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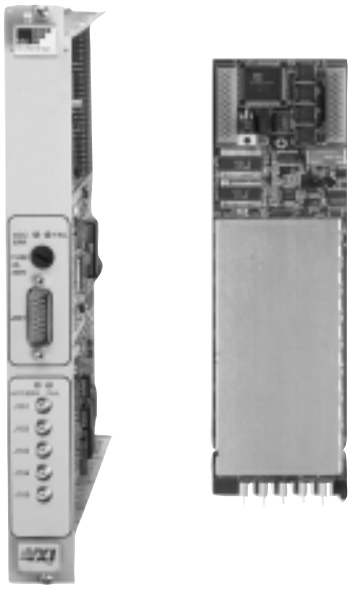
Find the *Ametek / VTI Instruments / VXI Technology VM2164* at our website: *Click HERE*

VM2164

200 MHz, 1nS Universal Counter (VMIP™)

VXI Technology™

- 200MHz Frequency Range for both A nd B Channels (2.5 GHz channel C optional)
- 1nS Time Interval Resolution (100 ps with Averaging)
- 9-digit Resolution in 1 Second Gate Time
- Greater than 200 Readings/Second Over the VXIbus
- Up to 32,000 On-board Readings with Direct Register Access for Fast Data Throughput
- Part of the VMIP™ Family, Combine With up to two other Instruments on a Single C-size Card (i.e. DMM/AWG)
- Built-in DVM, for Simple Voltage Measurement



Overview

The VM2164 is a high-performance system level universal counter, designed to outperform traditional rack-and-stack and other C-size VXIbus counters, but with a considerably smaller footprint. Being part of the VMIP™ family, the VM2164 can be combined with up to two other high-performance instruments on a single C-Size card.

A powerful combination for any automated test set is our single VXIbus module, VT2000 combining a 6.5 digit system DMM (VM2710A), 1nS universal counter (VM2164), and a 50 MSa/s arbitrary waveform/function generator (VM3640). Our single-slot timer/counter (VM2164) plus, Rubidium standard (VM3000) is another powerful combination.

Performance

For ATE applications, making high-speed precise measurements and passing these measurements back to the host controller is critical. The VM2164 allows over 200 readings per second over the backplane, while providing extensive arming and triggering capability, allowing the VM2164 to be easily synchronized to external events, or other measurement devices.

Add a built-in TCXO or OCXO time base option for improved measurement stability. A dual height VMIP™ module (VM3000) adds a precision Rubidium standard to the system providing an optimum high-stability timebase in a single slot VXI card.

To ease programming, the counter features industry standard SCPI command sets and VXI*plug&play* drivers, as well as a dozen built-in automatic measurement functions.

Features

Frequency	Frequency Frequency ratio Freq in Burst Burst Rep Rate Channel C
Period and Time	Period [Single] Period [Average] Pos Pulse Width Neg Pulse Width Rise Time Fall Time Time Interval Time Interval Avg
Phase	Phase

Voltage
Vdc
Vp-p
Vmax
Vmin

Totalize [Counts]
2nd Ch Start/Stop
2nd Ch Gate
Gated by Time
Ext Arm Strt/Stop
Ext Arm Gate
TTLT Start/Stop
TTLT Gate

Positive Duty Cycle
Negative Duty Cycle

BUILT-IN SOFTWARE FUNCTIONS

Auto-Set, Auto-level, Pulse Characterization, Period, Frequency, Pos Pulse Width, Neg Pulse Width, Pos Duty Cycle, Rise Time, Fall Time, Burst Characterization, Burst Frequency, Burst Rep Rate, Math [slope, a=mx+b], RPM [Revolutions per Minute], BIT [Built In Test], Clock Out On/Off – IN/OUT

MEASUREMENT STORAGE

[On Board]	
16K Measurements	Standard
32K Measurements	Extended

ARMING

Trigger Source	ChA, ChB, Ext, VXI TTLT
Trigger Slope	Positive, Negative
Trigger Level	
Arming Start Delay	Events / Timed
Hold Off	Timed
Burst Sync Delay	Timed

