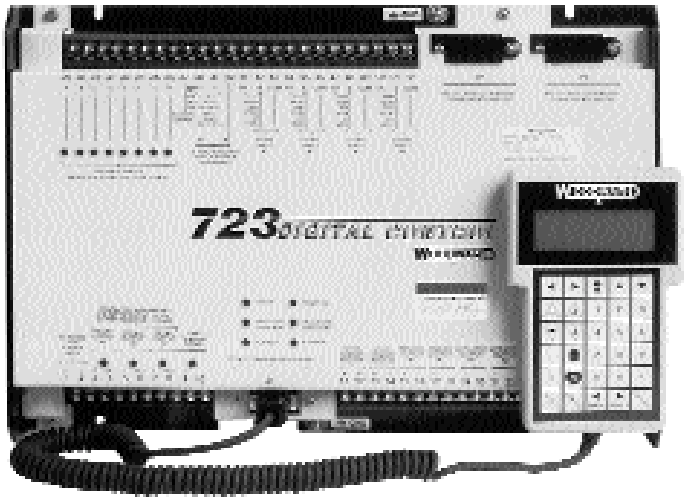
723 Digital Control



APPLICATION

The Woodward 723 Digital Control governs reciprocating engines (gas, diesel, or dual fuel) used in power generation, marine propulsion, and gas compression/distribution. The control may also be used in cogeneration, power transmission/distribution, process management, pipeline pump stations, utility power generation, emergency standby power, and remote control station operation. The 723 provides state-of-the-art control for new and retrofit situations.

DESCRIPTION

The 723 is available in several versions: Internal load sharing, DSLC™ compatible, or custom programmed. The internal load sharing and DSLC compatible versions allow the user to configure basic systems without programming knowledge. They can also be expanded for future control needs.

The custom programmable version can be used for more unique engine functions such as dual fuel, engine monitoring, and safety and air/fuel ratio control. The custom version can also be used as a supervisory control for such things as sequencing, load shedding, heat recovery management and system monitoring.

COMMUNICATIONS

The 723 provides two separate serial interfaces for RS-232, RS-422, or RS-485 communications. The ports feature standard ASCII character handling. Baud rates and message protocols are programmable to meet specific user requirements. An industry-standard modbus is also available for both ASCII and RTU protocols. Devices that may be connected include terminals, printers, data loggers, modems, and any other devices that use the RS-232 communications protocol. The 723 can also communicate using the LONTalk protocol for digital communications with other LONTalk-compatible products produced by Woodward. Typical modules include thermocouple, RTD, analog, and discrete type I/O.

- Integral load sharing and soft loading and unloading
- Automatic breaker opening
- Compatible with DSLC™ Digital Synchronizer and Load Control
- Two sets of dynamics
- Can be easily expanded to include engine monitoring
- User configurable communication ports available
- Start, Maximum, and Turbo Boost fuel limiters
- Remote speed and load setting
- UL, cUL listed

Inputs

Speed Signal Inputs (2)

Speed Input Voltage
1.0 to 50 Vrms
Speed Input Frequency
Analog 250 Hz to 15 kHz
Digital 30 Hz to 15 kHz
Speed Input Impedance
10 kW ±15%

Discrete Inputs (8)

Discrete Input
24 Vdc, 10 mA nominal
18 to 40 Vdc range
Response Time
10 ms ±15%
Impedance
2.3 kW
For Lloyd's Register applications, use only control-supplied power

Analog Inputs (4)

Analog Input
± 5 Vdc or 0–20 mA, transducers externally powered
Common Mode Voltage
± 40 Vdc
Common Mode Rejection
0.5% of full scale
Accuracy
0.5% of full scale
Drift
200 ppm/°C

Load Sharing Input

Analog Input
0–4.5 Vdc
Common Mode Voltage
± 40 Vdc
Common Mode Rejection
1.0% of full scale
Accuracy
1.0% of full scale
Drift
200 ppm/°C

Outputs

Analog Outputs 0–1/4–20 mA (2)

