HP 83712A

DESIGNED FOR HP-IB SYSTEMS

HP Instrument Drivers

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 ±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 < six 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

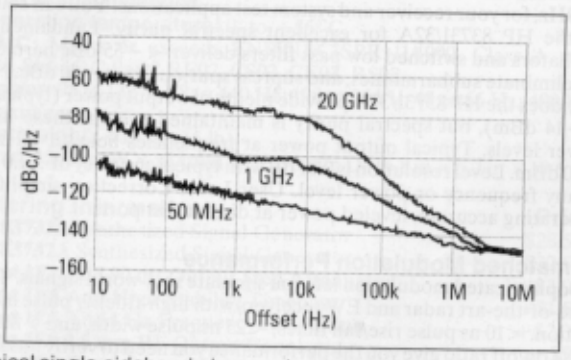
For typical output power plot, see page 419.

Resolution: 0.01 dB
Accuracy: ±2.3 dB 10 MHz to 50 MHz
±2 dB 50 MHz to 20 GHz, at any power level temperature
Flatness: ±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 × 133 mm H × 498 mm D (16.8 in × 5.2 in × 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

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