

GFK-2093

Functional Characteristics

Control: Control of the Analog Output Board takes place 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. Channel data is 12 bits, right-justified, and can be either two's complement or offset binary. Analog output registers support readback for off-line and real-time digital data integrity testing.

Table 1. Control and Data Register Group

Address	Register Designation	Bytes	Access
0000h	Board Identification (BIR)	2	R D16,D8
0004h	Control and Status (CSR)	2	R/W D16,D8
0008h	Channel 0 Data Register	2	R/W D16
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0016h	Channel 7 Data Register	2	R/W D16

Board Access: Short I/O (A16) address bits A05 through A15, or Standard (A24) address bits A05 through A23, are compared with field-configurable jumpers for board selection. Address modifiers are decoded to support supervisory, user access, or both privileges. The Board Identification Register (BIR) and Control and Status Register (CSR) support both D8 and D16 data transfers. Channel 00 to 07 Data Register transfers are 16-bit (D16) words.

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

A16:D16/D08 (EO) DTB Slave
A24:D16/D08 (EO)
6U form factor

Electrical Characteristics

(At 25°C with rated power supply, unless otherwise indicated.)

General Characteristics (All Outputs)

Number of Output Channels: Four or eight. See "Related Product and Applications."

Resolution: 12 bits

Configuration: Differential, isolated Channel-to-Channel, Channel-to-VMEbus.

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

Isolation Barrier

Resistance: 50MΩ minimum, Channel-to-Channel, Channel-to-VMEbus

Capacitance: 100pF maximum, Channel-to-Channel 150pF, Channel-to-VMEbus

Withstand Voltage: 1,500Vpk (1,050V_{RMS})

VOLTAGE OUTPUTS

Voltage Ranges: Jumper-selectable as ±2.5, ±5 or ±10V with the bipolar option, 0 to +2.5V, +5V or 10V with the unipolar option

Output Drive: ±10mA over full ±10V dynamic range; 3,000pF, no oscillation

Output Impedance: Connected Mode: Less than 0.8Ω
Disconnected Mode: Greater than 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/1,000hr

Offset Voltage Drift: ±275mV/°C ±500mV/1,000hr

Common Mode Rejection (CMRR): 128dB (DC); 115dB (60Hz); relative to VMEbus power supply return

Settling Time: 10 μ s to 0.01%; time from DTACK assertion

Noise: \pm 6mV full-scale, peak-to-peak, maximum, 10Hz to 10kHz, at 3 σ^2

Interchannel Crosstalk: -80dB at DC to 1kHz

Output Protection: \pm 20V indefinitely; \pm 50V for 1s

Current-Mode Outputs

Current Range: 4 to 20, 0 to 20 or 5 to 25mA

Span: 16 or 20mA, depending on current range

Compliance: 9V with internal supply; 27V with external loop power supply

Output Impedance: Greater than 10M Ω , 0 to 25V

Span Error: \pm 0.06%

Offset Current: \pm 4 μ A

Nonlinearity: 0.035%

Span Drift: \pm 60PPM $^{\circ}$ C \pm 90PPM/1,000hr

Offset Current Drift: \pm 250nA/ $^{\circ}$ C \pm 500nA/1,000hr

Common-Mode Rejection (CMRR) = 128dB (DC); 113dB (60Hz); relative to VMEbus power supply return

Settling Time: 30 μ s to 0.01%

Interchannel Crosstalk: -80dB at DC to 1kHz

External Loop Supply: +30VDC maximum

Physical/Environmental

Temperature: 0 to +65 $^{\circ}$ C, operating; -20 to +85 $^{\circ}$ C, storage

Humidity: 10 to 80%, relative noncondensing

Altitude: Operation to 10,000ft (3,048m)

Cooling: Forced air convection (Standard VME slot)

Dimensions: Double height Eurocard (6U), 160 x 233.35mm

Weight (Mass): 0.7kgm maximum

System Cable Connectors: Front panel P3 connectors; one 32-pin DIN 41 612, VG and IEC connectors. Connectors interface with 22 to 14AWG wire utilizing binding screw terminals.

MTBF: 200,500 hours (MIL STD 217F)

Power Requirements: 6.5A maximum at +5VDC, all outputs fully loaded.

Related Products and Applications

GE Fanuc offers a broad range of Analog Input/Output (AIO) products for VMEbus systems, and supports these products with comprehensive applications information. Contact GE Fanuc for a description of current products and a list of application guides. The Analog Output Board can be ordered in a variety of configurations depending on the type of board needed. Below is a list of the available products.

