

2301D and 2301D-EC

Digital Load Sharing and Speed Controls

Applications

The Woodward 2301D and 2301D-EC provide load sharing and speed control of generators being driven by diesel or gaseous engines.

With the flexible configuration software incorporated in the 2301D and 2301D-EC 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 2301D-EC is capable of communicating using a Modbus RTU protocol, functioning as a Modbus slave device, via RS-232 or RS-422 drivers.

The 2301D and 2301D-EC have 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 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 bus. The load setting may be fixed, changed using discrete raise and lower inputs, or a remote 4–20 mA input.

Description

The Woodward 2301D and 2301D-EC microprocessor-based controls function like the 2301A load sharing and speed control. The 2301D is a load sharing and speed control; the 2301D-EC is a load sharing and speed control with Extended (Modbus® *) Communications.

The controls are housed in a sheet-metal chassis for ordinary and hazardous locations, and consist of a single printed circuit board.

The 2301D and 2301D-EC are configured using a computer with Woodward Watch Window software. The configuration software is supplied with each control or may be downloaded from the Woodward website (www.woodward.com). The computer connects to the 2301D and 2301D-EC through a 9-pin connector (RS-232 port).

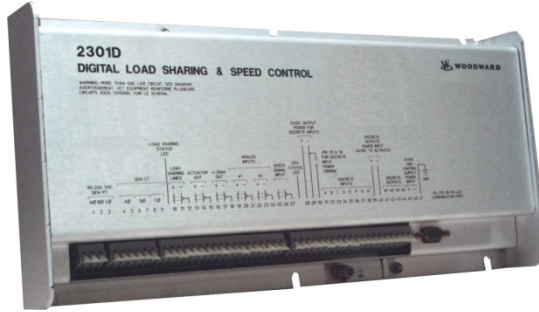
The control operates from a 24 Vdc supply.

The 2301D and 2301D-EC include:

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

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

*—Modbus is a trademark of Schneider Automation Inc.



- Generator or pump applications
- Multiple dynamics
- Manifold Air Pressure (MAP) limiter
- Torque limiter
- New Low Speed Sensing functionality
- Remote speed & load reference
- Soft load transfer
- Automatic Idle to Rated switching
- Load Rejection / Load Pulse option
- Idle Droop function
- PC Configurable
- Optional Modbus® serial communications
- New adaptive speed sensing algorithm

Regulatory Compliance

NOTE
European Compliance for CE Mark:
 EMC Directive:

Some certifications apply to specific models only.

Low Voltage Directive:

Declared to 2004/108/EC COUNCIL DIRECTIVE of 15 Dec 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility.
 Declared to 2006/95/EC COUNCIL DIRECTIVE of 12 December 2006 on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.

Marine Compliance:

Bureau Veritas
 Det Norske Veritas
 Germanischer Lloyd
 Lloyd's Register of Shipping
 Registro Italiano Navale

BV Rules Part C, June 2000
 Standard for Certification, No. 2.4.2001
 Additional Rules and Guidelines, Part 1, 2001
 Type Approval System, Test Specification Number 1, 2002
 RINA Rules 2001 – Part C

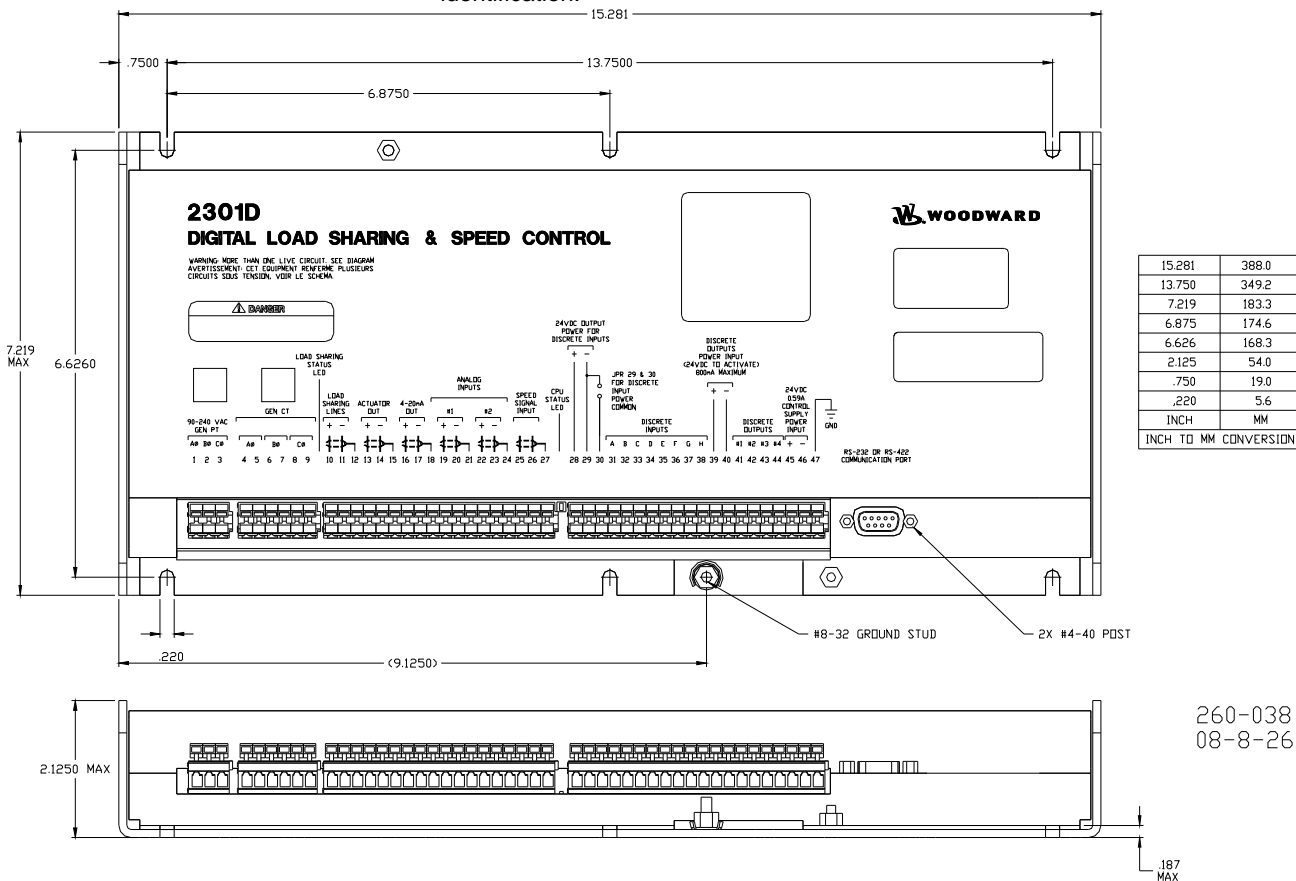
North American Compliance:

CSA

CSA Certified for Class I, Division 2, Groups A, B, C, D, T4, and Ordinary Locations 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.



2301D and 2301D-EC Digital Control (ordinary locations version shown) (Do not use for construction)

Technical Manual 26288



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

Distributors & Service

Woodward has an international network of distributors and service facilities. For your nearest representative, call the Fort Collins plant or see the Worldwide Directory on our website.

This document is distributed for informational purposes only. It is not to be construed as creating or becoming part of any Woodward contractual or warranty obligation unless expressly stated in a written sales contract.

Copyright © Woodward 2000–2012, All Rights Reserved

For more information contact: