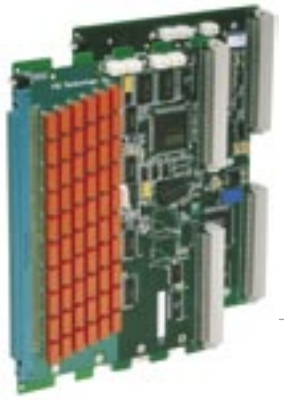
SVM2001/2/3/4

VME-based Switching System



Features

- Complete Series of VME based Switching Modules
- Solid State and Electromechanical Designs
- VME 32/64
- Hermetically Sealed for Salt, Sand, and Dust
- -20 ˚C to +65 ˚C Temperature Range for Deployable Air-cooled Systems or Other Harsh Environments
- Designed to Maintain Signal Integrity for dc, Power, Signal or RF Applications

Overview

The SVM Series leverages VXI Technology's line of high-density modular VXIbus switches, but is optimized for the VMEbus. All SVM switch modules are designed to provide the features of intelligent switching systems found on other platforms such as GPIB or VXI. These features are achieved in hardware, rather than in a driver or via on-board microprocessor based firmware. This approach to the interface design considerably reduces software programming overhead.

The SVM series design approach allows virtually any of VXI Technology's SMIP*II*™ product family to be migrated into VME very quickly and cost effectively. Consult factory for alternative configurations.

Performance

The SVM series interface supports direct register control of all relays, the ability to download scan lists with VME interrupt or software trigger advance, and hardware implemented break-before-make and make-before break switching. Additional features are:

Programmable Timing Delays: A delay can be programmed between relay closures to allow for settling times of other system resources. A controlled synchronous switching system can easily be configured.

Confidence Checking: Internal feedBack provides confidence of relay closures.

Interrupt Driven Triggering: Interrupts can be generated when a relay closes and settles, and programmed relays can be actuated upon receipt of register write to allow for synchronization between other devices.

Make-Before-Break and Break-Before-Make: Relay control implemented in hardware eases software burden, and considerably improves system throughput.

Safety Interrupt: This is a programmable fail-safe feature that allows all relays to open based upon external or register writes. Signals can be removed from the unit under test if a system fail-safe occurs, such as inadvertent removal of a test adapter. This feature is not found on all modules.

Non-volatile Memory: Allows users to store pertinent information such as maintenance records, relay specs, installation dates, serial numbers and last user's id.

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Specifications

Temperature: -20 ˚C to +65 ˚C

Humidity: 5% to 95% Relative Humidity, Non-condensing

Altitude:
- Operating: 15,000 ft (4570m)
- Non-operating: 40,000 ft (12,190m)

Random Vibration:
Three axis, 30 minutes total, 10 minutes per axis
- Operating: 0.27 g-rms total from 5 Hz to 55 Hz
- Non-operating: 2.28 g-rms total from 5 Hz to 55 Hz

Functional Shock Operating: Half sine, 30g, 11ms duration. Meets functional shock requirements of MIL-T-28800E, Type III, Class 3

Salt, Explosive Atmosphere, Sand and Dust: Hermetically Sealed

SVM2001 60 SPDT 300 V, 2 A Switch

This switch module is ideal for general-purpose signal switching where individual relays can be used to route signals to/from the unit under test (UUT), or combined externally to form user-defined configurations.

Maximum Switching Voltage: 300 V ac, 300 V dc

Maximum Switching Current: 2 A

Maximum Switching Power: 60 W dc, 125 VA

Maximum Thermal Offset per Channel (HI-LO): <7 µV

Capacitance:
- Open Channel: <50 pF
- Channel-Mainframe: <80 pF
- High-Low: <50 pF

Bandwidth (-3 dB): >100 MHz

Insertion Loss:
- 100 kHz: <0.1 dB
- 1 MHz: <0.2 dB
- 10 MHz: <1.0 dB

Crosstalk:
- 100 kHz: <-80 dB
- 1 MHz: <-60 dB
- 10 MHz: <-40 dB

Isolation:
- 100 kHz: <-50 dB
- 1 MHz: <-45 dB
- 10 MHz: <-40 dB

Rated Switch Operations: 1×10^7

Switching Time: <3 ms

SVM2002 26 SPST Optically Isolated, Protected 5 A Solid State dc Switches

SVM2003 100 SPST Optically Isolated, Protected 1 A Solid State dc Switches

SVM2004 4 SPST 10 A Optically Isolated, 20 SPDT 5 A Electromechanical, 2 SPST 10 A Electromechanical

The SVM2002, SVM2003, and SVM2004 switch modules are designed for switching dc signals in applications where the UUT and relays need to be protected. Each optically isolated, protected relay on these modules provides short circuit and current overload protection.

This feature not only provides protection should a short or overload occur while the relay is on, but will also provide protection should the relay be switched into a short. In either case the relay will sense the short circuit condition and block it indefinitely until the short is removed and the unit is reset by cycling the input control registers. Additionally, these switches are over-voltage protected >35 V, and a fault condition signal is generated when an over-voltage condition occurs (the relay does not open, and the user needs to reset the input signal)

Solid State Relay Absolute Maximum Ratings

Breakdown Voltage - V(br)dss 55 V dc

Max Drain Current - Id(max)
- 20 A dc @ 25 ˚C
- 15 A dc @ 100 ˚C

VME-based Switching System

Single Pulse Avalanche Energy - Eas	110 mJ @ 25 ˚C & 16 A 60 mJ @ 25 ˚C & 16 A
Operating Junction Temperature - Tj	-55 ˚C to +175 ˚C
Breakdown Voltage Temp Coef. - dV(br)dss	0.065 V dc/˚C Referenced to 25 ˚C, Id=1 mA
Over-voltage Protection - OV	34.7 V dc min, 35.8 V dc max. Over-voltage condition signaled to operator
Overcurrent - OC	
2 A Relay:	2.5 A dc min, 3 A dc max
5 A Relay:	6.4 A dc min, 7.5 A dc max
10 A Relay:	12.8 A dc min,15 A dc max
Leakage Current-I(Lk)	
65 µA	@ 28 V & Tj=25 ˚C
300 µA	@ 28 V & Tj=150 ˚C
On resistance- Rds(on)	
2 A Relay	0.090 mΩ
5 A Relay	0.065 mΩ
10 A Relay	0.050 mΩ

Notes:

1. The relays are not reversible; IN should always be at higher voltage than OUT or NO
2. In “over-voltage” the relay will signal the condition to the system; do not exceed the rated 55 V dc.
3. In “over-current” the relay shuts off and signals the condition to the system
4. At turn-on, the relay signals to the system that it has been addressed