Table 2. Related Products

Product Number	Description
IC697VAL304	Analog Output, Isolated, 4 Channel, 12-bit, Voltage - Bipolar
IC697VAL314	Analog Output, Isolated, 4 Channel, 12-bit, Current - 4 to 20mA
IC697VAL324	Analog Output, Isolated, 4 Channel, 12-bit, Voltage - Unipolar
IC697VAL308	Analog Output, Isolated, 8 Channel, 12-bit, Voltage - Bipolar
IC697VAL318	Analog Output, Isolated, 8 Channel, 12-bit, Current - 4 to 20mA
IC697VAL328	Analog Output, Isolated, 8 Channel, 12-bit, Voltage - Unipolar

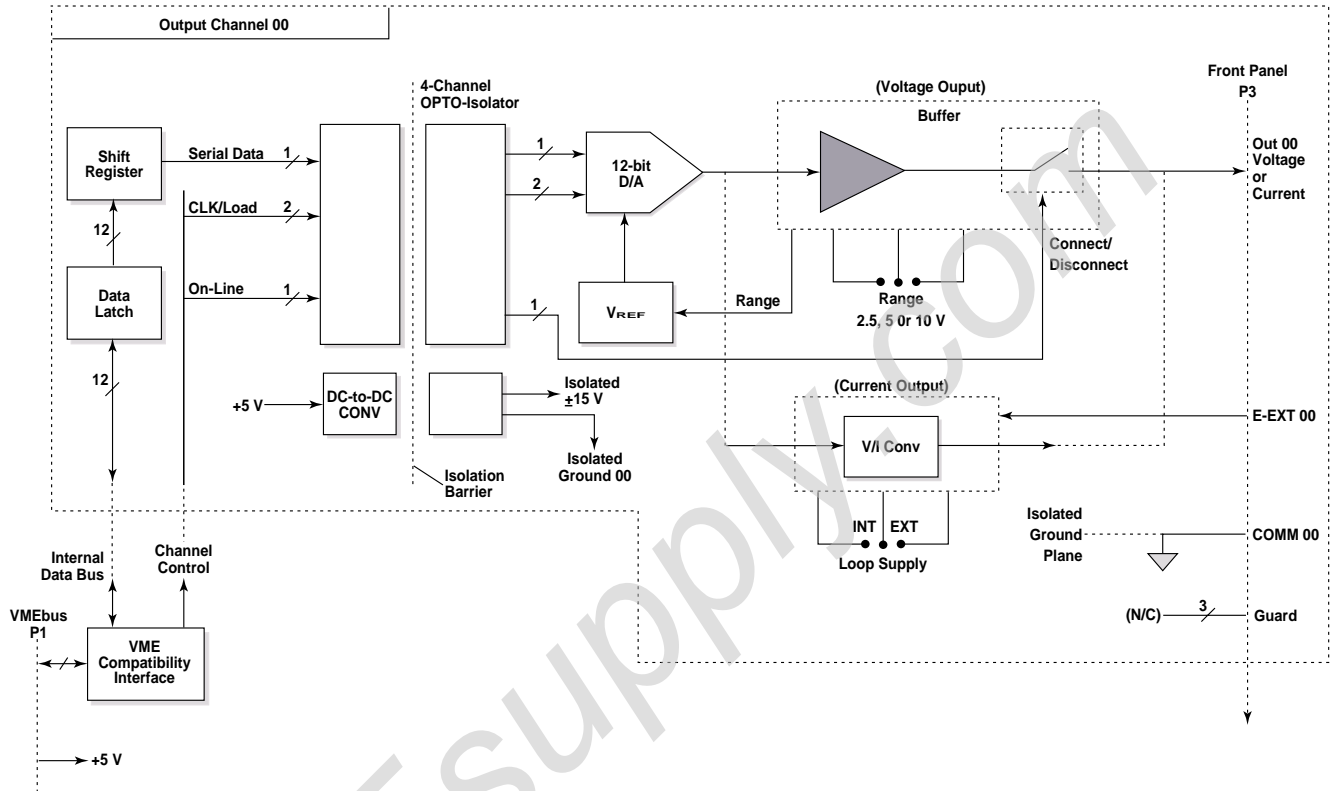


Figure 1. Functional Block Diagram