

KEYSIGHT TECHNOLOGIES (AGILENT HP)

83751A

The Keysight (Agilent/HP) 83751A is a synthesized sweeper designed for high-performance component testing. It operates from 2.0 GHz to 20.0 GHz, offering fully phase-locked analog, stepped, and ramp sweep modes to provide superior frequency accuracy, stability, and speed.

SPECIFICATIONS

General

Interfaces	GPIB (IEEE-488.2)
Display	Vacuum Fluorescent Display (VFD)
Command Set	SCPI
EMC Compliance	Complies with CISPR 11, Class A and EN 55011, Class A

Physical

Power Supply	90 to 132 VAC or 198 to 264 VAC, 48 to 66 Hz, 250 VA max
Operating Temperature	0 to 55 °C °C
Dimensions (W×H×D)	425 mm × 133 mm × 498 mm mm
Weight	16 kg kg

Frequency Characteristics

Frequency Range	2.0 GHz to 20.0 GHz
Frequency Resolution (Standard)	1 kHz
Frequency Resolution (with Option 1E8)	1 Hz
Frequency Accuracy (CW Mode)	± (frequency × (aging rate + temperature stability))
Standard Time Base Aging Rate	$\pm 2.0 \times 10^{-6}$ / year
Standard Time Base Temperature Stability	$\pm 1.0 \times 10^{-6}$ over 0 °C to 55 °C
High Stability Time Base Aging Rate (Option 1D5)	$\pm 5.0 \times 10^{-10}$ / day

RF Output Characteristics

Maximum Leveled Output Power	+10 dBm
Minimum Leveled Output Power (Standard)	-15 dBm
Minimum Leveled Output Power (with Option 1E1)	-85 dBm
Output Power Resolution	0.01 dB
Power Level Flatness	± 0.6 dB
Output Impedance	50 ohms nominal
Source SWR	< 2.0:1

Spectral Purity

Harmonics (2.0 to 20.0 GHz)	<-30 dBc
Non-harmonic Spurious	<-50 dBc
SSB Phase Noise (10 kHz offset, 10 GHz carrier)	<-75 dBc/Hz

Sweep Capabilities

Sweep Modes	Continuous Analog (Ramp) Sweep, Stepped Sweep, CW
Analog Sweep Time Range	10 ms to 100 s
Step Sweep Time Range	1 ms to 100 s per step
Number of Frequency Markers	5
Sweep Output Voltage	0 V to 10 V ramp

Modulation Capabilities

Pulse Modulation On/Off Ratio	> 80 dB
Pulse Modulation Rise/Fall Time	< 10 ns

Input & Output Ports

RF Output Connector (Standard)	3.5 mm female
External ALC Input Connector	BNC female
10 MHz Reference Input	BNC female, 0 to +10 dBm nominal
10 MHz Reference Output	BNC female, +3 dBm nominal
Sweep Output Connector	BNC female
Stop Sweep Input/Output	BNC female
Z-Axis Blanking Output	BNC female

Control & Programmability

Programming Languages	SCPI, HP 8350B Emulation Mode
-----------------------	-------------------------------

Physical & Environmental

Storage Temperature Range	-40 °C to +75 °C
Operating Humidity Range	5% to 95% relative humidity (non-condensing)

Available Options & Configurations

Option 1D5	High Stability Time Base
Option 1E1	70 dB Step Attenuator
Option 1E8	1 Hz Frequency Resolution
Option 1ED	Type-N Female RF Output Connector
Option 1EE	Rear Panel RF Output Configuration

Modulation

External AM Input Impedance	600 Ω
External AM Sensitivity	100% / V
External AM 3 dB Bandwidth (DC-coupled)	DC to 100 kHz
External AM 3 dB Bandwidth (AC-coupled)	100 Hz to 100 kHz
External FM Input Impedance	600 Ω
External FM 3 dB Bandwidth (DC-coupled)	DC to 10 MHz
External FM 3 dB Bandwidth (AC-coupled)	10 kHz to 10 MHz
External FM Sensitivity	100 kHz/V, 1 MHz/V, or 10 MHz/V (selectable)
External FM Maximum Deviation	± 10 MHz
Pulse Input Impedance	50 Ω
Pulse Input Level	TTL compatible (>2.0 V high, <0.8 V low)
Pulse Modulation Minimum Pulse Width (Unleveled)	< 100 ns
Pulse Modulation Minimum Pulse Width (Leveled)	< 2 μ s

Inputs & Outputs

External AM Input Connector	BNC female (front panel)
External FM Input Connector	BNC female (front panel)
Pulse Modulation Input Connector	BNC female (front panel)
External Trigger Input Connector	BNC female (rear panel)
External Trigger Output Connector	BNC female (rear panel)

Power Supply

AC Power Frequency	48 to 440 Hz (90 to 132 Vac) / 48 to 66 Hz (198 to 264 Vac)
Power Consumption (Maximum)	250 VA

Power

Slope Compensation Range	0 to 2 dB/GHz
Slope Compensation Resolution	0.01 dB/GHz
Power Sweep Range	-15 dBm to maximum leveled power (standard) / -85 dBm to maximum leveled power (with Option 1E1)
User Flatness Correction Points	Up to 1601 points

Sweep

Step Sweep Points Range	2 to 1601 points
-------------------------	------------------

Frequency

High Stability Time Base Temperature Stability (Option 1D5)	< $\pm 1 \times 10^{-8}$ (0 °C to 55 °C)
---	--

Power Requirements

Line Voltage	90 to 132 Vac (48 to 440 Hz) / 198 to 264 Vac (48 to 66 Hz)
--------------	---

Environmental

Operating Altitude	Up to 4,570 m (15,000 ft)
Non-Operating Altitude	Up to 15,240 m (50,000 ft)
Acoustic Noise	< 5.5 Bels

Interfaces

GPIO Default Address	19
----------------------	----

TECHNOLOGY

Synthesized Sweep Signal Generator

APPLICATIONS

RF and Microwave Component Testing, Scalar Network Analysis, Mixer Testing

Generated by SpecAtlasHub (specatlashub.com). Specifications are compiled from available sources and are subject to change — verify critical values against the manufacturer before purchase.