ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Keysight / Agilent E1428A* at our website: *Click HERE*

Agilent E1428A
1 GSa/s VXI Oscilloscope
Data Sheet

- **1-Slot, C-size, message based**
- **250 MHz bandwidth, 2 channels**
- **1 GSa/s maximum sample rate**
- **Fast throughput with 1 MB shared RAM**
- **Automatic pulse parameter measurements**
- **Recommended for transient signals**



Agilent E1428A

Description

The Agilent E1428A Digitizing Oscilloscope is a **C-size, 1-slot, message-based VXI module.** It has two channels with each channel containing an 8-bit A/D, and 8,000 point memory to simultaneously capture at up to 1 GSa/s. This preserves the timing correlation of both channels without a reduction in sample rate.

For fast capture of many waveforms, the E1428A offers sequential single-shot mode which internally stores successive waveforms rapidly. The memory can be optimized for acquisition speed or capacity. There are 100 K-words of internal RAM or 500 K-words of shared RAM for segment storage.

The E1428A comes with both the SCPI command set and an Agilent 54510A-compatible command set. The compatible language provides a use model where programs can be developed using the 54510A bench oscilloscope. Using the 54510A provides direct visual feedback to the programmer during program development. Once programs have been developed on the 54510A, they can be run on the E1428A with only minor modifications.

The SCPI language is available for users who are more familiar with SCPI. Not all of the complex triggering capabilities of the 54510A and E1428A are implemented in the SCPI language.

Refer to the Agilent Technologies Website for instrument driver availability and downloading instructions, as well as for recent product updates, if applicable.

E1428A Features

Built-in Automatic Test Features

The user can choose from a variety of powerful measurement features that are built into the E1428A, thus simplifying test program development and improving test times.

Nineteen automatic pulse parameter measurements are available in the box, freeing the controller from these calculations. These measurements conform to IEEE definitions. Maximum and minimum statistics on the values of these measurements are also accumulated.

The following measurements are made at user-defined thresholds or at the 10/90% or 50% voltage thresholds, as defined by IEEE Std 194-1977: rise time, fall time, frequency, period, +pulse width, –pulse width, duty cycle, delay, volts ampl, volts base, volts top, volts p-p, volts avg, volts max, overshoot, preshoot, volts min, Vac rms, Vdc rms.

GO/NO-GO testing is provided by another built-in feature: Measurement Limit Test lets the user set upper and lower limits on any of the module's automatic measurements. If limits are exceeded, the violating waveform and its data can be stored or transferred to the controller.

In addition to the measurement limit test for GO/NO-GO testing, the E1428A provides built-in waveform compare test. With this feature, *a live signal can be compared against a stored template.*

Agilent Technologies
Innovating the HP Way

STEP Dionysos Job: 210%XXX5714-0001 5965-5581E Comp: 04-28-00 Time: 12:05 OP: NN

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Shared RAM On Board Eliminates Bus Transfer Time

1 MB of shared RAM allows storage and retrieval of waveform data as well as direct access to that data by the VXI controller or other instrument modules. Since the controller operates directly on the data in shared RAM, bus transfer of waveforms can be eliminated. Up to 45 milliseconds of bus transfer time can be saved.

Choice of Two Command Sets

- SCPI Command Set—Based on the industry standard SCPI definitions for instrument programming.
- 54500-Compatible Command Set—Program the E1428A like the 54510B bench oscilloscopes.

Advanced Logic Trigger

Agilent's advanced logic triggering can be used to trigger on glitches as well as a wide variety of user specified conditions. You can trigger on edge, pattern, time-qualified trigger, state, or trigger-after-delay to capture such elusive events as timing violations or infrequent bus phenomena. Using the built-in TV trigger, you can select line and field for a variety of video waveforms. And you can use the E1428A's ability to send and receive VXI backplane triggers to combine the power of multiple VXI instruments.

Probes

The E1428A is compatible with the 54510B benchtop oscilloscope. Therefore, probes for the benchtop oscilloscope work with the VXI oscilloscope. Refer to the Agilent Test and Measurement catalog for probe ordering information.

E1428A Product Specifications

Specifications valid for temperature range ± 10 °C from software calibration temperature with eight or more averages selected.

Bandwidth (–3 dB), repetitive:	DC to 250 MHz
Bandwidth (–3 dB), single-shot:	DC to 250 MHz
Maximum sample rate:	1 GSa/s (simultaneously on both ch.)
Waveform record length:	8,000 points (real time) 500 points (repetitive)
Number of inputs:	2 simultaneous acquisition inputs, 1 external trigger input *(**Note:** E1428A has 2 acquisition inputs, both with 1 GSa/s A/D converters, so both repetitive and single-shot acquisitions are taken on both input channels simultaneously.)*
Output BNC(s):	Probe comp, Cal, Trigger out
Vertical sensitivity range:	8 mV to 40 V full scale
Vertical gain accuracy (DC):	± 1.25% of full scale
Vertical resolution:	± 0.4% (8 bit A/D) ± 0.1% (10 bits with averaging)
Input R (selectable):	1 MΩ or 50 Ω
Input C:	7 pF nominal
Input coupling:	AC, DC
Maximum input voltage:	1 MΩ: ± 250 V 50 Ω: 5 V rms
Offset accuracy:	± (1% of channel offset, + 2% of full scale)
Offset range:	Up to ± 250 V
Time base range:	10 ns to 50 s full scale
Delta-t accuracy, repetitive:	± (0.005% x delta-t + 2^{-6} x delay setting + 150 ps) for ≥8 averages
Delta-t accuracy, single-shot:	± (0.005% x delta-t + 2^{-6} x delay setting + 150 ps)
Time base resolution:	20 ps
Minimum trigger pulse width:	Internal: 1.75 ns External: 2.8 ns
VXI backplane triggering:	ECL
Number of instrument setups:	48
VXI shared memory, amount:	1 MB

