Applications

The 2301A Load Sharing and Speed Controls are designed for use in electric generator systems where multi-unit load sharing is desired. 2301A controls may be used with diesel, gas or gasoline engines, or steam or gas turbines.

Controls are available:
- For applications requiring droop and/or isochronous speed control
- In forward- or reverse-acting models
- For single or tandem actuator installations
- With accelerating or decelerating ramps
- In several speed ranges

Description

Automatic, adjustable start fuel limiting regulates the maximum fuel setting while the engine is starting. This helps decrease pollution and engine wear.

Each 2301A control has a self-contained load sensor. Most models provide a 0–200 mA output signal, designed to control Woodward EG, EGB, PB, TM, and 2301 actuators. 0–20 mA output is available for special applications. The output signal is proportional to the fuel setting needed to attain the desired speed/load. Position feedback from the actuator is not required. The 2301A controls are compatible with Woodward SPM-A Synchronizers, Automatic Generator Loading Controls, Process Import/Export Controls, and Automatic Power Transfer and Load Controls.

Reliable Control: Simple Adjustments

The 2310A Load Sharing and Speed Controls stand up well in harsh environments. Built-in protection guards against electromagnetic interference/radio frequency interference (EMI/RFI), humidity, dust and vibration.

The 2301A control contains a single printed circuit board. All potentiometers are accessible from the front of the chassis. Speed range is set on an internal dip switch, accessible from inside the cover of the control. Speeds are set according to the speed sensor frequency in Hertz. External rated speed adjustment can be connected for remote speed change and manual operation. An optional deceleration ramp is available.
Specifications

**General Specifications**

- **Power Supply Rating**: 90–150 Vdc or 85–132 Vac for High Voltage models
- **Power Consumption**: less than or equal to 15 W nominal

**Inputs—**

- **3-phase PT Inputs**: 90–240 Vac line-to-line, 45–66 Hz. PT input, burden is between 1.5 VA and 1.7 VA per phase at 240 Vac, and between 0.4 VA and 0.5 VA per phase at 120 Vac
- **3-phase CT Inputs**: 3–7 Arms at full load, CT input burden at full load is 0.1 VA per phase
- **Speed Sensor Input Impedance**: 100–300 Ω
- **Speed Sensor**: magnetic pickup 1.0 Vac minimum to 30 Vac maximum
- **Speed Trim**: 0–100 Ω for 0 to 10% speed change
- **Speed Setting**: terminals 23–24 jumpered, internally adjustable 100 Ω potentiometer allows external 0–10% speed trim
- **Idle Speed Select**: external switch, open terminals 19 to 16
- **Droop**: external switch, open terminals 14 to 16
- **Synchronizer**: ±5 Vdc for speed change with Woodward SPM-A synchronizer
- **Load Sharing**: 0–6 Vdc

**Outputs—**

- **Actuator**: 7.5 Vdc max for 0 to 214 mA with 35 Ω coil

**Adjustments—**

- **Rated Speed**: 11 450 Hz
- **Acceleration Ramp (±Idle to Rated)**: 0–10 s, switch activated, close terminals 19 to 16
- **Actuator Compensation**: time constant compatibility 0–500 ms
- **Low Idle Speed**: 55% rated
- **Amplifier Gain**: 6 Vdc maximum at 5 A CT current
- **Reset (Stability)**: 0 to 10%
- **Speed Control Range**: switch selectable, 500–1500 Hz, 1000–3000 Hz, 2000–6000 Hz (standard), 4000–12 000 Hz
- **Operating Temperature**: –40 to +85 ºC (–40 to +185 ºF)
- **Load Sharing**: ±5% of rated load with speed setting matched
- **Vibration**: 4 Gs, 5 to 500 Hz
- **Shock**: 60 Gs
- **Weight**: approximately 1.8 kg (4 lb)
- **Finish**: gloss powder

**Regulatory Compliance**

**European Compliance for CE Mark (specified low voltage models only)—**


**North American Compliance:**

- **CSA**: CSA Certified for Ordinary Locations for use in the United States and Canada.
2301A LSSC Outline Drawing
(Do not use for construction)

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<tr>
<th>METRIC CONVERSION CHART</th>
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<tr>
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