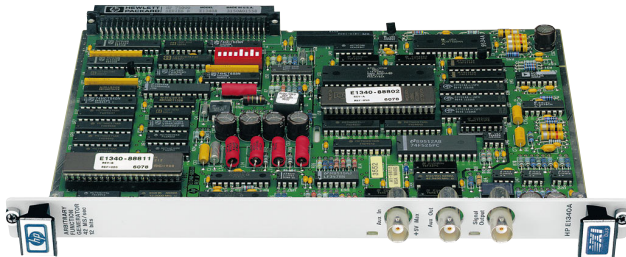

Arbitrary Function Generator, B-size HP E1340A

Technical Specifications

- 12-bit, 42 MSa/s
- 16 kSa RAM
- Full featured signal source
- Arb. & std. waveforms, sweep, FSK, waveform hopping
- Optional waveform software



Description

The HP E1340A Arbitrary Function Generator is a **B-size, 1-slot, register-based VXI module**. It has the performance and flexibility expected in higher-priced function generators. Arbitrary waveforms, standard waveforms, sweep, FSK, and waveform hopping are all included. The simple B-size architecture provides these features at a low price.

The E1340A option 005 Arbitrary Waveform Generation Software helps define amplitudes for every point—graphically and mathematically. The 12-bit DAC and the analog circuitry were designed to produce reliable signals. The sinewave flatness and total harmonic distortion are better than most function generators on the market. Many applications demand more than a simple function generator and more than a simple arbitrary waveform generator. The HP E1340A combines many of these features into a single product.

Refer to HP Website directory of addresses (URLs) for instrument driver availability and downloading instructions.

C-size Adapter

*This product may be adapted for use in a C-size mainframe.
See the HP E1403B Adapter.*

Specifications

Waveforms

Arbitrary waveform function:	Yes
Standard waveforms:	sine, square, ramp, triangle, sin(x)/x, noise, and haversine
Amplitude resolution:	12 bits
Sample rate:	92 MSa/s
Timebase:	42.9 MHz (50 ppm) or external
Waveform memory:	16 kSa segmentable in 4, 8, or 16 kSa
Number of waveforms in active memory:	4
Waveform looping (burst output mode):	1 to 65,534 cycles or continuous
Modulation:	FSK

Frequency/Rates

Maximum waveform frequency:	15 MHz sine, 1 MHz square, 1 MHz ramp/triangle
Square wave or pulse risetime:	25 ns typical
Jitter:	24 ns
Frequency sweep range:	0.01 Hz to 15 MHz (linear)
Sweep rate of change:	0.4 Hz/s to 2.6 MHz/s
Frequency shift (FSK) rate:	up to 3 kHz

Output

Resolution:	12 bits
Output impedance:	50 Ω $\pm$ 1%
Amplitude:	10.2 Vp-p max. into 50 Ω (20 Vp-p into 50 Ω using HP E1446A Amplifier/DAC)
Amplitude accuracy (DC):	$\pm$ (2.7% of full scale)
Offset range:	$\pm$ 5.11 V into 50 Ω
Attenuator:	
Fine resolution:	11 bits
Coarse attenuator:	0 or 20 dB
Amplitude accuracy (AC):	$\pm$ 0.43 dB
Sine total harmonic distortion:	

Frequency	+23 to -20 dBm*	10 dBm
1 - 100 kHz	-60 dB	-63 dB
0.1 - 1 MHz	-49 dB	-54 dB
1 - 10 MHz	-33 dB	-47 dB
10 - 15 MHz	-30 dB	-41 dB

***Max output 11 to 15 MHz: 20 dBm**

Sine nonharmonic distortion:

Frequency	Distortion
0 - 1 MHz	-65 dBc†
1 - 10 MHz	-43 dBc†
1 - 15 MHz	-34 dBc†

for -45 dBm, whichever is greater

Sine flatness:	0.2 dB to 10 MHz, 0.5 dB to 15 MHz, (over +23 dBm to -20 dBm, to 11 MHz, +20 dBm to -20 dBm > 11 MHz)
Monotonicity:	>9 bits
Differential nonlinearity:	5 LSB

Auxiliary Input/Output

Input:	external clock, burst, gate, waveform hop, FSK
Output:	internal clock, sweep marker, cycle marker, zero crossing

VXI Characteristics

VXI device type:	Register-based
Data transfer bus:	A16, D16 DTB Slave
Size:	B
Slots:	1
Connectors:	P1
Shared memory:	n/a
VXI busses:	n/a
C-size compatibility:	Yes

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 VEE Drivers:	Yes
VXIplug&play Win Framework:	No
VXIplug&play Win95/NT Framework:	No
VXIplug&play HP-UX Framework:	No (not available at time of publication)

Module Current

	I _{PM}	I _{DM}
+5 V:	1.2	0.01
+12 V:	0.6	0.15
-12 V:	0	0
+24 V:	0	0
-24 V:	0	0
-5.2 V:	0	0
-2 V:	0	0

Cooling/Slot

Watts/slot:	13.20
ΔP mm H ₂ O:	0.11
Air Flow liter/s:	1.06

Arbitrary Waveform Generation Software Option 005

The Arbitrary Waveform Generation Software allows you to generate nonstandard waveforms. Its friendly, menu-driven structure lets you use a mouse, a graphics tablet, a digitizer, and mathematical functions to describe your custom waveforms. It's easy and it saves you time!

Using the Series 300 graphics tablet, you can make free-form waveform drawings from a text book, or from a plot. This software captures your drawing and stores it in a file for you to review and modify. Or, you can use a mouse to draw a free-form waveform! Also, when using with HP digitizing oscilloscopes, you can acquire the initial waveform automatically with a simple connection via HP-IB. Standard mathematical functions are resident in the software for you to combine in any manner you see fit. Functions, such as sine, square, triangle, and noise, are available as menu choices. User-defined functions can also be programmed and displayed as a menu choice.

This software runs on the HP Series 300 computers using HP BASIC (NOT the Series 700), and is supported with the HP E1340A and E1445A Arbitrary Function Generators.

Arbitrary Waveform Generation Software Specifications

Input devices:	graphics tablet, mouse, digitizer (HP 54501/503/510, HP E1426A or HP E1428A)
Built-in functions:	sine, square, triangle, and noise
Supported waveform generators:	HP E1340A and E1445A
File compatibility:	Compatible with files for the HP 3245A, HP 34521A, and HP 5182A
Computer requirements:	HP 9000 Series 300 running HP BASIC 5.0 or greater with 1.5 MB RAM, HP BASIC/UX 5.52, or HP Measurement Coprocessor with 1.5 MB RAM for a Personal Computer.

Ordering Information

Description	Product No.
Arbitrary Function Generator, B-size	HP E1340A
Software for editing arbitrary waveforms	HP E1340A 005
Service manual	HP E1340A 0B3
3 yr retn. to HP to 1 yr. OnSite warr.	HP E1340A W01

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