Analog Output
0–1 mA or 4–20 mA, max 600 W load
Accuracy
± 0.5% of full scale
Drift
200 ppm/°C

Analog Outputs 0–20/0–200 mA (2)

Analog Output
0–20 mA or 0–200 mA, max 600 W load (0–20 mA) max 70 W load (0–200 mA)
Accuracy
± 0.5% of full scale
Drift
200 ppm/°C

Relay Contact Outputs (3)

Contact Ratings
2.0 A resistive @ 28 Vdc
0.5 A resistive @ 125 Vdc

ADJUSTMENTS

The Woodward Hand Held Programmer makes all adjustments quickly and easily, through the control's convenient menus (you can also use any standard ASCII character computer terminal with an RS-422 serial port). The control saves all set points in permanent memory, which does not require batteries of other power sources to retain data. The Hand Held Programmer prevents tampering with set points, yet allows entries to be changed at any time.

SELF DIAGNOSTICS

The 723 has integrated diagnostics to determine the control integrity. Memories, processor, and baseline power supply monitoring are included in the diagnostic tests.

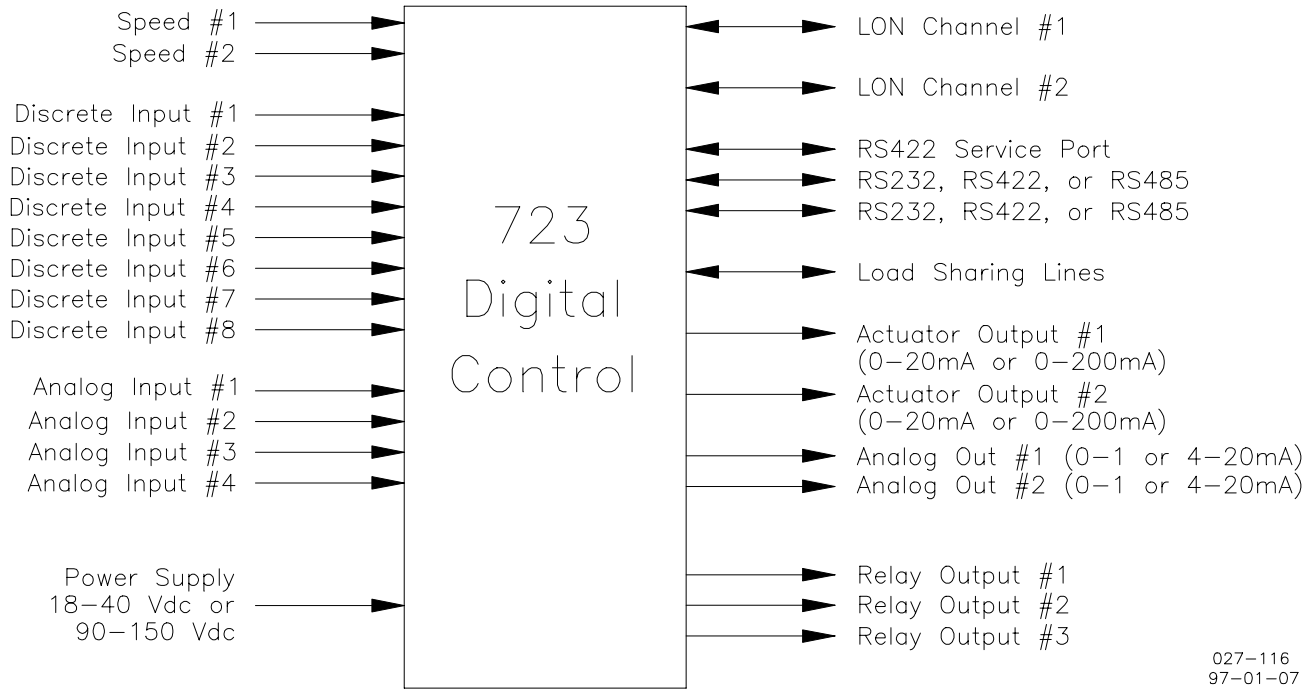
SPECIFICATIONS

Input Power

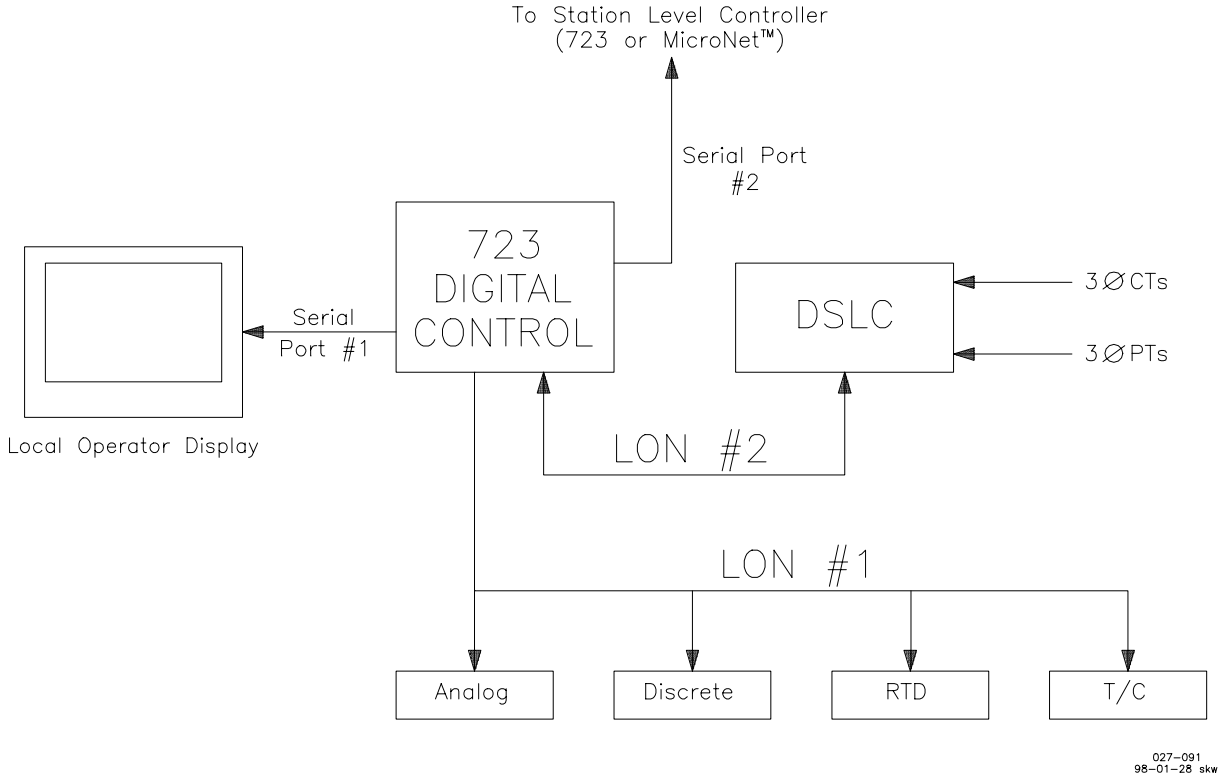
Low Voltage
18 to 40 Vdc (24 or 32 Vdc nominal)
High Voltage
90 to 150 Vdc (125 Vdc nominal)
Power Consumption
40 W nominal
Inrush current (low voltage model) = 7 A for 0.1 ms
Inrush current (high voltage model) = 22 A for 15 ms

Environment

Operating Temperature
–40 to +70 °C (–40 to +158 °F)
Storage Temperature
–55 to + 105 °C (–67 to +221°F)
Humidity
95% at +20 to +55 °C (+68 to +131 °F)
Lloyd's Register of Shipping Specification
Humidity Test 1
EMI/RFI
Lloyd's Register of Shipping Specification
EN 50081-2 and EN 50082-2
Mechanical Vibration
Lloyd's Register of Shipping Specification
Vibration Test 2
Mechanical Shock
US MIL-STD 810C Method 516.2, Proc. I, II, V



723 Digital Control Block Diagram



Typical System Diagram

Woodward/
Industrial Controls
PO Box 1519
Fort Collins CO, USA
80522-1519
1000 East Drake Road
Fort Collins CO 80525
Ph: (1)(970) 482-5811
Fax: (1)(970) 498-3058

Distributors & Service
Woodward has an international network of distributors and service facilities. For your nearest representative call (1)(800) 835-5182 or see the Worldwide Directory on our web site.

