ROHDE & SCHWARZ

SMB100B

The Rohde & Schwarz SMB100B is a high-performance analog RF and microwave signal generator designed to provide outstanding spectral purity, high output power, and comprehensive analog modulation capabilities up to 6 GHz. Offering an intuitive touchscreen interface and modular options, it is ideally suited for development, production, and service environments where precision and reliability are paramount.

SPECIFICATIONS

Frequency

Minimum Frequency	8 kHz Hz
Maximum Frequency	6 GHz (frequency-option dependent) Hz
Frequency Resolution	0.01 Hz
Frequency Options	1 GHz (SMBB-B101), 3 GHz (SMBB-B103), 6 GHz (SMBB-B106)
Frequency Switching Speed	< 1.2 ms
Internal Reference Aging Rate	±1 x 10^-6 per year
Internal Reference Temperature Stability	±1 x 10^-6

Output

Maximum Output Power	+18 dBm (standard, up to 6 GHz) dBm
Output Power Range	-120 dBm to +18 dBm (expandable to -145 dBm with electronic attenuator options)

Modulation

Modulation	AM, FM, Phase (φM), Pulse (optional)
Sweep Modes	RF sweep, LF sweep, Level sweep

General

Reference Oscillator	10 MHz (TCXO standard, OCXO optional)
Interfaces	LAN (10/100/1000Base-T), USB 2.0, GPIB (optional via SMBB-B10)
Display	5-inch touchscreen (800 x 480 pixels)
Display Size	5 in (touchscreen)
Display Resolution	800 × 480 pixels

Physical

Power Supply	100 V to 240 V AC, 50 Hz to 60 Hz
Dimensions (W×H×D)	344 mm × 112 mm × 368 mm mm
Weight	4.4 kg (standard configuration) kg

Amplitude

Minimum Output Power	-120 dBm
Amplitude Resolution	0.01 dB

Spectral Purity

Harmonics	<-30 dBc (level <= 8 dBm)
Non-Harmonics (Spurious)	<-70 dBc (carrier <= 1.5 GHz, offset > 10 kHz)

Analog Modulation

FM Maximum Deviation	4 MHz (at 1 GHz)
FM Rate Range	DC to 1 MHz
PM Maximum Deviation	4 rad (at 1 GHz)
PM Rate Range	DC to 1 MHz
AM Depth Range	0% to 100%
AM Rate Range	DC to 50 kHz
Pulse Modulation On/Off Ratio	> 80 dB

Inputs & Outputs

RF Output Connector	N female (50 Ω)
RF Output Impedance	50 Ω
LAN Interface	10/100/1000Base-T
USB Ports	2x USB Host, 1x USB Device
External Reference Input	BNC female
Reference Output	BNC female
Trigger Input	BNC female
USB Device Interface	1 × USB 2.0 (Type B) for remote control

Physical & Environmental

Operating Temperature Range	0 °C to +55 °C
Storage Temperature Range	-40 °C to +70 °C
Relative Humidity	up to 95% (non-condensing)
Rack Unit Height	2 RU

Power Requirements

Line Voltage Range	100 V to 240 V AC
Power Consumption	70 W (typical)

Options

OCXO Reference Option	SMBB-B1
High Output Power Option	SMBB-K31
Pulse Generator Option	SMBB-K23
Pulse Modulator Option	SMBB-K22

LF Generator Option

LF Generator Waveforms	Sine, square, triangle, trapezoid (with R&S®SMBB-K2)
LF Generator Frequency Range	0.1 Hz to 1 MHz (sine, with R&S®SMBB-K2)

Pulse Generator Option

Pulse Generator Modes	Single pulse, double pulse (with R&S®SMBB-K23)
Pulse Generator Period Range	40 ns to 85 s (with R&S®SMBB-K23)
Pulse Generator Width Range	10 ns to 85 s (with R&S®SMBB-K23)
Pulse Generator Resolution	10 ns (with R&S®SMBB-K23)

Pulse Modulation Option

Pulse Modulation Rise/Fall Time	< 15 ns, typ. < 5 ns (with R&S®SMBB-K22)
Pulse Modulation Minimum Pulse Width	20 ns (with R&S®SMBB-K22)

Reference Frequency

Variable External Reference Input	1 MHz to 100 MHz (with R&S®SMBB-K722 option)

Interfaces & Remote Control

GPIB Interface Option	R&S®SMBB-B83
Remote Control Emulation Modes	HP8648, HP8656/57, Agilent N5181A/N5182A/N5183A, Aeroflex 2023/24/25, legacy R&S generators

Reliability & Maintenance

Recommended Calibration Interval	36 months

Environmental & Physical

Acoustic Noise	Typ. 33 dBA (at +25 °C)
Maximum Operating Altitude	4600 m

Performance

Level Switching Speed	< 1 ms (typical < 500 µs)

Protection

Maximum Reverse Power	50 W
Maximum Reverse DC Voltage	50 V

Pulse Generator

Pulse Generator Delay Resolution	10 ns

LF Generator

LF Generator Distortion	< 0.1% (typical at 1 kHz, 1 Vp into high impedance)
LF Generator Maximum Output Level	10 mV to 3 V (Vp) into high impedance

Compliance

EMC Compliance	IEC/EN 61326-1, EN 55011 Class A
Safety Compliance	IEC/EN 61010-1

Environmental

Vibration Resistance	Compliant with MIL-PRF-28800F Class 3
Shock Resistance	Compliant with MIL-PRF-28800F Class 3

TECHNOLOGY

Analog RF Signal Generation

APPLICATIONS

RF Testing, Receiver Characterization, Local Oscillator Emulation