ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Abaco Systems / VMIC VMIVME-2128-011* at our website: ***Click HERE***

VMIVME-2128
128-bit High-Voltage Digital Output Board with Built-in-Test

- 128 bits of high-voltage outputs
- High-current drivers (600 mA sink)
- Automatic surge current shutdown protection
- Thermal shutdown protection
- High breakdown voltage (55 V)
- Output clamp diodes for inductive flyback protection
- Compatible with Intelligent I/O Controllers
- Built-in-Test logic for fault isolation
- VMEbus compatible (ANSI/IEEE STD 1014-1987 IEC 821 and 297)
- A24:A16:D32/D16/D08 (EO): slave 39/3D:29/2D:6U form factor
- Optional pull-up resistors for electronic switch outputs
- Front panel with fail LED
- Sockets are provided for warming resistors, which are supplied by the user

FUNCTIONAL CHARACTERISTICS

Compliance: This product complies with the VMEbus specification (ANSI/IEEE STD 1014-1987 IEC 821 and 297) with the following mnemonics:
A24:A16:D32/D16/D08 (EO): Slave: 39/3D:29/2D:6U form factor

Output Connector Type: Two 96-pin female connectors are used with this board. For mass terminations (IDC), an ERNI IDC DIN connector and 0.033-inch 30 AWG ribbon cable are recommended. The ERNI order numbers are:

96-pin connector	913 031
96-conductor 0.033-inch cable	913 049

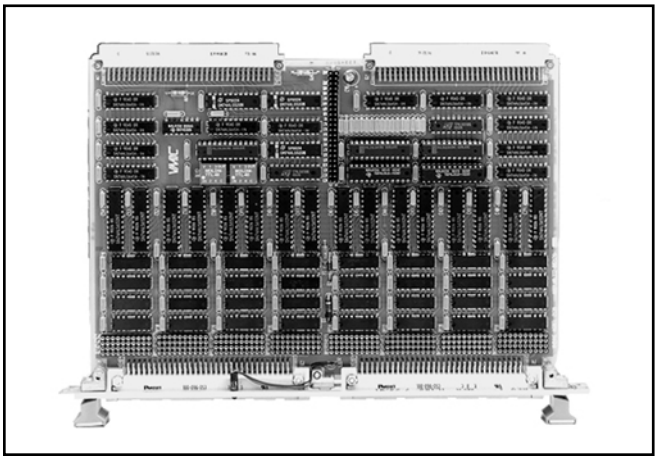
For discrete wire use, Harting connectors are recommended. This connector consists of a contact housing with female crimp-on contacts. Harting order numbers are:

96-pin connector	09 03 096 3214
Female crimp-on contacts	09 02 000 8484
Crimp tool (for stripped wire)	09 99 000 0075

The discrete wire connector needs a shell housing that has holding levers. We recommend the Harting housing. Its order number is 09 03 096 0501. This housing will latch the discrete wire cable to the board connector and provide a strain relief.

I/O Organization: Sixteen output ports, eight bits wide for a total of 128 inputs, addressable to any address within the short supervisory and/or short nonprivileged or the standard supervisory and/or standard nonprivileged I/O map.

Addressing Scheme: Thirty-two bytes individually addressable on 8-, 16-, or 32-bit boundaries. A Board ID Register is located at the base address of the board. A Control and Status Register (CSR) is stacked above the



ID Register. The sixteen input bytes are placed above the CSR. Twenty jumpers establish the base address of the board. Another jumper is used for standard or short I/O accesses. The following address map shows the relative locations of all the registers used by the board.

Ordering Options

Oct. 26, 1999 800-002128-000 K	A	B	C	–	D	E	F
VMIVME-2128 –			1	–			

A = Pull-Up Resistors/Output Voltage/Absolute Maximum Voltage
- 0 = No Pull-Up Resistors Installed (55 V Absolute Maximum)
- 1 = 270 Ω/5 V/6 V
- 2 = 1,500 Ω/12 V/14 V
- 3 = 6,800 Ω/24 V/30 V
- 4 = 27 kΩ/48 V/55 V

B = User Ground Connection
- 0 = No P2 User Ground Connection
- 1 = 26 P2 User Ground Connections**

C = SIP Sockets
- 0 = Reserved
- 1 = SIP Sockets at Pull-Up Resistor Locations

Recommended Connector Components for Cabling to P3 and P4

Style	*Description*	*I/O Connectors*
96-pin IDC	Mating Connector (96-pin Mass Terminated)	ERN No. 913 031
	0.033-inch Ribbon Cable (96-pin Mass Terminated)	ERNI No. 913 049
96-pin Discrete Wire	Mating Connector (96-pin Discrete)	Harting No. 09 03 096 3214
	Female Crimp Contacts (96-pin Discrete)	Harting No. 09 02 000 8484
	Connector Shell Housing (for 96-pin Connectors)	Harting No. 09 03 096 0501
Both	PC Board Connector Part Number	ERNI No. 913 216

*The Harting crimp tool part number is 09 99 000 0075.
** A1C option is recommended for new applications.

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
Copyright © Janaury 1990 by VMIC
Specifications subject to change without notice.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Address Map:

Decoded Address Address bits				Register Name or Description
A4	A3	A2	A1	
0	0	0	0	Board ID
0	0	0	1	Control and Status Register (CSR)
0	0	1	0	Not Used
0	0	1	1	Not Used
0	1	0	0	Not Used
0	1	0	1	Not Used
0	1	1	0	Not Used
0	1	1	1	Not Used
1	0	0	0	Output Data Word (16 bits) 0
1	0	0	1	Output Data Word (16 bits) 1
1	0	1	0	Output Data Word (16 bits) 2
1	0	1	1	Output Data Word (16 bits) 3
1	1	0	0	Output Data Word (16 bits) 4
1	1	0	1	Output Data Word (16 bits) 5
1	1	1	0	Output Data Word (16 bits) 6
1	1	1	1	Output Data Word (16 bits) 7

Output Drivers: The output drivers provide the user with thermal and inrush current shutdown protection. The inrush current protection will allow up to 990 mA of surge current before shutting down the driver. This current is determined by the type and number of bulbs used. For example, two 40 mA 28 V filament bulbs may have as much as 960 mA ((40 mA x 2) x 12 = 960 mA) of cold filament inrush current. If the inrush current of the external circuitry will exceed the 990 mA limit, then warming resistors should be used. These resistors should draw approximately 10 percent of the rated (warm) current of the bulb or bulbs in use. For the example above, this current would be 8 mA ((40 mA x 2) x .1 = 8 mA). SIP sockets are provided on the board for these warming resistors. These resistors must be the bussed type with pin 1 being common. The sockets have pin 1 grounded.

Electronic Switch Option: Optional pull-up resistors are available which place the output drivers in an electronic switch configuration. These switch outputs are operated from user-supplied power via the P2 connector.*

Data Polarity: A logic *one* written to an output bit will turn ON the drive transistor. This yields an output of logic *zero*. Thus, a logic *one* asserts the output. This data polarity is called positive true.

Built-in-Test: This board is designed with internal Built-in-Test logic that supports testing of all the on-board active components except the output drivers. All Output Data Registers have read-back capability. Thus, the user can monitor the data written to this board and determine if it is functioning properly. A front panel Fail LED is provided to help in isolating a faulty board. This LED is illuminated at power up and can be extinguished under program control upon the successful completion of user-defined diagnostic software.

PHYSICAL/ENVIRONMENTAL

Temperature Range: 0 to +55 °C, operating, -20 to +85 °C, storage

Humidity Range: 20 to 80 percent relative, noncondensing

Altitude: Operation to 10,000 ft

Cooling: Forced air convection

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

Power Requirements: 3.0 A (typical) at 5 V

The user must supply power to the output drivers. This power requirement is determined by the user load. Connections can be made at either the front panel (P3 or P4) or at P2. To facilitate connections made at P2, VMIC offers the VMIACC-0132 P2 Power Accessory which is recommended, but not required.

MTBF: 162,900 hours (217F)

Warning: The user-supplied voltage should not be applied to the board unless +5 VDC is present on the board.

APPLICATIONS —

Relay drivers
Lamp drivers
Solenoid drivers
Hammer drivers
Stepper motor drivers
SCR drivers
LED drivers
High-current, high-voltage drivers

TRADEMARKS

The VMIC logo is a registered trademark of VMIC. Other registered trademarks are the property of their respective owners.

* For new applications, it is recommended the P2 user ground connection be ordered. The VMIACC-0132 provides no. 10 terminals for connecting V_{EXT} and user GND.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

