

2301E

Digital Load Sharing and Speed Control

Applications

The Woodward 2301E provides load sharing and speed control of generators being driven by diesel or gaseous engines.

With the flexible configuration software incorporated in the 2301E hardware, application variations can now be selected using an external computer (PC). Changing the application to accommodate engine speed range, gear teeth, and selection of forward or reverse acting is a matter of software setup.

The 2301E is capable of communicating using a Modbus® * RTU protocol, functioning as a Modbus slave device, via RS-422 drivers.

The 2301E has four operating modes:

Speed Control

Has multiple dynamics flexibility. Will work on pumps or compressors. Has capability for remote 4–20 mA speed reference through a configurable analog input.

Isochronous Load Sharing

Is compatible with most existing analog load sharing speed control systems. Now with soft load and unload capability.

Droop Base Load

Adjustable load control using discrete raise and lower contacts.

Isochronous Base Load

Provides constant load level operation against a utility bus. The load setting may be fixed, changed using discrete raise and lower inputs, or a remote 4–20 mA input.

Description

The Woodward 2301E microprocessor-based control functions like the 2301A load sharing and speed control and 2301D load sharing and speed control.

The control is housed in a sheet-metal chassis for ordinary and hazardous locations, and consists of a single printed circuit board.

The 2301E is configured using a computer with Control Assistant software or a Woodward ToolKit service tool. The configuration software may be downloaded from the Woodward website (www.woodward.com). The computer connects to the 2301E through a 9-pin connector (RS-232 port). Modbus control can be operated through the second serial port (RS-422).

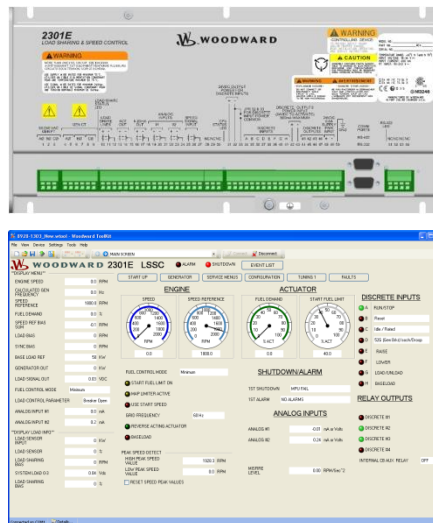
The control operates from a 24 Vdc supply.

The 2301E includes:

- 1 Load Sensor Circuit
- 1 Actuator Driver, 4–20 mA, 0–20 mA, 0–200 mA, or PWM
- 1 MPU Speed Sensor
- 1 Configurable Analog Output
- 2 Configurable Analog Inputs
- 8 Discrete (Switch) Inputs
- 4 Discrete (Relay Driver) Outputs

The 2301E operates within a range of –40 to +70 °C (–40 to +158 °F).

*—Modbus is a trademark of Schneider Automation Inc.



- Engine / generator or pump applications
- Multiple dynamics
- Manifold Air Pressure (MAP) limiter
- Torque limiter
- Low-speed-sensing functionality
- Remote speed & load reference
- Soft load transfer
- Automatic idle-to-rated switching
- Load rejection / load pulse option
- Idle droop function
- Optional Modbus® serial communications
- Adaptive speed-sensing algorithm
- Two serial ports
- Data-logging capability
- 2301E ToolKit service tool or Control Assistant programmable
- Ordinary or Hazardous Location chassis

Regulatory Compliance

European Compliance for CE Mark:

