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.
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.
General Specifications

VXI Characteristics

<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VXI device type:</td>
<td>Message based</td>
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<tr>
<td>Size:</td>
<td>C</td>
</tr>
<tr>
<td>Slots:</td>
<td>1</td>
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<tr>
<td>Connectors:</td>
<td>P1/2</td>
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<tr>
<td>Shared memory:</td>
<td>Yes</td>
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<tr>
<td>VXI busses:</td>
<td>ECL Trigger Bus</td>
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<tr>
<td>C-size compatibility:</td>
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Instrument Drivers

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

<table>
<thead>
<tr>
<th>Specification</th>
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<tr>
<td>Command module firmware:</td>
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<tr>
<td>Command module firmware rev:</td>
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<tr>
<td>I-SCPI Win 3.1:</td>
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<td>C-SCPI LynxOS:</td>
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<td>Panel Drivers:</td>
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<td>VXIplug&amp;play Win Framework:</td>
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<td>VXIplug&amp;play HP-UX Framework:</td>
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Module Current

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<th>I_{PM}</th>
<th>I_{TM}</th>
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<td>+12 V</td>
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<td>0.08</td>
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<tr>
<td>−12 V</td>
<td>0.09</td>
<td>0.01</td>
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<tr>
<td>+24 V</td>
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<tr>
<td>−24 V</td>
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<tr>
<td>−5.2 V</td>
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</tr>
<tr>
<td>−2 V</td>
<td>0</td>
<td>0</td>
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Cooling/Slot

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<td>ΔP mm H₂O:</td>
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<td>Air Flow liter/s:</td>
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Ordering Information

<table>
<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>1GSa/s Digitizing Oscilloscope</td>
<td>E1428A</td>
</tr>
<tr>
<td>3 Yr. Retn. to Agilent to 1 Yr. OnSite Warr.</td>
<td>E1428A W01</td>
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<tr>
<td>Oscilloscope User’s Guide</td>
<td>E1428-97001</td>
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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/vxicapart

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

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