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HP 8991A

DESIGNED FOR HP-IB SYSTEMS

HP Instrument Drivers



HP 84815A

HP 84814A

HP 84813A

HP 84812A

HP 8990A and HP 8991A Peak Power Analyzers and HP 8992A Digital Video Power Analyzer

Complete Pulse Power Characterization

The HP 8990A and HP 8991A peak power analyzers provide complete and accurate characterization of today's complex pulsed signals. They are capable of performing seven automatic timing measurements (rise time, fall time, pulse width, PRI, PRF, duty cycle, and delay) and five automatic power measurements (peak power, average power, pulse top/base amplitude, and overshoot) with pushbutton ease. Front-panel operation is intuitive and straightforward. Data entries can be typed in or made with the front-panel knob; automatic measurements are made with simple keystrokes.

The HP 8990A and 8991A offer two sensor channels plus two external triggering/oscilloscope channels, allowing the simultaneous measurement of modulating signals and detected power envelopes. Powerful measurement and display routines put you in control of your most demanding pulse applications. Measurement statistics, high-speed/high-sensitivity triggering, amplitude and time markers, dual-timebase windowing, measurement limit test, waveform storage, and waveform math are some of the new capabilities featured in the HP 8990A and 8991A.

The HP 8990A is optimized for linear display applications, and better rise/fall times than the HP 8991A. The HP 8991A is optimized for log display applications, providing higher resolution power measurements and improved power accuracy (when used with the HP 84815A sensor) than the HP 8990A. In addition, the HP 8991A is priced significantly less than the HP 8990A.

The peak power analyzers are compatible with the HP 84812/13A/14A/15A peak power sensors. These sensors give you outstanding measurement accuracy in demanding situations and include automatic temperature sensing and correction. The HP 8992 digital video power analyzer is very important for digital transmission applications. The HP 8992A's ability to characterize random peak power events make it possible to monitor receiver headroom and digital modulation quality.

HP 8990A, 8991A, and 8992A Specifications

Sensor Inputs (Channels 1 and 4)

Frequency Range: 20 MHz to 40 GHz, sensor dependent

	HP 8990A			HP 8991A/92A	
Power measurement range	–32 to +20 dBm			–33 to +20 dBm	
Rise/fall time	**Power dBm**	**Video BW**	**Tr/Tf**	**Video BW**	**Tr/Tf**
	0 to +20	150 MHz	<5 ns	High	<10 ns
	–16 to 0	150 MHz	<6 ns	Low	<1 µs
	–26 to –16	500 kHz	<1 µs	CW	<100 µs
	–32 to –26	8 kHz	<80 µs		
(Note: Rise/fall times limited to <45 ns with HP 84815 sensor)					
Instrumentation uncertainty (including noise and offset)	±(3.5% +(0.07 µW/signal power) x 100%)			±(0.07+1/(signal power in dBm+26)) dB (high bandwidth) ±(0.07+1.3/(signal power in dBm +33)) dB (low, CW bandwidth) ±0.07 dB, –15 to +20 dBm (using HP 84815A sensor and 50 MHz, 0 dBm reference source)	

Max. Pulse Repetition Rate: 100 MHz externally triggered, 1 MHz internally triggered

Video Inputs (Channels 2 and 3)

Bandwidth: dc-coupled: dc to 100 MHz (repetitive); dc to 1 MHz (single shot). ac-coupled: 10 Hz to 100 MHz (repetitive); 10 Hz to 1 MHz (single shot).
Rise Time: <5 ns (HP 8990A) <10 ns (HP 8991A)
Vertical Sensitivity: 100 mV/div to 500 mV/div
Vertical Gain Accuracy: ±1.5%
Available Offset Range: ±20 Vdc, ±10 Vac

Time Base

Range: 2 ns/div to 5 s/div in 1-2-5 sequence
Resolution: 100 ps
Accuracy: 0.005%

General Characteristics

Power Requirements: Voltage: 90 to 132 or 198 to 264 Vac; 48 to 66 Hz. Power: 250 VA max
HP-IB Codes: SH1, AH1, T5, L4, SR1, RL1, PP1, DC1, DT1, C0, E2
Size: 422 mm W x 194 mm H x 366 mm D (16.62 in x 7.65 in x 14.4 in)
Weight: Net, 12.8 kg (28 lb); shipping, 20.1 kg (44 lb)

HP 84812A/13A/14A/15A Specifications:

Frequency Range: HP 84812A: 500 MHz to 18 GHz
HP 84813A: 500 MHz to 26.5 GHz
HP 84814A: 500 MHz to 40 GHz
HP 84815A: 20 MHz to 18 GHz

Power Range: See table

Sensor Input SWR (reflection coefficient):
50 MHz to 18 GHz: 1.25 (0.11)
6 to 18 GHz: 1.30 (0.13) (HP 84815A only)
18 GHz to 26.5 GHz: 1.35 (0.15)
26.5 GHz to 40 GHz: 1.60 (0.23)

Sensor Calibration Uncertainty:

Frequency	RSS uncertainty
< 4 GHz	±3.6%
<12 GHz	±3.8%
<18 GHz	±4.3%
<26.5 GHz	±5.5%
<40 GHz	±6.5%

Connector Type: HP 84812A, HP 84815A: Type-N (m)
HP 84813A: APC-3.5 mm (m)
HP 84814A: 2.4 mm (m)

General Characteristics

Size: HP 84812A, HP 84815A: 37 mm W x 27 mm H x 137 mm D (1.45 in x 1.05 in x 5.4 in)
HP 84813A, HP 84814A: 37 mm W x 27 mm H x 127 mm D (1.45 in x 1.05 in x 5.0 in)
Weight: Net, 0.29 kg (0.64 lb); shipping, 0.64 kg (1.4 lb)

Ordering Information

	Price
HP 8990A Peak Power Analyzer	$16,600
Opt 001 Deletes Channel 4	–$3,000
Opt W30 Extended Repair Service (see page 592)	+$390
HP 8991A Peak Power Analyzer	$13,750
HP 8992A Digital Video Power Analyzer	$14,550
Opt 001 Deletes Channel 4	–$4,500
Opt W30 Extended Repair Service	+$355
HP 84812A Peak Power Sensor	$1,720
Opt W30 Extended Repair Service (see page 592)	+$45
HP 84813A Peak Power Sensor	$1,975
Opt W30 Extended Repair Service (see page 592)	+$45
HP 84814A Peak Power Sensor	$2,655
Opt W30 Extended Repair Service (see page 592)	+$50
HP 84815A Peak Power Sensor	$1,820
Opt W30 Extended Repair Service (see page 592)	+$45

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