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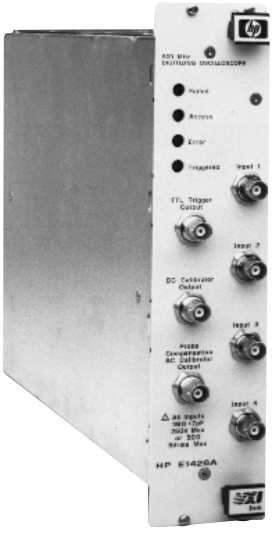
Find the *Keysight / Agilent E1426A* at our website: ***Click HERE***

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500 MHz, 4-Channel VXI Oscilloscope
HP E1426A
Technical Specifications

- **2-Slot, C-size, message based**
- **500 MHz bandwidth, 20 MSa/s digitizing rate**
- **64 KB shared RAM**
- **Automatic pulse parameter measurements**
- **Capture pre- or post-trigger events**
- **Recommended for repetitive signals**



HP E1426A

Description

The HP E1426A Digitizing Oscilloscope is a **C-size, 2-slot, message-based VXI module.** It has four channels of 500 MHz bandwidth combined with stable triggering and precise timebase circuitry to provide accurate measurements with 8 bits vertical resolution. Programmable attenuation settings provide sensitivities from 8 mV full scale to 40 V full scale.

This scope has random repetitive sampling, sometimes referred to as equivalent time sampling. With this technique, a high-speed track-and-hold circuit captures the signal voltage and holds it until the lower-speed A/D converter can digitize it. There are 64 Kbytes of shared RAM available for segment storage.

The HP E1426A comes with both the SCPI command set and an HP 54503A-compatible command set. The compatible language provides a use model where programs can be developed using the HP 54503A bench oscilloscope. Using the HP 54503A provides direct visual feedback to the programmer during program development. Once programs have been developed on the HP 54503A, they can be run on the HP E1426A 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 HP 54503A and HP E1426A are implemented in the SCPI language.

NOTICE: This product is targeted for discontinuance December 1, 1999 due to lifetime part issues.

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

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Random Repetitive Sampling

Sometimes referred to as equivalent time sampling, random repetitive sampling is a technique in which a high-speed track-and-hold circuit captures the signal voltage and holds it until the lower-speed A/D converter can digitize it. Acquisitions are repeated with many points captured on each trigger until the entire waveform is built up.

Due to the high-performance track-and-hold circuitry and precise crystal-controlled timebase, this architecture has the following advantages:

- Very high repetitive bandwidth: 500 MHz bandwidth on all four input channels
- Extremely fine time resolution: 20 ps timebase resolution
- Very accurate timebase: 0.005% time-base accuracy

The repetitive sampling technique requires that the input signal be repetitive, but it does not need to be periodic. Signals with extremely low duty cycles can be captured easily.

Very limited single-shot capability is available. The two A/D converters operating at up to a 20 MSa/s digitizing rate can capture two signals simultaneously. When capturing a 2 MHz signal, this guarantees capturing 10 points or more per period.

HP E1426A/E1428A Common Features

Built-in Automatic Test Features

The user can choose from a variety of powerful measurement features that are built into the HP E1426A and HP 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 HP E1428A provides built-in waveform compare test. With this feature, *a live signal can be compared against a stored template.*

Shared RAM On Board Eliminates Bus Transfer Time

Shared RAM (HP E1426A: 64 KB; HP E1428A: 1 MB) 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.
- HP 54500-Compatible Command Set—Program the HP E1426A like the HP 54503A, the HP E1428A like the HP 54510B bench oscilloscopes.

PC-based Scope Control and Data Connectivity

The HP 54551A ScopeView PC Software (distributed product[1]) lets you use your HP E1426A or HP E1428A as a bench scope without writing any software. It gives your VXI scope a full-featured front panel, along with a live color waveform display. ScopeView lets you copy displays as graphic images and waveform data files to a variety of software packages for documentation and analysis.

Developing a test system? ScopeView speeds your learning and software development process by letting you see and record the commands it uses to control your scope. And you can use it as a powerful diagnostic tool while integrating or troubleshooting your test system.

For free demo software, contact Decision-Science Applications Inc. at 719-593-5974, by fax at 719-593-5978, or by EMAIL at scopeview@dsai.com.

(1) The HP 54551A is designed and manufactured by Decision-Science Applications Inc. (DSA) and sold and distributed through Hewlett-Packard Company. HP has tested it and guarantees that the product meets published specifications. HP provides a one-year warranty for the product.

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Advanced Logic Trigger

Hewlett-Packard'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 HP E1426A's ability to send and receive VXI backplane triggers to combine the power of multiple VXI instruments.

Probes

The HP E1426A and HP E1428A are compatible with the HP 54503A and HP 54510B benchtop oscilloscopes, respectively. Therefore, probes for the benchtop oscilloscopes work with the VXI oscilloscopes. Refer to the HP Test and Measurement catalog for probe ordering information.

HP E1426A 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 500 MHz
Bandwidth (–3 dB), single-shot:	DC to 2 MHz ***Note:*** *For single-shot, the HP E1426A makes simultaneous acquisition on 2 channels, channels 1 and 4. For repetitive measurements, data is acquired alternatively by channels 1 and 4, then 2 and 3.)*
Maximum sample rate:	20 MSa/s
Waveform record length:	≤1,024 points repetitive (multiple triggers) 500 points for 20 µs or slower sweep (single trigger)
Number of inputs:	4 repetitive acquisition inputs
Output BNC(s):	Probe comp, Cal, Trig. 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:	± (0.5% of channel offset, + 2% of voltage range)
Offset range:	Up to ± 250 V
Time base range:	2 ns to 50 s full scale
Delta-t accuracy, repetitive:	± (0.2% x time base range, + 0.005% x delta-t + 150 ps)
Delta-t accuracy, single-shot:	n/a
Time base resolution:	20 ps
Minimum trigger pulse width:	1.5 ns
VXI backplane triggering:	ECL
Number of instrument setups:	4
VXI shared memory, amount:	64 KB

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General Specifications

VXI Characteristics

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

Instrument Drivers

See the HP Website (http://www.hp.com/go/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
HP Panel Drivers:	Yes
VXI*plug&play* Win Framework:	No
VXI*plug&play* Win 95/NT Framework:	No
VXI*plug&play* HP-UX Framework:	No

Module Current

	I_{PM}	I_{DM}
+5 V:	3.8	0.07
+12 V:	0.74	0.11
–12 V:	0.11	0.04
+24 V:	0.45	0.38
–24 V:	0	0
–5.2 V	0	0
–2 V:	0	0

Cooling/Slot

Watts/slot:	20.50
ΔP mm H_2O:	0.10
Air Flow liter/s:	2.00

Ordering Information

Description	Product No.
500 MHz, 4-Channel VXI Oscilloscope	HP E1426A
3 Yr. Retn. to HP to 1 Yr. OnSite Warr.	HP E1426A W01
UG-VXI Digitizing SCP English	HP E1426-97000
500MHZ Digitizing OSC HP E1426A Srvc Mn	HP E1426-90902
ScopeView PC Software	HP 54551A

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Related Literature

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

1999 Test System and VXI Products Catalog,
HP Pub. No. 5968-3698

Warranty

Standard Hewlett-Packard VXIbus hardware products are warranted against defects in materials and workmanship for a period of three years unless otherwise noted. HP software and firmware products that are designated by HP for use with a hardware product, when properly installed on that hardware product, are warranted not to fail to execute their programming instructions due to defects in materials and workmanship.

For a complete and detailed warranty statement please see the HP *Test System and VXI Products Data Book* or visit the HP Website at http://www.hp.com/go/vxi.

Website Directory

HP VXI Product Information
http://www.hp.com/go/vxi

HP VXI Channel Partners
http://www.hp.com/go/vxichanpart

HP VEE Application Website
http://www.hp.com/go/hpvee

Data Acquisition and Control Website
http://www.hp.com/go/data_acq

HP Instrument Driver Downloads
http://www.hp.com/go/inst_drivers

Electronics Manufacturing Test Solutions
http://www.hp.com/go/manufacturing

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For more information about Hewlett-Packard test & measurement products, applications, services, and for a current sales office listing, visit our website, *http://www.hp.com/go/tmdir.* **You can also contact one of the following centers and ask for a test & measurement sales representative.**

United States:
Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1 800 452 4844

Canada:
Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario L4W 5G1
(905) 206 4725

Europe:
Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547 9900

Japan:
Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192, Japan
Tel: (81) 426 56 7832
Fax: (81) 426 56 7840

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