



VMIVME-3451

32-Channel 6U Form Factor Surge Protected Interface Board for the VMIVME-1111 Board

- Meets the ANSI/IEEE C37.90.1-1989 surge withstand capability (SWC)
- 6U form factor permits installing the board in a standard VMEbus chassis
- Cables directly to a VMIVME-1111 digital input board
- Provides optical isolation of 1,000 VDC

APPLICATIONS

- Isolated data acquisition systems
- Nuclear power plant monitoring
- Isolated control systems

FUNCTIONAL CHARACTERISTICS

INTRODUCTION — The VMIVME-3451 accepts discrete wire inputs via a Harting shell connector cable, provides Surge Withstand Capability (SWC) to each input, adds optical isolation for each input, and provides an IDC mass-terminated cable output to a board such as the VMIVME-1111 5 V digital input.

Each input line is protected with a transient suppressing diode capable of withstanding the 3,000 V decaying sine wave or the 5,000 V pulse stated in the SWC specification. Each input common is also protected from the Surge Return by a 1,000 V spark gap. Figure 1 shows a typical channel on the surge protection board. Figure 2 shows how the VMIVME-3451 fits in a system. The field wiring is routed to the board on the input connector P3 (by a discrete wire cable terminated in a DIN connector) which is provided on the front panel of the VMIVME-3451. Each channel is then routed to the surge protection circuitry and then to the output connector P4. P4 can be a mass-terminated IDC or a discrete wire cable terminated in DIN connectors. When P4 is connected to an input connector (such as the VMIVME-1111) of a digital input board, the board will have the SWC and optical isolation added to its signal inputs.

VMEbus Compliance: This board has no electrical connection to the VMEbus backplane, but it does pass all daisy chain signals (IACK, BUSGRANTS).

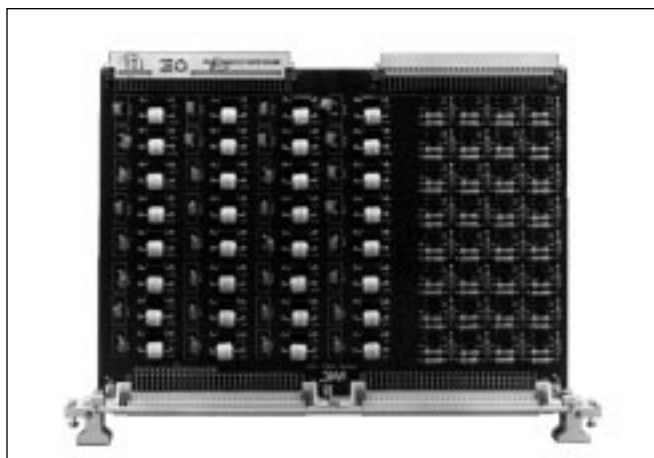
ELECTRICAL CHARACTERISTICS

(At +25 °C and rated power supplies unless otherwise noted.)

Inputs: Thirty-two; differential with common wetting voltage shared by adjacent channels (CH0, CH1...). (See Table 1, External Voltage Threshold Table.)

Surge Withstand Capability: Meets the ANSI/IEEE C37.90.1-1989 Surge Withstand Capability (SWC)

Oscillatory: This specification uses a 3,000 Vpk 1 to 1.5 MHz decaying sine wave. The sine wave is 1/2 of its initial voltage within 6 μ s. This burst is repeated



every 20 ms for a period of 2 seconds. The output impedance of the source is 150 to 200 Ω .

Pulse: This specification uses a 5,000 Vpk pulse with a 10 ns rise time decaying to 1/2 of its initial voltage within 200 ns. This pulse is repeated every 20 ms for a period of 2 seconds. The output impedance of the source is 80 Ω during the initial rise time.

Isolation Voltages:

Field-to-VMEbus Signals: 1,000 V
Adjacent Channel: 1,000 V

Interchannel Crosstalk Rejection: 80 dB minimum at 1 kHz

Ordering Options							
April 7, 1995 800-003451-000 B	A	B	C	-	D	E	F
VMIVME-3451	-	0	0	-			
AB = 00 (Options reserved for future use)							
C = External Wetting Voltage							
0 = 48 V							
1 = 5 V							
2 = 12 V							
3 = 24 V							
4 = 28 V							
5 = 48 V							
Connector Data							
Mass-Terminated IDC Connector Data							
PC Board Connector			Panduit No. 120-964-033A				
Cable Connector			ERNI 913-031				
Connector Shell Housing			Harting No. 09 03 096 0501				
Connector Data							
For Discrete Wire Input Connectors							
Mating Connector			Amp No. 925486-1				
Female Crimp Contacts*			Amp No. 530151-6				
Connector Shell Housing			Harting No. 09 03 096 0501				
PC Board Connector			Panduit No. 120-964-033A				
* An AMP crimp tool part number is 90301-2.							
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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PHYSICAL/ENVIRONMENTAL

Dimensions: Standard VME 6U form factor single width board (160 x 233.5 mm)

Temperature: 0 to +65 °C, operating range
-25 to +85 °C, storage range

Relative Humidity: 20 to 80 percent, noncondensing

Cooling: Normal VMEbus chassis forced air circulation

Power Requirements: None, pull-up resistors to 5 V must be provided on the VMEbus input board

Altitude: Operation to 3,000 m

Weight (Mass): 0.7 kg maximum

TRADEMARKS

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Table 1. External Voltage Threshold Table

VMIVME-1111 THRESHOLD V_R	OPTION - AB0 $V_{EXT} = 48 V$ MAX/MIN	OPTION - AB1 $V_{EXT} = 5 V$ MAX/MIN	OPTION - AB2 $V_{EXT} = 12 V$ MAX/MIN	OPTION - AB3 $V_{EXT} = 24 V$ MAX/MIN	OPTION - AB4 $V_{EXT} = 28 V$ MAX/MIN	OPTION - AB5 $V_{EXT} = 48 V$ MAX/MIN
5.0 V	21.24/7.54 V	2.49/1.28 V	5.96/2.44 V	11.77/4.38 V	13.70/5.02 V	23.17/8.18 V
1.25 V	31.72/8.41 V	2.94/1.32 V	8.26/2.63 V	17.18/4.83 V	20.15/5.56 V	34.69/9.14 V
0 V (GND)	31.90/8.43 V	2.95/1.32 V	8.30/2.63 V	17.27/4.84 V	20.26/5.57 V	34.89/9.16 V
I/CHANNEL	11.94/7.5 mA	13.4/10.7 mA	8.0/6.6 mA	8.5/7.1 mA	8.9/7.4 mA	10.9/9.1 mA

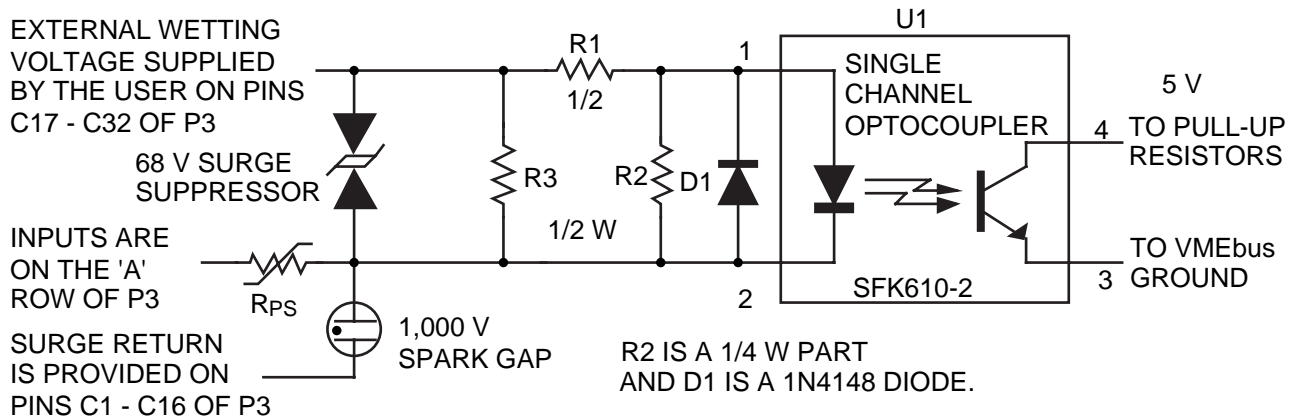


Figure 1. A Typical Channel

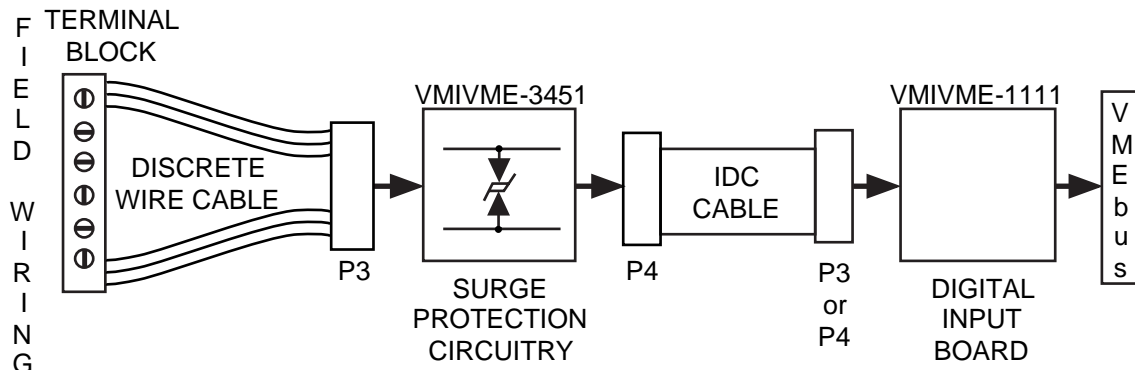


Figure 2. A Typical System