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Summing Amplifier/DAC
HP E1446A

Technical Specifications

- **1-Slot, C-size, register based**
- **Drive 50 Ω loads with 20 Vp-p**
- **Sum two input signals**
- **Add dc offset with internal DAC**
- **Can function as a standalone power DAC**
- **Can act as servant to the HP E1445A**



HP E1446A

Description

The HP E1446A Summing Amplifier/DAC is a **C-size, 1-slot, register-based VXI module.** It has the output drive capability needed to drive 20 Vp-p into a 50-Ohm load and 40 Vp-p into high impedance. This allows selection of a low-power signal source such as the HP E1445A and boost its power output.

Two separate signals can easily be combined with the HP E1446A. Pre-amplifier attenuators provide independent level control prior to the summing node. The power output has a switchable 20-dB post attenuator to reduce the sum of the two inputs.

A precision 16-bit digital-to-analog converter provides programmable dc offsets and levels. The HP E1446A programs in the SCPI language by using the HP E1406A Command Module or the HP E1445A Arbitrary Function Generator. The command module is not required when used with the arbitrary function generator.

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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Product Specifications

Input

Number of inputs:	2
Input impedance:	50 Ω, 75 Ω, or 1 MΩ || 20 pF
Pre-attenuator on both input channels:	31 dB in 1 dB steps

Output

Number of outputs:	One single-ended power output and one differential (inverting and noninverting) output
Max gain into 50 Ω:	
Power output:	10
Differential output:	1
Max output level:	40 Vp-p into high impedance, 20 Vp-p into 50 Ω on single-ended output, ± 1 V on differential outputs
Output impedance:	50 Ω, 75 Ω, and low impedance on power output; 50 Ω, 75 Ω on differential output
DC accuracy:	± 1% of full scale
Full power bandwidth:	10 MHz
Small signal bandwidth:	15 MHz
Post-attenuator on power output channel:	0 or 20 dB
DAC resolution:	16 bits
DAC accuracy:	0.5% of full scale plus 0.7% of setting
Max current:	200 mA
DAC settling time:	15 µs to 0.03%

General Specifications

VXI Characteristics

VXI device type:	Register based
Size:	C
Slots:	1
Connectors:	P1/2
Shared memory:	n/a
VXI busses:	n/a
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:	Downloadable
Command module firmware rev:	A.06
I-SCPI Win 3.1:	Yes
I-SCPI Series 700:	Yes
C-SCPI LynxOS:	Yes
C-SCPI Series 700:	Yes
HP 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:	0.4	0.04
+12 V:	0.2	0.06
–12 V:	0.08	0.05
+24 V:	0.36	0.27
–24 V:	0.34	0.27
–5.2 V	0.22	0.04
–2 V:	0	0

Cooling/Slot

Watts/slot:	16.00
ΔP mm H_2O:	0.14
Air Flow liter/s:	1.28

Ordering Information

Description	Product No.
Summing Amplifier/DAC	HP E1446A
Service Manual	HP E1446A 0B3
3 yr Retn. to HP to 1 yr. OnSite Warr.	HP E1446A W01

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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:
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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:
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Measurement Assistance Center
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