



HP 83712A



## HP 83711A Synthesized CW Generator and HP 83712A Synthesized CW Generator

The HP 83711/12A Synthesized CW Generators are ideal for local oscillator and exciter applications. High output power and exceptional signal purity are combined with broad frequency coverage in these low-cost, performance-packed synthesizers. Light weight and excellent reliability make these units well suited for all applications including field maintenance.

### Clean Signals with Plenty of Power

Choose the HP 83711A, 1 to 20 GHz, or the HP 83712A, 10 MHz to 20 GHz, for your applications that demand wide output dynamic range and stringent spectral purity. Fundamental oscillators and switched low-pass filters deliver  $< -55$  dBc harmonics, eliminate subharmonics, and suppress spurious to  $< -60$  dBc. The HP 83711/12A provide plenty of output power (typically  $> +14$  dBm), while spectral purity is maintained even at high power levels (typical output power at frequencies below 1 GHz is  $+20$  dBm). The HP 83711/12A deliver  $> 100$  dB dynamic range. Level resolution is 0.01 dB with typical accuracy of  $\pm 1.0$  dB at any frequency or power level. User Level Correction simplifies generating accurate, leveled power at distant test ports.

### Versatile and Reliable

The HP 83711/12A are the recommended local oscillators for the HP 8970B noise figure meter. Low broadband noise minimizes errors in measurements of low gain devices. Use the HP 83711/12A with the HP 83550 Series millimeter wave modules to generate signals to 110 GHz.

All front panel functions are completely HP-IB programmable and SCPI compatible.

The HP 83711/12A are designed to remain within factory specifications for the entire life of the instrument. The recommended two-year performance verification cycle minimizes downtime and cost of ownership. If a unit ever drifts, automated adjustment routines can be run to return the unit to factory performance in  $< 6$  hours. Extensive use of surface mount technology and a minimum number of adjustments combine to deliver an estimated MTBF of  $> 20,000$  hours. Built-in functional verification routines speed servicing.

### HP 83711/12A Specifications

(For complete specifications see HP 83711/12A technical data sheet, HP p/n 5091-5152E)

#### Frequency Characteristics

**Frequency range:** HP 83711A 1 to 20 GHz  
HP 83712A 0.01 to 20 GHz  
**Frequency resolution:** 1 kHz standard, 1 Hz with Opt 1E8

#### Output Characteristics

**Output power (with Opt 1E1):**  
0.01 to 1 GHz  $+13$  dBm  
1 to 18 GHz  $+10$  dBm  
18 to 20 GHz  $+8$  dBm

For typical output power plot, see page 419.

**Resolution:** 0.01 dB

**Accuracy:**  $\pm 2.3$  dB 10 MHz to 50 MHz  
 $\pm 2$  dB 50 MHz to 20 GHz, at any power level temperature

**Flatness:**  $\pm 0.5$  dB

#### Spectral Purity

**Harmonics:**  $< -50$  dBc

**Sub-harmonics:** None

**Spurious:** ( $> 3$  kHz)  $-60$  dBc

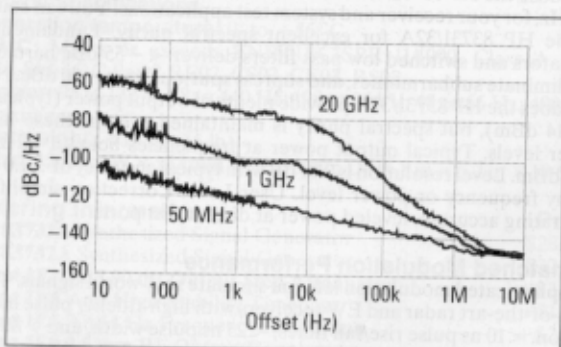
**Phase noise (@ 10 kHz offset):**

500 MHz  $-103$  dBc/Hz

2 GHz  $-91$  dBc/Hz

18 GHz  $-73$  dBc/Hz

(Phase noise decreases 6 dB/octave below 500 MHz and reaches a floor of  $-140$  dBc/Hz)



Typical single-sideband phase noise at 50 MHz, 1 GHz and 20 GHz, 25° C, CW mode. Offsets less than 100 Hz require the high stability timebase, Option 1E5.

### General Specifications

**Operating Temperature Range:** 0° to +55° C

**Size:** 426 mm W  $\times$  133 mm H  $\times$  498 mm D (16.8 in  $\times$  5.2 in  $\times$  19.6 in)

**Weight:**  $< 16$  kg (35 lb)

**Power:** 90 to 132 V, 48 to 440 Hz; 198 to 264 V, 48 to 66 Hz; 400 VA max

**EMC:** Meets or exceeds EN55011/CISPR 11/1990, Class A and Mil-Std-461C Part 2 RE02, CE03, CS02, RS03

### Ordering Information

	<b>Price</b>
<b>HP 83711A</b> Synthesized CW Generator	\$21,000
<b>HP 83712A</b> Synthesized CW Generator	\$25,000
<b>Opt 1E1</b> Add 90 dB Output Step Attenuator	+ \$2,000
<b>Opt 1E5</b> Add High-Stability Timebase	+ \$1,500
<b>Opt 1E8</b> 1 Hz Frequency Resolution	+ \$2,000
<b>Opt 0B2</b> Extra Operating Manual	+ \$100
<b>Opt 0B3</b> Service Manuals	+ \$100
<b>Opt 1CM</b> Rack Mount Kit (HP p/n 5062-3977)	+ \$65
<b>Opt 1CP</b> Rack Mount and Handle Kit (HP p/n 5062-3983)	+ \$100
<b>Opt 1CR</b> Rack Slide Kit (HP p/n 1494-0059)	+ \$35
<b>Opt W30</b> Two Additional Years Return-to-HP Service	Call HP