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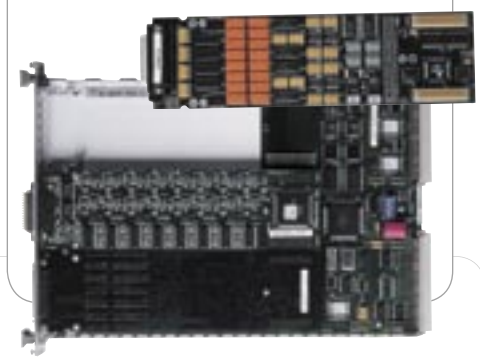
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VM4016



16-channel Analog Comparator/Interrupter (VMIP™)

Overview

The VM4016 has 16 true differential channels of analog comparator input, that can be selected to provide a VXIbus interrupt or front panel interrupt when the input goes outside the software programmed bounds. The VM4016 is an ideal device in go/no-go testing where a device fails if the voltage outputs exceed a threshold or window, or even in control applications if a device or test needs to be shut down if a voltage level is exceeded. Using an analog comparator/interrupter in certain applications, as opposed to a traditional DMM/switch approach considerably improves the overall throughput of the test, while substantially reducing cost.

The inputs are independently software programmable, permitting the user to vary inputs per channel without removing the card and setting switches or jumpers. Each input signal is also digitally debounced for a programmed time ranging from 10 µs to 0.6 s, preventing input signal noise from causing undesired interrupts. After debounce, the signal can be programmed for normal or inverted sense to select the input transition edge of interest (rising or falling edge) and masked to prevent unused channels from causing interrupts.

All of the enabled inputs are OR'd together to produce a single interrupt signal. This interrupt signal is used to generate a VXIbus interrupt as well as latch a front panel interrupt.

All active inputs are recorded as a logic high. Once the VXIbus interrupt is serviced by the Slot 0 controller, the first latched register is cleared. The state of each channel's debounced input and the inverted and masked status may be read directly in the user-defined area of the VXIbus registers, as can the first latched register. This information may also be retrieved using the message-based, word serial interface.

The VM4016 is part of the VMIP™ family of instruments and can be combined with up to two other modules to form a high-density VXIbus instrument that fully utilizes the capabilities of the VMIP™. For example, when combined with the VM1602 Time Stamp, all analog interrupts can be time stamped.

Features

- Up to 48 Differential Channels per Single VXIbus C-size Slot
- Message or Register-based Data Access
- Inputs can be Masked, Inverted and Combined to Produce Interrupts
- Programmable Debounce Circuitry Prevents Erroneous Readings
- ±10 V and ±100 V Input Ranges
- SCPI Compatible
- VXI*plug&play* Drivers

Programming

Word Serial Message-based Data Access: In this mode, the functions are accessed via the VXI message-based interface. Commands are sent to set the debounce circuitry, input threshold values, input voltage ranges, input and output polarities and masking. The command set is both SCPI and IEEE-488.2 compatible.

Register-based Data Access: This mode offers the fastest data throughput. The data is directly mapped into the VXI user-definable registers, and accessed at hardware register data rates. To further ease programming, VXI*plug&play* drivers are also provided with the VM4016.

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Specifications

Input Ranges: ±10 V, ±100 V
(Special ranges available)

Input Threshold: ±10 V range with 78 mV resolution (8-bit)
±100 V range with 780 mV resolution (8-bit)

Input Type: Differential, may be configured for single-ended by grounding the negative input

Input Impedance: 200 kΩ differential
100 kΩ single-ended

Input Polarity: Rising or falling edge

Debounce Time: 9.6 µs to 0.6291456 s

IRQ Output: Open collector driver, 200 mA max. sink current. Internally pulled up to +5 V with 10 kΩ resistor

General

VXI Interface: Message-based, word serial interface
Direct register access in the user-defined area of the VXIbus register map

Logical Addressing: Static or dynamic configuration

Raw Data Register: Logical Address + 20 H

Masked Data Register: Logical Address + 28 H

First Latched Register: Logical Address + 30 H

User Connector: The user connector is a standard 44 pin female high-density D-Sub connector. A mating connector is provided with each unit

Ordering Information

VM4016	16-channel Comparator/Interrupter
VM4016-S-11051	16-channel Comparator/Interrupter with ±10 V/±50 V input ranges (must be configured with VM9000 host module)

VM4016

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