OSCILLATOR OPTIONS

No Oscillator		Use VXI 10MHz
TCXO		High Performance
	Aging	+/- $1x10^{-6}$/year
	Temp Stability	+/- $1x10^{-6}$ (0 to 50C)
	Adj Range	+/- $3x10^{-6}$ min.
OCXO		Ultra High Perf
	Aging	+/- $1x10^{-7}$/year
		+/- $1x10^{-9}$/day
	Temp Stability	+/- $1x10^{-7}$ (0 to 50C)
	Adj Range	+/- $4x10^{-7}$ min.
	Warm up time	< 3 min.
Rubidium (VM3000)		Atomic Oscillator
	Aging	+/- $5E^{-8}$/20 year
		+/- $3E^{-11}$/day
	Temp Stability	+/- $2E^{-10}$ (0 to 50C)
	Adj Range	+/- $2E^{-6}$ min.
	Warm up time	< 7.5 min to 1E-9

OPTIONAL CHANNEL C

2.5GHz Channel Input Card

FRONT PANEL CONNECTORS

Channel A Input, Channel B Input
Ext Arm Input, Gate/Edge
Ext Clock Input/Output
Channel C Input

Specifications

Frequency

Input A & B	500µHz to 200MHz 20Hz to 200MHz (AC)
Resolution	9 digits/s measuring time, max. 10 digits resolution
Input C	2.5 GHz

Period

Input A & B	5ns to 2000s
Resolution	1ns [single] 9 digits/s measuring time, max. 10 digits resolution [averaged]

Frequency Ratio

A/B & B/A	500µHz to 200MHz
C/B	70MHz to 2.5GHz

Time Interval

Range	2ns to 1e6s
Resolution	1ns

Positive/Negative Pulse Width

Range	5ns to 20ms
Resolution	1ns

Rise/Fall Time

Range	10ns to 1000s
Resolution	1ns

Phase

Range	0.00 to +360.00

Totalize

Range	0 to 10^{10} counts

Peak Voltage

Voltage	5.00v, 50.0v
Resolution	10mv, 100mv

DC Voltage

Voltage	5.00v, 50.0v
Resolution	10mv, 100mv
Input A and B	

Coupling DC or AC

Signal Operating Range
+50v (1M ohm, w/attn),
+5v (50 ohm)

Trigger Level Range +50v, +5.0v,
Resolution 25mV, 2.5mv

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VM2164

200 MHz, 1nS Universal Counter (VMIP™)

VXI Technology™

Trigger Sensitivity

+50V Range	200mVrms Sine wave (up to50MHz) 400mVrms sine wave (50MHz to 200MHz)
+5.0V Range	20mVrms (up to Range 50MHz) 40mVrms (50Mhz to 200MHz)

Auto Trigger

Level	Automatically set at 50% of the input signal's Vpp value.10% to 90% is used if measuring rise and fall times.
Trigger Hysteresis	Programmable
Impedance	50 Ω 1Meg Ω//20pf 1Meg Ω x10//20pf
Low Pass Filter	<50kHz

Maximum Input Voltage

1M Ω input	
<2kHz	240Vrms (DC + AC rms), decreasing linearly to +5V at 1KHz
>100kHz	+5V to 200MHz 1M Ω input x10 attn
50 Ω input	5.0 Vrms (DC + AC)

Crosstalk

100MHz @ 50 ohm	<36dB channel separation

External Arm Input

Coupling	DC only
Pulse Width	>50ns
Transition Time	<250ns
Voltage Range	TTL or ECL
Impedance	Approx. 1k ohm

TTL Trigger Bus Arming

Input	Any TTLT may be selected for arming, by edge or level (polarity is also programmable)
Output	Any TTLT may be selected to follow the measurement gate signal (polarity is programmable)

External Reference Input

Coupling	AC only
Frequency Range	10MHz
Voltage Range	500mVrms to 12vRms
Impedance	Approx. 1k ohm

External Reference Output

Coupling	AC only
Frequency Range	10MHz
Voltage Range	TTL/CMOS
Impedance	Approx. 50 ohm
Gate Time	Programmable from 200us to 99.999s

Note: The gate time may be extended by one period of the input signal on frequency A or B and Ratio A/B, B/A.

Ordering Information

VM2164	200 MHz timer/counter
Option 15	TCXO Oscillator
Option 16	OCXO Oscillator
Option 17	Channel C (2.5GHz)
VM3000	2-high VMIP™ Rubidium Oscillator
VT4101A	DMM/Counter designed to replace Tektronix VX4101A
VT2000	DMM/Counter/AWG Single Slot VXI Module

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