STEP Dionysos Job: 210%XXX5715-0002 5965-5581E Comp: 04-28-00 Time: 12:05 OP: NN

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

General Specifications

VXI Characteristics

VXI device type: Message based
Size: C
Slots: 1
Connectors: P1/2
Shared memory: Yes
VXI busses: ECL Trigger Bus
C-size compatibility: n/a

Instrument Drivers

See the Agilent Technologies Website (http://www.agilent.com/find/inst_drivers) for driver availability and downloading.

Command module firmware: n/a
Command module firmware rev: n/a
I-SCPI Win 3.1: n/a
I-SCPI Series 700: n/a
C-SCPI LynxOS: n/a
C-SCPI Series 700: n/a
Panel Drivers: Yes
VXI*plug&play* Win Framework: Yes
VXI*plug&play* Win 95/NT Framework: Yes
VXI*plug&play* HP-UX Framework: No

Module Current

	I_{PM}	I_{DM}
+5 V:	1.93	0.09
+12 V:	0.8	0.08
–12 V:	0.09	0.01
+24 V:	0.03	0.01
–24 V:	0	0
–5.2 V	0	0
–2 V:	0	0

Cooling/Slot

Watts/slot: 30.00
ΔP mm H_2O: 0.30
Air Flow liter/s: 2.40

Ordering Information

Description	Product No.
1GSa/s Digitizing Oscilloscope	E1428A
3 Yr. Retn. to Agilent to 1 Yr. OnSite Warr.	E1428A W01
Oscilloscope User's Guide	E1428-97001

STEP Dionysos Job: 210%XXXX5716-0003 5965-5581E Comp: 04-28-00 Time: 12:06 OP: NN

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Related Literature

2000 Test System and VXI Catalog CD-ROM,
Agilent Pub. No. 5980-0308E (detailed specifications for VXI products)

2000 Test System and VXI Catalog,
Agilent Pub. No. 5980-0307E (overview of VXI products)

1998 Test System and VXI Products Data Book,
Agilent Pub. No. 5966-2812E

Online

Internet access for Agilent product information, services and support
www.agilent.com/find/tmdir

VXI product information
www.agilent.com/find/vxi

Defense Electronics Applications
www.agilent.com/find/defense_ATE

Agilent Technologies VXI Channel Partners
www.agilent.com/find/vxichanpart

Agilent Technologies' HP VEE Application Website
www.agilent.com/find/vee

Agilent Technologies Data Acquisition and Control Website
www.agilent.com/find/data_acq

Agilent Technologies Instrument Driver Downloads
www.agilent.com/find/inst_drivers

Agilent Technologies Electronics Manufacturing Test Solutions
www.agilent.com/go/manufacturing

Get assistance with all your test and measurement needs at
www.agilent.com/find/assist
or check your local phone book for the Agilent office near you.

Agilent Technologies' test and measurement service/support commitment

Agilent strives to maximize the value our test and measurement products give you, while minimizing your risk and service/support problems. We work to ensure that each product is realistically described in the literature, meets its stated performance and functionality, has a clearly stated global warranty, and is supported at least five years beyond its production life. Our extensive self-help tools include many online resources (www.agilent.com).

Experienced Agilent test engineers throughout the world offer practical recommendations for product evaluation and selection. After you purchase an Agilent product, they can provide no-charge assistance with operation verification and basic measurement setups for advertised capabilities. To enhance the features, performance, and flexibility of your test and measurement products—and to help you solve application challenges—Agilent offers free or extra-cost product options and upgrades, and sell expert engineering, calibration, and other consulting services.

Phone and fax
United States:
Agilent Technologies
(tel) 1 800 452 4844

Canada:
Agilent Technologies Canada Inc.
(tel) 1 877 894 4414

Europe:
Agilent Technologies
Test & Measurement
European Marketing Organisation
(tel) (31 20) 547 2000

Japan:
Agilent Technologies Japan Ltd.
(tel) (81) 426 56 7832
(fax) (81) 426 56 7840

Latin America:
Agilent Technologies
Latin American Region Headquarters, U.S.A.
(tel) (305) 267 4245
(fax) (305) 267 4286

Australia/New Zealand:
Agilent Technologies Australia Pty Ltd.
(tel) 1 800 629 485 (Australia)
(fax) (61 3) 9272 0749
(tel) 0 800 738 378 (New Zealand)
(fax) (64 4) 802 6881

Asia Pacific:
Agilent Technologies, Hong Kong
(tel) (852) 3197-7777
(fax) (852) 2506-9284

Data Subject to Change
© Agilent Technologies 2000
Printed in the U.S.A. 04/2000
Publication No.: 5965-5581E

Agilent Technologies
Innovating the HP Way

STEP Dionysos Job: 210%XXX5717-0004 5965-5581E Comp: 04-28-00 Time: 12:06 OP: NN

Artisan Technology Group - Quality Instrumentation ... Guaranteed | (888) 88-SOURCE | www.artisantg.com

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP