KEYSIGHT TECHNOLOGIES (AGILENT HP)

83624B

The Keysight (Agilent HP) 83624B is a high-power synthesized sweep signal generator operating from 2.0 to 20 GHz. It combines the high resolution and accuracy of a synthesized source with the speed and versatility of a classic sweep oscillator, making it ideal for demanding microwave test applications.

SPECIFICATIONS

General

Interfaces	GPIB (HP-IB)
Display	Vacuum Fluorescent Display (VFD)

Physical

Power Supply	90 to 132 VAC (48 to 440 Hz), 198 to 264 VAC (48 to 66 Hz), 400 VA maximum
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm W × 178 mm H × 648 mm D mm

Frequency Specifications

Frequency Range	2.0 to 20 GHz
Frequency Resolution (Standard)	1 kHz
Frequency Resolution (Option 008)	1 Hz
External Reference Input Frequency	10 MHz
External Reference Input Level	0 dBm nominal
External Reference Output Frequency	10 MHz
External Reference Output Level	0 dBm nominal

Sweep Characteristics

Sweep Modes	Step, List, Analog
Step Sweep Dwell Time Range	1 ms to 10 s
Number of Sweep Points	2 to 801 (Step Sweep), 1 to 801 (List Sweep)
Analog Sweep Time Range	10 ms to 100 s
Sweep Trigger Sources	External, GPIB, Internal, Line

Output Power

Maximum Leveled Output Power	+20 dBm
Minimum Leveled Output Power (Standard)	-20 dBm
Minimum Leveled Output Power (Option 001)	-110 dBm
Power Resolution	0.02 dB

Spectral Purity

Harmonics (2.0 to 20 GHz)	<-25 dBc
SSB Phase Noise (10 GHz, 10 kHz offset)	<-80 dBc/Hz

Modulation - Pulse

Pulse Modulation On/Off Ratio	>80 dB
Pulse Rise/Fall Times	<10 ns (typical)

Modulation - Amplitude and Frequency (AM/FM)

AM Depth Range	0 to 90%
FM Maximum Deviation (AC-coupled)	±8 MHz

Inputs and Outputs

RF Output Connector Type	3.5 mm male
Sweep Output Voltage Range	0 to 10 V
External ALC Input Voltage Range	±1 V nominal

System Control and Connectivity

Command Emulation Languages	SCPI, HP 8340/41

Environmental and Physical

Storage Temperature Range	-40 to +75 °C
Operating Altitude	Up to 4,600 meters
Relative Humidity	5% to 95% (non-condensing)

Physical Dimensions

Shipping Weight	36 kg

Signal Purity

Non-Harmonic Spurious (2.0 to 20 GHz)	< -50 dBc
SSB Phase Noise (10 GHz, 100 Hz offset)	-70 dBc/Hz
SSB Phase Noise (10 GHz, 1 kHz offset)	-70 dBc/Hz
SSB Phase Noise (10 GHz, 100 kHz offset)	-103 dBc/Hz
SSB Phase Noise (10 GHz, 1 MHz offset)	-130 dBc/Hz

Output Power & Leveling

Output Flatness	±0.7 dB
Level Accuracy	±0.9 dB
RF Output Impedance	50 Ω (nominal)
Output SWR (2.0 to 20 GHz)	< 2.0 (typical)
Power Sweep Range	15 dB

Performance

Frequency Switching Time (Standard)	< 70 ms (without step attenuator)
Frequency Switching Time (Option 006)	< 15 ms (without step attenuator)

Frequency Stability

Internal Timebase Aging Rate	< 1 × 10^-10 / day
Internal Timebase Temperature Stability	< 2 × 10^-10 / °C

Modulation

AM Bandwidth (3 dB)	DC to 250 kHz (DC-coupled) / 10 Hz to 250 kHz (AC-coupled)
AM Sensitivity	100%/V
FM Bandwidth (3 dB)	DC to 8 MHz (DC-coupled) / 100 Hz to 8 MHz (AC-coupled)
FM Sensitivity	100 kHz/V, 1 MHz/V, or 10 MHz/V (selectable)
Phase Modulation (ΦM) Bandwidth (3 dB)	DC to 100 kHz
Phase Modulation (ΦM) Maximum Deviation	16 rad (2.0 to 20 GHz)
Phase Modulation (ΦM) Sensitivity	1 rad/V or 10 rad/V (selectable)
Pulse Modulation Delay (ALC Off)	130 ns (typical 100 ns)
Pulse Modulation Delay (ALC On)	10 µs (typical)

Power & Electrical

Maximum Power Consumption	400 VA

Option 001 Step Attenuator

Option 001 Attenuator Range	110 dB
Option 001 Attenuator Step Size	10 dB
Maximum Leveled Output Power (Option 001)	+18 dBm

Option 002 Internal Modulation Generator

Option 002 Waveforms	Sine, square, triangle, ramp, noise
Option 002 Sine Frequency Range	1 Hz to 1 MHz
Option 002 Non-sine Frequency Range	1 Hz to 100 kHz (square, triangle, ramp)
Option 002 Frequency Resolution	1 Hz

Modulation Inputs

External Pulse Input Impedance	50 Ω (nominal)
External AM Input Impedance	600 Ω (nominal)
External FM Input Impedance	600 Ω (nominal)
External Phase Modulation (ΦM) Input Impedance	600 Ω (nominal)

Pulse Modulation

Minimum Pulse Width (ALC On)	1 µs
Pulse Repetition Frequency (PRF) Range (ALC Off)	DC to 3 MHz
Pulse Repetition Frequency (PRF) Range (ALC On)	10 Hz to 3 MHz
Pulse Modulation Overshoot	< 10% (typical)

Inputs & Outputs

External Reference Input Impedance	50 Ω (nominal)
External Reference Output Impedance	50 Ω (nominal)

Compliance

EMC Compliance	Conducted and radiated emissions comply with EN 55011 Class A and CISPR 11 Class A

TECHNOLOGY

Indirect synthesis

APPLICATIONS

Broadband microwave signal generation, component characterization, and radar receiver testing.