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Find the *Abaco Systems / VMIC VMIVME-4150-201* at our website: ***Click HERE***

VMIVME-4150
Isolated 12-Channel 12-bit Analog Output Board with Voltage or Current Outputs

- 12 fully isolated analog outputs
- Up to ±1,000 V isolation, channel-to-channel, and channel-to-VMEbus
- 12-bit resolution
- Voltage output ranges selectable as ±2.5, ±5, ±10 V; 0 to +2.5 V, 5 V, or 10 V
- Voltage outputs protected to ±20 V indefinitely; transients to ±50 V
- 10 mA load capacity for voltage outputs over full ±10 V range
- Available with 4 to 20, 0 to 20, or 5 to 25 mA current loop outputs
- 0.05 percent accuracy for voltage outputs, 0.08 percent for current loop outputs
- 4-, 8-, and 12-channel configurations
- Optical data coupling provides full galvanic isolation
- Static readback data registers simplify program control
- Front panel access
- Program-controlled connect/disconnect operation of voltage outputs facilitates system testing
- Overvoltage protection: IEEE-472 compatibility when used with companion VMIVME-3456 board

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 VMIVME-4150 provides 12 isolated high quality 12-bit analog output channels on a single 6U form factor VMEbus board. Each channel is electrically isolated from all other channels and from the VMEbus, as illustrated in the functional block diagram as shown in Figure 1, and will operate with sustained isolation voltages as high as 1,000 V. Output voltage ranges are selectable as ±2.5, ±5, and ±10 V, or 0 to +2.5 V, 5 V, 10 V, and full 10 mA loading is supported throughout these ranges. Four-, eight-, and twelve-channel configurations are available.

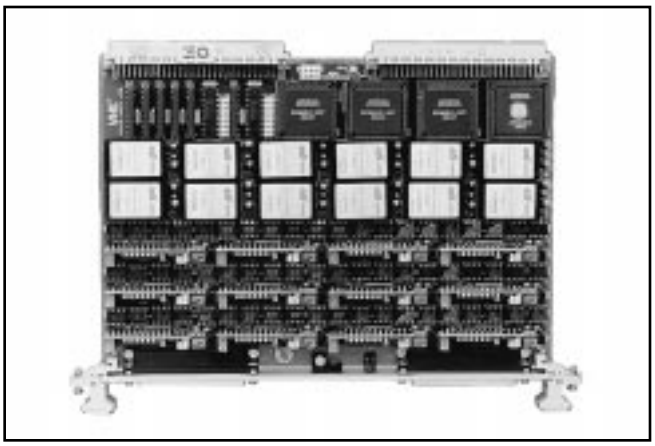
Outputs can be disconnected or placed in a minimal state under program control during system testing, and are disconnected or placed in a minimal state automatically at reset.

Optional current-mode outputs support applications which require standard 4 to 20, 0 to 20, or 5 to 25 mA analog current loops. Compliance of the current mode outputs is 9 V if the loop supply originates on the board, or 27 V with an external loop power supply.

A front panel Fail LED is provided. The LED light is turned ON during system reset and can be turned OFF under user software control.

FUNCTIONAL CHARACTERISTICS

Control: Control of the VMIVME-4150 board takes place through the following 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.



ADDR	REGISTER DESIGNATION	BYTES	ACCESS
0000h	Board Identification (BIR)	4	R D16,D8
0004h	Control and Status (CSR)	2	R/W D16,D8
0008h	Channel 00 Data Register	2	R/W D16
---	---	--	--
001Eh	Channel 11 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 or user access, or both privileges. The BIR and CSR support both D8 and D16 data transfers. Channel 00 to 11 Data Register transfers are 16-bit (D16) words.

Ordering Options

Nov. 19, 1996 800-004150-000 D	A	B	C	–	D	E	F
VMIVME-4150 –				–			

A = Number of Channels
- 0 = 4 Channels
- 1 = 8 Channels
- 2 = 12 Channels

B = Voltage or Current Output Options
- 0 = Voltage Outputs, Bipolar
- 1 = 4 to 20 mA Current Loop Outputs
- 2 = 0 to 20 mA Current Loop Outputs
- 3 = 5 to 25 mA Current Loop Outputs
- 4 = Voltage Outputs, Unipolar

C = Outputs
- 0 = Reserved
- 1 = On-Line/Off-Line or Minimal State Capable

For Ordering Information, Call:
1-800-322-3616 or 1-256-880-0444 • FAX (256) 882-0859
E-mail: info@vmic.com Web Address: www.vmic.com
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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: 4, 8, or 12; See the Ordering Options

Resolution: 12 bits

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

Common-Mode Voltage Range:
CMV = ±1,000 V, Channel-to-Channel, Channel-to-VMEbus

ISOLATION BARRIER

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

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

Withstand Voltage: 1,000 Vpk (700 VRMS)

VOLTAGE OUTPUTS

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

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

Output Impedance:
Connected Mode: Less than 0.8 Ω
Disconnected Mode: Greater than 1 MΩ

Gain Error: ±0.04 percent maximum

Voltage Offset: ±4 mV

Nonlinearity: 0.025 percent

Gain Drift: ±30 PPM/°C ±75 PPM/1,000 hr

Offset Voltage Drift: ±10 µV/°C ±25 µV/1,000 hr

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

Settling Time: 10 µs to 0.01 percent; time from DTACK assertion

Noise: ±6 mV full-scale, peak-to-peak, maximum, 10 Hz to 10 kHz, at 3 σ [1]

Interchannel Crosstalk: -80 dB at DC-1 kHz

Output Protection: ±20 V indefinitely; ±50 V for 1 s

CURRENT-MODE OUTPUTS

Current Range: 4 to 20, 0 to 20, or 5 to 25 mA; See the Ordering Options

Span: 16 or 20 mA, depending on current range

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

Output Impedance: Greater than 10 MΩ, 0 to 25 V

Span Error: ±0.06 percent

Offset Current: ±4 µA

Nonlinearity: 0.035 percent

Span Drift: ±50 PPM/°C ±70 PPM/1,000 hr

Offset Current Drift: ±80 nA/°C
±250 nA/1,000 hr

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

Settling Time: 30 µs to 0.01 percent

Interchannel Crosstalk: -80 dB at DC-1 kHz

External Loop Supply: +30 VDC maximum

1. Three standard deviations (3 σ) include 99.7 percent of all noise in a normal distribution.

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PHYSICAL/ENVIRONMENTAL

Temperature: 0 to +65 °C, operating
-20 to +85 °C, storage

Humidity: 10 to 80 percent, relative noncondensing

Altitude: Operation to 3,000 m

Cooling: Forced air convection (Standard VME slot)

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

Weight (Mass): 0.7 kgm maximum

System Cable Connectors: Front panel P3 and P4 connectors; standard subminiature **D** 37-pin male connectors

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

RELATED PRODUCTS AND APPLICATIONS — VMIC offers a broad range of Analog Input/Output (AIO) products for VMEbus systems, and supports these products with comprehensive applications information. Contact VMIC for a description of current products and a list of application guides.

For IEEE-472 transient protection, refer to the VMIVME-3456 specification.

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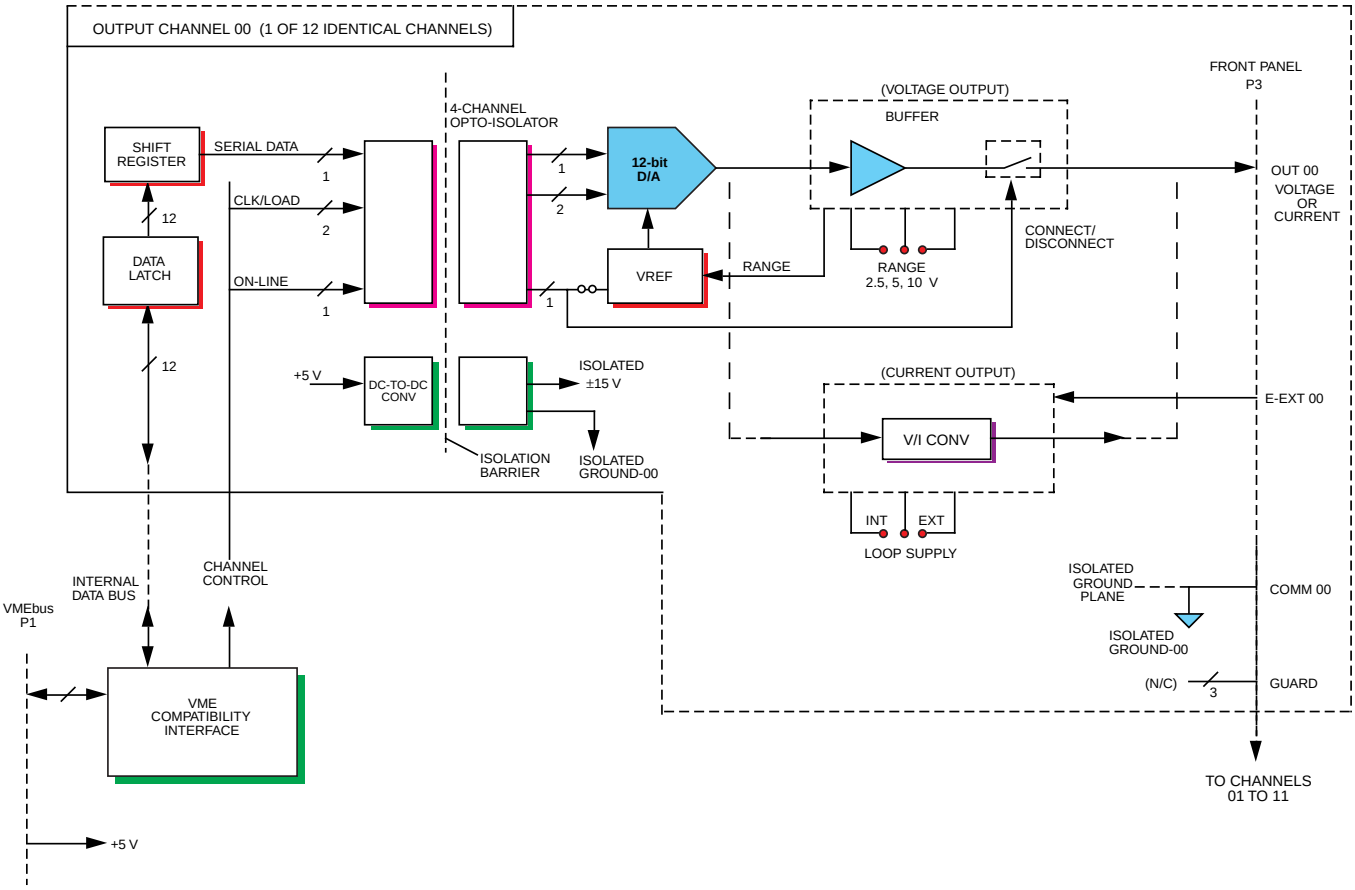


Figure 1. VMIVME-4150 Functional Block Diagram

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