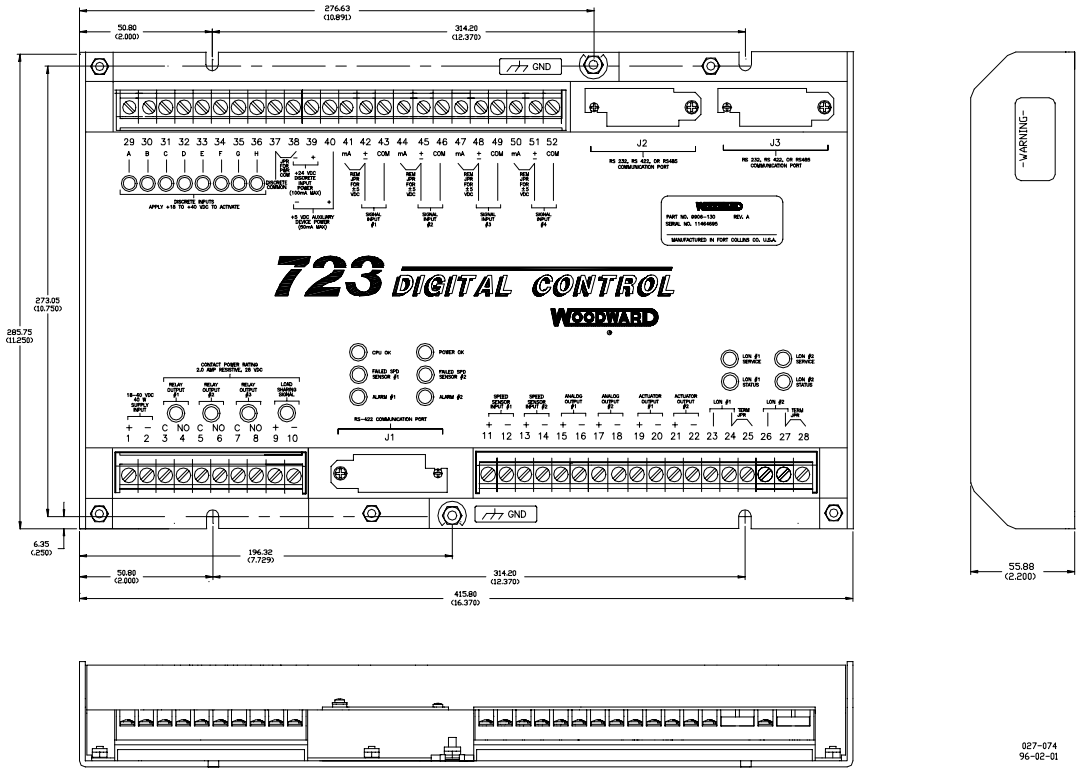
Corporate Headquarters
Rockford IL, USA
Ph: (1)(815) 877-7441

www.woodward.com

Declaration of Incorporation

In accordance with the EMC Directive 89/336/EEC and its amendments, this controlling device, manufactured by the Woodward Governor Company, is applied solely as a component to be incorporated into an engine prime mover system. Woodward Governor Company declares that this controlling device complies with requirements of EN50081-2 and EN50082-2 when put into service per the installation and operating instructions outlined in the product manual.

NOTICE: This controlling device is intended to be put into service only upon incorporation into an engine prime mover system that itself has met the requirements of the above Directive and bears the CE mark.



723 Digital Control Outline Drawing

For more information contact:

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