

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

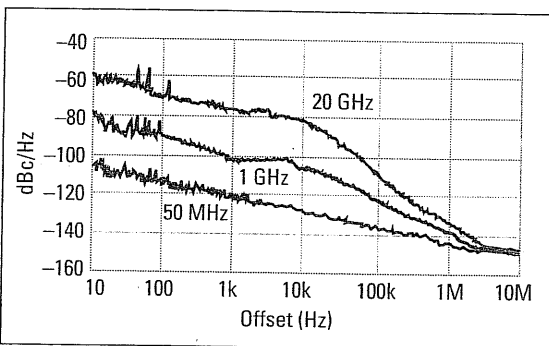
Phase noise (@ 10 kHz offset):

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 x 133 mm H x 498 mm D (16.8 in x 5.2 in x 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

HP 83711A Synthesized CW Generator

HP 83712A Synthesized CW Generator

Opt 1E1 Add 90 dB Output Step Attenuator

Opt 1E5 Add High-Stability Timebase

Opt 1E8 1 Hz Frequency Resolution

Opt 0B2 Extra Operating Manual

Opt 0B3 Service Manuals

Opt 1CM Rack Mount Kit (HP p/n 5062-3977)

Opt 1CP Rack Mount and Handle Kit

(HP p/n 5062-3983)

Opt 1CR Rack Slide Kit (HP p/n 1494-0059)

Opt W30 Two Additional Years Return-to-

HP Service

#### Price

\$21,000

\$25,000

+ \$2,000

+ \$1,500

+ \$2,000

+ \$100

+ \$100

+ \$65

+ \$100

+ \$35

Call HP