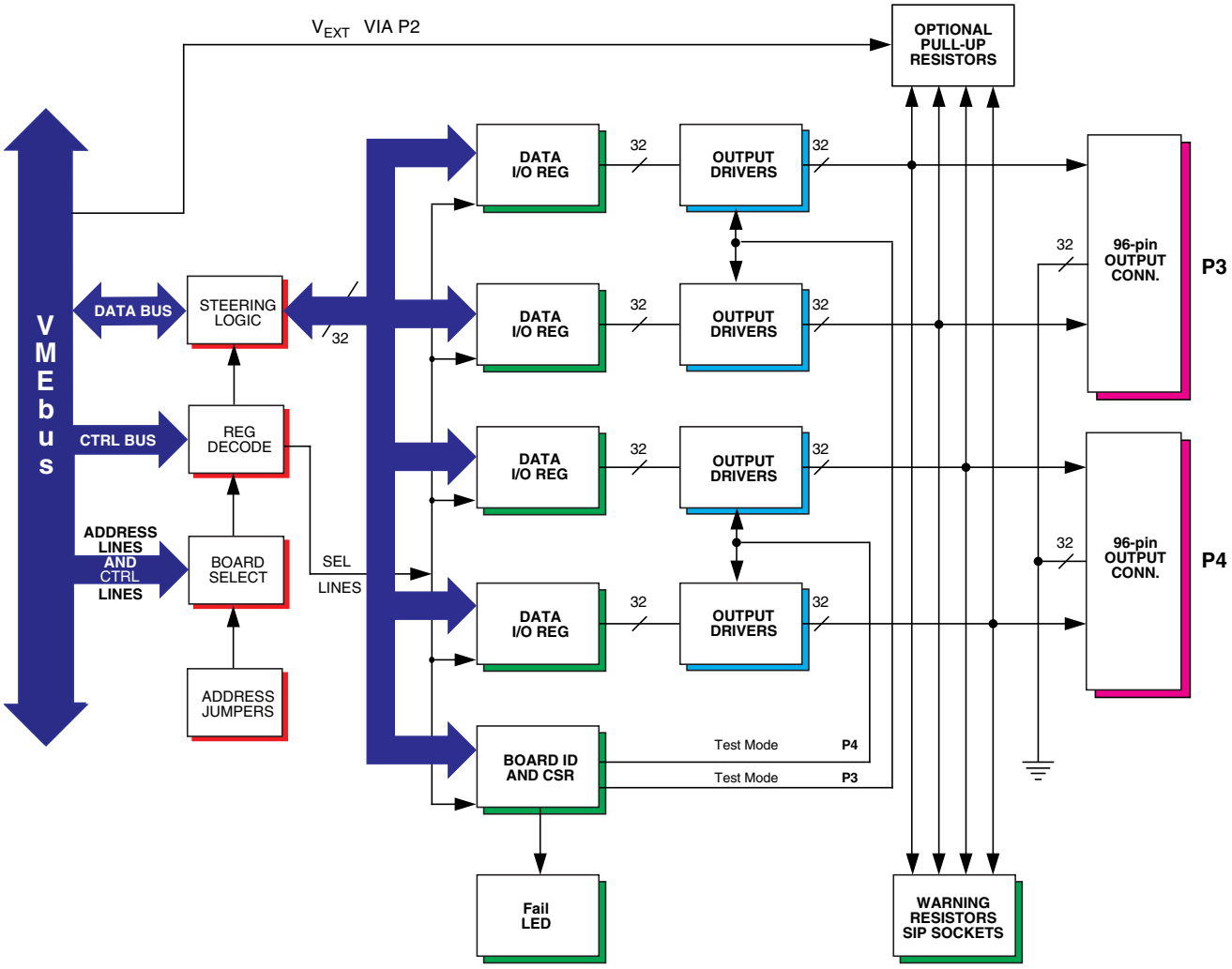


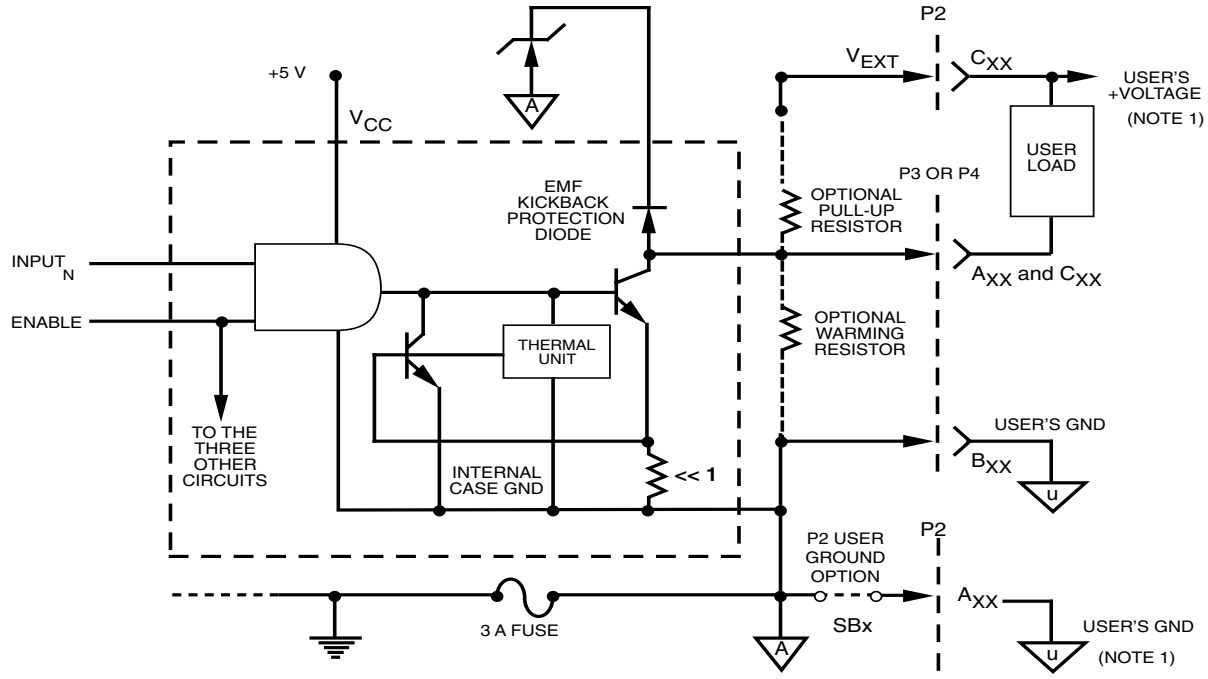
Figure 1. VMIVME-2128 Functional Block Diagram

