GE Series 90-70 Series Service Manual

IC697VAL314

1. Description

IC697VAL314 Isolated 12-bit Analog Output Board

3. Product Information

IC697VAL314 Isolated 12-bit Analog Output Board

Features

Four or eight fully isolated analog outputs

Up to 1,500V isolation, channel-to-channel and channel-to-VMEbus

12-bit resolution

Selectable voltage output ranges: ±2.5V, ±5V, ±10V, 0 to +2.5V, +5V, or +10V

Voltage outputs protected up to ±20V continuously; transients up to ±50V

Load capacity of 10mA for voltage outputs across the full ±10V range

Available with 4-20mA, 0-20mA, or 5-25mA current loop outputs

Voltage and current loop output accuracy of 0.08%

Optical data coupling provides full galvanic isolation

Static readback data registers for simplified program control

Program-controlled connect/disconnect of voltage outputs for system testing

Accepts pluggable barrier strip cable connector with user screw interface

Latching connectors provided

Applications

Isolated analog subsystems

Analog current loops

Nuclear facility instrumentation

Automatic test equipment (ATE)

Supervisory control systems

High interference environments

Intersystem analog data transmission

Ground loop elimination

General Description

The IC697VAL314 is available with either four or eight isolated, high-quality 12-bit analog output channels on a 6U form factor VMEbus board. Each channel is electrically isolated from all others and from the VMEbus, supporting up to 1,500V isolation. Voltage output ranges are selectable as ±2.5V, ±5V, ±10V, or 0 to +2.5V, +5V, and +10V. The Analog Output Board supports a 10mA load across all voltage ranges.

Functional Characteristics

Control: Control is handled through the Control and Data Register group, which can be located on any 16-word boundary in either the short I/O (A16) space or the standard (A24) memory space.

Board Access: Short I/O (A16) address bits A05-A15 or Standard (A24) address bits A05-A23 are compared with field-configurable jumpers for board selection. Address modifiers are decoded to support supervisory, user access, or both.

Compatibility: This product complies with VMEbus Specification ANSI/IEEE STD 1984-1987 IEC 821 and 297.

Electrical Characteristics

Number of Output Channels: Four or eight channels

Resolution: 12 bits

Configuration: Differential, isolated channel-to-channel, and channel-to-VMEbus

Common Mode Voltage (CMV) Range: ±1,500V, channel-to-channel, channel-to-VMEbus

Isolation Resistance: 50MΩ, channel-to-channel and channel-to-VMEbus

Isolation Capacitance: 100pF channel-to-channel, 150pF channel-to-VMEbus

Isolation Withstand Voltage: 1,500Vpk (1,050V RMS)

Voltage Outputs

Voltage Ranges: Jumper-selectable as ±2.5V, ±5V, ±10V (bipolar); 0 to +2.5V, +5V, or +10V (unipolar)

Output Drive: ±10mA across full ±10V dynamic range

Output Impedance: Connected mode: <0.8Ω; Disconnected mode: >1MΩ

Gain Error: ±0.08% maximum

Voltage Offset: ±4mV

Integral Nonlinearity: 0.025% maximum (referenced to best-fit straight line)

Gain Drift: ±60PPM/°C, ±150PPM/1,000 hours

Offset Voltage Drift: ±275µV/°C, ±500µV/1,000 hours