimum
- Actuator output:** 10 Amps continuous max
- Overspeed alarm relay output:** 10 Amps @ 28VDC
- Alarm reset input:** 0 to 40VDC.
- DC supply output:** 10 volts DC, 20mA max
- Operating temp.:** -20°C (-4°F) to 70 °C (158°F).
- Storage temp.:** -30°C (-22°F) to 80 °C (176°F).
- Maximum humidity:** 95% non-condensing.
- Dimensions:** 130 x 110 x 27 mm (WxHxD)
- Weight:** 350 g (approx.)
- Mounting:** any position, vertical preferred
- Conformity (EU directives)**  
-73/23/EEC and 93/68/EEC  
-89/336/EEC, 92/31/EEC and 93/68/EEC
- Norms of reference:**  
-EN 61010 (safety requirements)  
-EN 50081-2 (EMC requirements)  
-EN 50082-2 (EMC requirements)

## CONNECTION DIAGRAM



## INSTALLATION