APPLICATION AND CONFIGURATION GUIDES — The following Application and Configuration Guides are available from VMIC to assist the user in the selection, specification, and implementation of systems based on VMIC's products.

Title	Document No.
Digital Input Board Application Guide	825-000000-000
Change-of-State Application Guide	825-000000-002
Digital I/O (with Built-in-Test) Product Line Description	825-000000-003
Synchro/Resolver (Built-in-Test) Subsystem Configuration Guide	825-000000-004
Analog I/O Products (with Built-in-Test) Configuration Guide	825-000000-005
Connector and I/O Cable Application Guide	825-000000-006
Data Acquisition Noise Reduction Application Guide	825-000000-026
Installation Guide for the P2 Power Adapter	522-800132-000

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

OUTPUT DESCRIPTION (UDN2549B DRIVERS)



Note 1: The VMIACC-0132 is available to provide V_{EXT} and user GND connections via the P2 backplane connector.

INCANDESCENT LAMP DRIVER — High incandescent lamp turn-on/inrush current can destroy semiconductor lamp drivers and contributes to poor lamp reliability. However, lamps with steady state current ratings up to 600 mA can be driven with the UDN2549B without the need for warming or current limiting resistors.

When an incandescent lamp is initially turned ON, the cold lamp filament is at minimum resistance and would normally allow a 10x to 12x inrush current. With the UDN2549B, the high inrush current is sensed by an internal sense resistor. The load current is limited to approximately 1 A by the shunting transistor sensing the output current through the sense resistor. During this short transition period, the output driver is driven in a linear fashion. As the lamp warms up, the filament resistance increases to its maximum value. The output driver then goes into saturation and applies the full supply voltage to the lamp. However, inrush currents of 1 A or more will force the driver into foldback current limiting. To avoid this problem, a warming or current limiting resistors should be used in the lamp circuitry.

INDUCTIVE LOAD DRIVER — Bifilar (unipolar) stepper motors can be driven directly. The internal kickback diodes prevent damage to the output transistors by suppressing the high-voltage spikes which occur when turning OFF an inductive load.

FAULT CONDITIONS — In the event of a shorted load, shorted winding, or stalled motor, the load current will attempt to increase. As described above, the drive current to the output stage is diverted (limiting the load current to about 1 A), causing the output stage to go linear. As the junction temperature of the output stage increases, the thermal limit circuit will become operational, further decreasing the drive current. The load current (junction temperature) is then a function of ambient temperature, state of remaining drivers, supply voltage, and load resistance. If the fault condition is corrected, the output driver will return to its normal saturated condition. Short circuit protection is provided for each output for supply voltages up to 25 V.

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

VMIVME-2128
Electrical Specifications Per Output Channel

1. Electronic Switch Option (Open Collector with Pull-Up Resistor)

Output Voltage	RP Min	IOH Max	IOH	IOL Max	Absolute Max Output Voltage
5 V	270 Ω	22.6 mA	8.5 mA at Vout = 2.5 V	600 mA	6 V
12 V	1.5 kΩ	9.7 mA	3.9 mA at Vout = 6 V	600 mA	14 V
24 V	6.8 kΩ	4.6 mA	1.8 mA at Vout = 12 V	600 mA	30 V
48 V	27 kΩ	2.3 mA	0.9 mA at Vout = 24 V	600 mA	55 V

2. Open-Collector Option (No Pull-Up Resistors Installed)

IOL	VOL Typ	VOL Max
300 mA	0.20 V	0.7 V
500 mA	0.55 V	1.5 V

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP