

ROHDE & SCHWARZ

SMJ100A

The Rohde & Schwarz SMJ100A is a versatile vector signal generator designed to meet the rigorous demands of modern RF research, development, and production. It features a wide RF bandwidth of 200 MHz, outstanding signal quality with exceptionally low SSB phase noise and broadband noise, and an advanced internal baseband generator capable of up to 80 MHz bandwidth and 64 MSamples arbitrary waveform memory. Its electronic attenuator spans the entire level range up to 6 GHz, ensuring ultra-fast frequency and level setting times under 5 ms.

SPECIFICATIONS

Frequency

Minimum Frequency	100 kHz Hz
Maximum Frequency	3 GHz / 6 GHz (option dependent) Hz
Frequency Resolution	0.01 Hz

Output

Phase Noise	typ. -133 dBc (f = 1 GHz, 20 kHz carrier offset, 1 Hz measurement bandwidth)
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Modulation

Modulation	AM, FM, Phase, Pulse, I/Q, Digital (EUTRA/LTE, 3GPP FDD, GSM/EDGE)
Sweep Modes	Step, List

General

Interfaces	GPIO (IEEE-488), LAN
Display	Color display, 800 x 600 pixels (SVGA format)

Physical

Power Supply	100 V to 240 V AC, 50 Hz to 60 Hz; 100 V to 120 V AC, 400 Hz
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Frequency Characteristics

Frequency Range	100 kHz to 3 GHz or 100 kHz to 6 GHz (hardware option dependent)
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Level Characteristics

Attenuator Type	Electronic attenuator up to 6 GHz
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Spectral Purity

SSB Phase Noise (20 kHz offset)	typ. -133 dBc (f = 1 GHz, 1 Hz measurement bandwidth)
Broadband Noise	typ. -153 dBc (CW, f = 1 GHz, >5 MHz carrier spacing, 1 Hz measurement bandwidth)
Harmonics	< -30 dBc
Non-Harmonic Spurious (CW, f ≤ 3 GHz, > 10 kHz offset)	< -70 dBc

I/Q Modulation

I/Q Modulation RF Bandwidth	200 MHz
ACLR Performance	typ. +69 dB for 3GPP FDD (test model 1, 64 DPCHs)

Internal Baseband Generator

Internal Baseband Bandwidth	Up to 80 MHz
Memory Size (ARB)	Up to 64 MSamples
Realtime Signal Generation	Supported (e.g. 4 code channels for 3GPP FDD)
Digital Modulation Formats	EUTRA/LTE, 3GPP FDD, GSM/EDGE, GPS (option dependent)

Connectivity and Interfaces

Remote Control Protocols	GPIO, LAN
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General Specifications

User Interface	Graphical user interface with block diagram signal flow, built-in transients recorder, and context-sensitive help
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RF Output

Output Impedance	50 Ω
RF Connector	N female

Configuration Options

Frequency Options	SMJ-B103 (100 kHz to 3 GHz), SMJ-B106 (100 kHz to 6 GHz)
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Analog Modulation

Pulse Modulation On/Off Ratio	> 80 dB
Pulse Modulation Rise/Fall Time	< 20 ns (10 ns typical)

Reference Frequency

External Reference Input Frequency	10 MHz
Reference Output Frequency	10 MHz

Baseband Generator

Baseband DAC Resolution	16 bit
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Environmental

Operating Temperature Range	+5 °C to +45 °C
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TECHNOLOGY

RF Vector Signal Generation

APPLICATIONS

Research, Development and Production Test of Wireless Communications

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