EMC Directive Declared to 2014/30/EU

Low Voltage Directive Declared to 2014/35/EU

ATEX – Potentially Explosive Atmospheres Directive Declared to 2014/34/EU

Zone 2, Category 3, Group II G, Ex nA IIC T3 Gc X

Zone 2, Category 3, Group II G, Ex nA IIC T4 Gc X

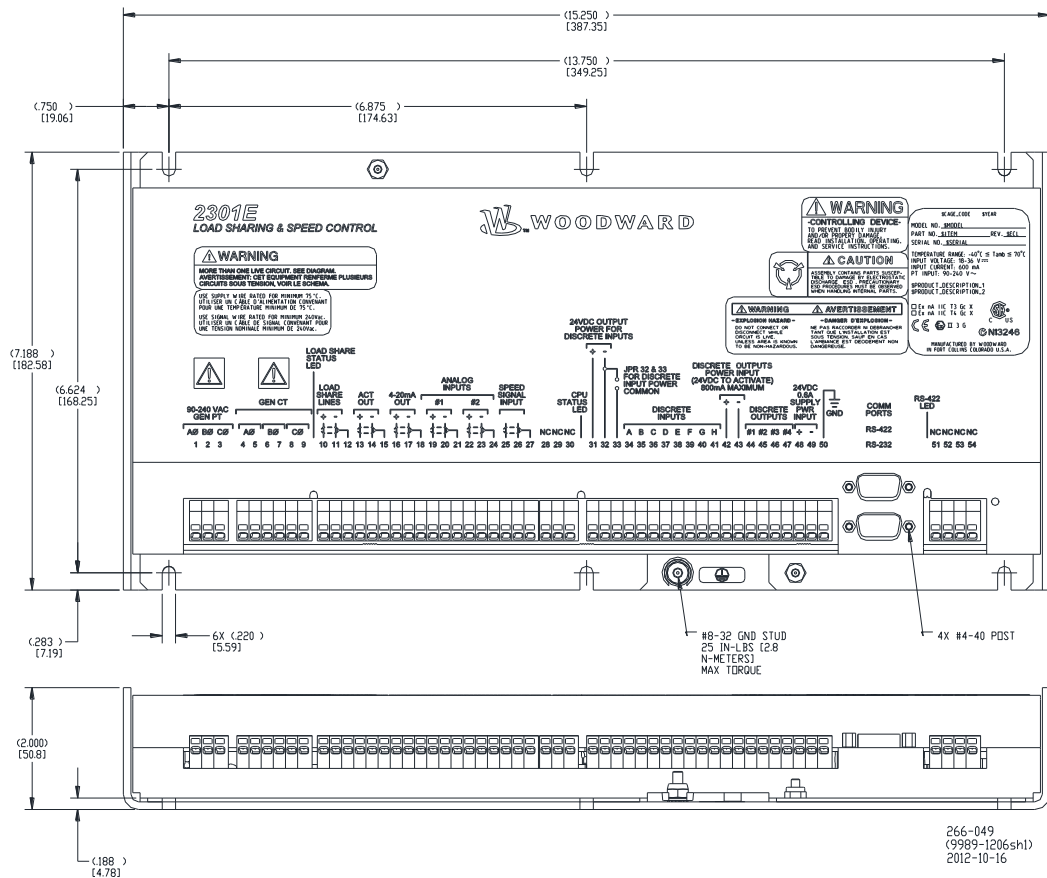
Marine Compliance Certificates:

American Bureau of Shipping, Bureau Veritas, China Classification Society, Det Norske Veritas, Lloyd's Register of Shipping, Nippon Kaiji Kyokai, Royal Institution of Naval Architects

North American Compliance:

CSA (CSA Certified for Class I, Division 2, Groups A, B, C, D, T3 or T4 Hazardous Locations and ordinary locations at 70 °C ambient; for use in Canada and the United States; NOTE—Wiring must be in accordance with applicable electric codes with the authority having jurisdiction. These listings are limited to those units bearing the UL or CSA agency identification.)

NOTE—Some certifications apply to specific models only. See technical manual 26641 for complete information. Note that the manual is also embedded in the control software service tool.



2301E Digital Control (ordinary locations version shown) (Do not use for construction)
(Weight = 1.75 kg / 3.86 lb)



PO Box 1519, Fort Collins CO, USA 80522-1519
1000 East Drake Road, Fort Collins CO 80525
Tel.: +1 (970) 482-5811 • Fax: +1 (970) 498-3058
www.woodward.com

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