SG 2D
Speed Governor

APPLICATIONS

The SG 2D is a universal digital speed control for combustion engines.

The SG 2D is configured via a direct configuration cable (DPC), a PC, and a PC software tool. Configuration of the SG 2D can also be carried out utilizing the push buttons and the four-digit display on the control.

The SG 2D is designed to drive a variety of electric actuators such as a solenoid style (rotary or linear) or a smart actuator via a PWM control signal.

The SG 2D has a configurable start fuel limit level [%] and ramp rate [%/s]. The speed reference can be changed remotely through the analog (0/4 to 20 mA or +/-3 Vdc) speed bias input. This remote speed input allows for isochronous load sharing using external power management products (e.g. Woodward GCP Series).

The overspeed protection, maximum fuel limit, and actuator droop may be adjusted in the SG 2D.

DESCRIPTION

The SG 2D speed control is designed for a wide variety of applications ranging from variable speed mechanical drives to isochronous gensets.

Features

- A magnetic pickup input for direct measurement of the engine speed via an inductive or switching Pickup
- 2 transistor outputs for overspeed annunciation
- Raise/lower discrete inputs for speed reference value specification
- Analog speed bias input for changing speed reference point (version dependent; refer to Features Overview)
- Discrete input for droop control and switching of control dynamics
- 4-digit 7-segment LED display
- PC configurable
- PWM signal to control an actuator (version dependent; refer to Features Overview)
- Idle speed enable via DI
- Manual external speed reference via DI overrides analog external speed reference
- Speed measuring via magnetic pickup (switching or inductive)
- Digital PID speed control designed for wide range of applications with two sets of PID dynamics
- Compatible with multiple styles of electric actuators, such as solenoid style (rotary or linear) and PWM control signal
- Limitation of actuator current [SG 2D-T-HOx]
- Analog (0/4 to 20 mA or +/-3 Vdc) and discrete raise/lower speed reference input
- Adjustable start fuel limit & ramp rate
- Overspeed protection with 2 transistor outputs
- Droop control
- 7-segment display
- PC configurable
SPECIFICATIONS

Pickup signal .......................................................... isolated
min. amplitude (sinusoidal) ...........0.5 V$_{\text{eff}}$ (300 Hz to 8.0 kHz)
max. amplitude (sinusoidal) ..........75 V$_{\text{eff}}$ (DC at 1.5 kHz)
min. input impedance ............... 18.8 kΩ (300 Hz to 8.0 kHz)
Accuracy (measured)................. +/-0.12 to +/-0.25 %
(dep. on pos. in meas. range)

Actuator control ................................................PWM signal
Continuous duty ......................[SG 2D-T-Lx] 45 mA; [SG 2D-T-Hx] 7 A
Current carrying capacity [SG 2D-T-Lx] 80 mA; [SG 2D-T-Hx] 11 A

Power supply
[SG 2D-T-xx] 8 to 32 V dc
Max. power consumption (actuator) ..............2.5 W
[SG 2D-T-Lx] 2.56 W
Ambient temperature ......................-20 to 70 °C
Ambient humidity ...................95 %, non-condensing

Discrete inputs .......................................................... isolated
Input range........................................................... 8 to 32 V dc
Input resistance ...................... approx. 6.7 kΩ

Analog input ............................................... resolution 10 Bit
Input 0/4 to 20 mA, load .....................250 Ohm
Input +/-3 V DC, input resistance ........... approx. 40 kΩ

Transistor output .............................. NPN switching transistor
Rated switching voltage .................. 24 Vdc
Switching current (ohmic load) ..............200 mA

Housing
Mounting M.......................... extrusion profile Um 108
to snap on a DIN-rail/C-profile
Mounting S .............................. vibration absorber M4×6

Dimensions [depending on type]
Mounting M................................ max. 137 × 126 × 56 mm
Mounting S ................................ max. 135 × 108 × 43 mm

Drilling scheme for mounting S [depending on type]
Mounting S ........................................ 103/113/125 × 98 mm

Connection
Screw/plug terminal .................. 1.5 mm$^2$ or 2.5 mm$^2$
Weight [depending on type] .......... approx. 200/350 g

Protection system .................. IP 00
Disturbance test (CE) ........... tested according to applicable EN guidelines

DIMENSIONS

Subject to technical modifications.

2006-02-20  |  SG 2D Dimensions up2rev-0806-ab.59V,

Some dimensions depend on the type of the unit.
## FEATURES OVERVIEW

<table>
<thead>
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<th>SG 2D</th>
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<tbody>
<tr>
<td></td>
<td>T-HO</td>
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<tr>
<td>Setpoint value via ...</td>
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<tr>
<td>Discrete raise/lower</td>
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<tr>
<td>0/4 to 20 mA</td>
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</tr>
<tr>
<td>+/- 3 Vdc</td>
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<tr>
<td>PWM control output via ...</td>
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<tr>
<td>7 A continuous / 11 A peak</td>
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<tr>
<td>45 mA continuous / 85 mA peak</td>
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<td>Transistor</td>
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<td>Compatible Actuators</td>
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<tr>
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<tr>
<td>Vibration absorber mounting type S</td>
<td>8443-1005</td>
</tr>
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</table>

<sup>#1</sup> Dependent on actuator
<sup>#2</sup> Cable incl. software necessary (DPC, Product Number P/N 5417-557)