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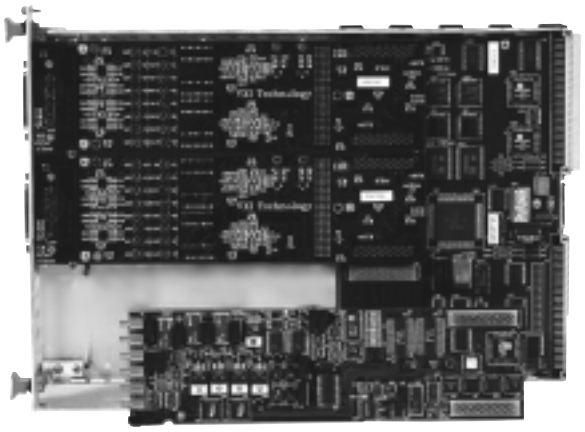
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VM3640

50 MSa/s Arbitrary Waveform Generator (VMIP™)

- Up to 50 MSa/s Sampling with 12-bit Resolution
- 120kB Horizontal Points
- Designed for Multi-channel Applications
- Up to Three Independent Channels per C-size Card
- SCPI and VXI*plug&play* Compatible
- Built-in Functions; Sine, Square, Ramp, Triangle, and Noise Waveforms, plus more
- External Modulation



Overview

The Model VM3640 is a high-performance VXIbus arbitrary waveform generator that is ideal for applications requiring standard function generator capability, or the need to generate customer-defined waveforms. Direct digital synthesis is used to provide outstanding functionality, with standard sine waves available to 20MHz, and square waves to 20MHz.

The most powerful feature of the VM3640 is that it is part of the VMIP™ family of VXIbus products. This gives the user the added flexibility of combining the VM3640 with two additional VM3640s, providing a multi-channel arbitrary waveform generator. The VM3640 can also be combined with other instruments, such as digital multimeters or counters, to create a multi-function, C-size card.

Performance

Standard built-in waveforms are provided that include sine, square, triangle, ramp, noise, sine(x)/x, exponential rise/fall, and cardiac and up to 120k points of memory is available per unit for user-defined waveforms. The VM3640 is designed for multiple channel applications and three VM3640s can be internally locked for synchronous operation. If a high-stability clock source is required, this can be fed into the VXIbus chassis through the slot 0 controller, allowing the VM3640s to be locked to this.

Any of the VXIbus TTL trigger lines or a front panel trigger can be used to trigger the VM3640, allowing it to loop through the waveform memory.

Programming

The VM3640 is programmed using message-based word serial protocol. The commands are SCPI and IEEE-STD-488.2 compatible. VXI*plug&play* drivers are also provided to further ease programming. For faster data access the VM3640 also supports pseudo-register access.

Calibration

The calibration constants used to correct the data values are stored in nonvolatile memory, and are password protected for security. These constants are determined when the instrument is calibrated and can be changed as necessary (such as during routine calibration cycles). The constants may also be queried at any time via a word serial query and altered via a word serial command (if the password is known). All calibration is done using calibration DACs to adjust the gain and offset of each channel. This eliminates the need for removing covers from the unit and allows for automated calibration.

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VM3640

50 MSa/s Arbitrary Waveform Generator (VMIP™)

Specifications

Waveforms

Standard Functions: Sine, square, triangle, noise, pulse, sinc, cardiac, DC, positive and negative ramp, exponential rise and fall

Length (standard patterns): 4k (4096) samples

Length (user patterns): 8 to 16k samples

Resolution: 12 bits (including sign)

Sample Rate: 50MSa/s

Frequency:

Sine: 0.1Hz to 20MHz. Total harmonic distortion on sinewave no greater than 0.5%.

Square: 0.1Hz to 20MHz. Rise/Fall time of square wave no greater than 20ns with maximum aberrations less than 5%

All other Waveforms: 0.1Hz to 1MHz

Resolution: 8 digits limited by 0.1Hz for sine and square waves. 5 digits for all other waveforms.

Accuracy: Same as VXI CLK10 (±0.01% typical); can be improved by using an external reference (VM3000)

Amplitude

Range:

DC Volts:	-6 V to +6V into 50 Ω -10V to +10V into >200 Ω
Pulsed DC:	-6 Vpk to +6 Vpk into 50 Ω
Sine/Square:	0.1Hz to 10 MHz: 10V pk-pk into 50 Ω 10 MHz to 20 MHz: 5V pk-pk into 50 Ω
All Other Waveforms:	10V pk-pk into 50Ω

Output Impedance: 50 Ω

Resolution: 3.5 digits

Accuracy: ±1%

Output Offset Range:

DC Volts:	-5 V to +5V, Offset + Amplitude cannot exceed +/-10V
Pulsed DC:	-5 V to +5V, Offset + (Amplitude/2) cannot exceed +/3.5V
Sine/Square:	0.1Hz to 10 MHz: -5 V to +5V, Offset + Amplitude cannot exceed 10V 10 MHz to 20 MHz: -5 V to +5V Offset + Amplitude cannot exceed 10V
All Other Waveforms:	-5 V to +5V, Offset + Amplitude cannot exceed 10V

Ordering Information

VM3640	Single-channel 50 MSa/s AWG (must be configured with a VM9000 host module)

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