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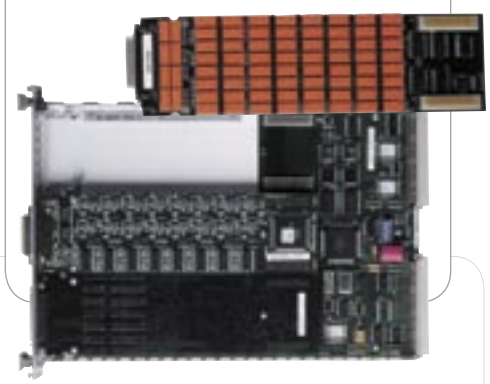
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VM7004



4-channel Programmable Resistor (VMIP™)

Overview

The VM7004 provides four independent channels of programmable resistors. It is designed for applications such as sensor simulation, process control, and ATE calibration. Three VM7004s can be accommodated in a single C-size card slot, giving the user up to 12 independent channels in a very small footprint.

The VM7004 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 VM2716A Scanning Voltmeter, current measurements can be made.

Each resistance channel has a four-wire connection which eliminates connector and wiring resistance from critical measurements, maintaining the high accuracy of the VM7004. A four-wire monitor bus is provided giving access to any one of the four resistors at a single port. This feature can be used for station calibration and self-test, allowing the test station to make a four-wire resistance measurement of the programmed value. The monitor bus can also be paralleled across a large number of VM7004s, eliminating the need to add multiplexer switching to measure the resistors.

Features

- Up to 12 Channels per Single VXIbus C-size Slot
- Message or Register-based Control
- Several Resistance Ranges from 0 Ω to 16 MΩ
- On-board Scan Lists and Triggering
- Four Modes of Operation
- Ideal for Sensor Simulation
- 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. The commands are SCPI and IEEE-488.2 compatible. This method of programming and data access is the easiest for the end user.

Register-based Data Access: This mode offers the fastest data throughput. The data is directly mapped into the VXI user-definable registers, and up to 500 value changes per second can be made (includes 2 ms relay setting times).

To reduce programming overhead and improve ease of use, on-board scan lists are provided per channel, along with extensive triggering and programmable delays, thus enabling the VM7004 to scan through resistance values at programmed intervals, simulating transducers with respect to time. The VM7004 can also trigger an external device or another VXIbus card after a channel has been programmed, synchronizing resistance changes to user-defined solutions.

For programming ease, VXIplug&play drivers are provided.

4-channel Programmable Resistor (VMIP™)

Modes of Operation

The VM7004 can be software programmed to operate in four different modes to ease integration by the user.

1. Individual channels. Each channel is programmed individually for a given resistance between 0 Ω and 16,383 Ω in the standard resistance range.

2. Potentiometer. Two or four channels can be tied externally and programmed to operate as a potentiometer.

3. Parallel mode. Two or more channels can be connected externally in parallel, increasing the accuracy and reducing step size. With two channels in parallel the VM7004 can be programmed between 0 Ω and 8192 Ω in 0.5 Ω steps, and with four channels in parallel, between 0 Ω and 4096 Ω in 0.25 Ω steps, in the standard resistance range.

4. Series mode. Two or more channels can be connected in series, increasing the range. With two channels in series the VM7004 can be programmed between 0 Ω and 32,768 Ω, and with four channels in series, between 0 Ω and 65,536 Ω in the standard resistance range.

Specifications

Resistance:	0 Ω to 16,383 Ω	Standard
	0 Ω to 163,830 Ω	Option 5
	0 Ω to 1,638,300 Ω	Option 6
	0 Ω to 16,383,000 Ω	Option 7
Resolution:	1 Ω step size	Standard
	10 Ω step size	Option 5
	100 Ω step size	Option 6
	1000 Ω step size	Option 7
Accuracy:		
Standard & Option 5	±0.02% of programmed value ± 0.5 Ω	
Option 6	±0.02% ± 0.5 Ω <200 kΩ	
	±0.05% ± 0.5 Ω ≥200 kΩ	
Option 6	±0.02% ± 0.5 Ω <200 kΩ	
	±0.08% ± 0.5 Ω ≥200 kΩ	
Maximum Power:	0.5 watts to 40 ˚C	
Thermal Offset:	≤ ±25 µV	
Scan List:	256 values per channel	
Programming Speed:	500 settings/second	
Programmable Delay:	0 to 655 ms	
User Connector:	The user connector is a standard 25 pin female high-density D-Sub connector. A mating connector is provided with each unit	

Ordering Information

VM7004

VM7004	4-channel Programmable Resistor (must be configured with VM9000 host module)
Option 5:	Resistance values on all channels range from 0 to 163,830 Ω
Option 6:	Resistance values on all channels range from 0 to 1,638,300 Ω
Option 7:	Resistance values on all channels range from 0 to 16,383,000 Ω

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