

ROHDE & SCHWARZ

SML01

The Rohde & Schwarz SML01 is a highly reliable, general-purpose RF signal generator designed for versatile applications in development, servicing, and production. Part of the R&S SML family, this compact 2 HU instrument offers high level accuracy, fast switching times, and comprehensive modulation capabilities including AM, FM, ϕ M, and optional pulse modulation, all with a standard 3-year calibration cycle.

SPECIFICATIONS

Frequency

Minimum Frequency	9 kHz Hz
Maximum Frequency	1.1 GHz Hz
Frequency Resolution	0.1 Hz

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-140 dBm to +13 dBm
Phase Noise	-128 dBc/Hz at 20 kHz offset, 1 GHz carrier

Modulation

Modulation	AM, FM, ϕ M, Pulse (optional)
Sweep Modes	Digital frequency and level sweep
AM Distortion	<1% at 1 kHz (m = 30%), <2% at 1 kHz (m = 80%)
FM Distortion	<0.1% (at 1 kHz, 40 kHz deviation)

General

Reference Oscillator	10 MHz (internal)
Interfaces	GPIB (IEEE 488.2), RS-232
Display	Backlit LCD
Save/Recall Memory	50 complete instrument settings
Display Resolution	240 × 64 pixels

Physical

Power Supply	100 V to 240 V AC, 47 Hz to 440 Hz
Dimensions (W×H×D)	427 mm × 88 mm × 450 mm mm
Weight	< 8.5 kg kg

Frequency Specifications

Frequency Range	9 kHz to 1.1 GHz
Frequency Switching Speed	< 10 ms
Aging Rate (Internal Reference)	1 x 10 ⁻⁶ / year
Temperature Stability (Internal Reference)	2 x 10 ⁻⁶ (0 °C to 55 °C)

Amplitude Specifications

Maximum Output Level	+13 dBm
Minimum Output Level	-140 dBm
Amplitude Resolution	0.1 dB
Amplitude Accuracy	< 0.5 dB (at levels > -120 dBm)
RF Output Impedance	50 Ω
Attenuator Type	Electronic

Spectral Purity

SSB Phase Noise	-128 dBc (1 Hz) at f = 1 GHz, 20 kHz offset
Harmonics	< -30 dBc
Non-Harmonics (Spurious)	< -70 dBc (carrier > 200 MHz, > 10 kHz offset)
Residual FM	< 2 Hz (RMS, at 1 GHz, 300 Hz to 3 kHz bandwidth)
Residual AM	< 0.02% (RMS, 300 Hz to 3 kHz bandwidth)
Wideband Noise	<-140 dBc/Hz (at >2 MHz offset, 1 GHz carrier, +10 dBm level)

Analog Modulation

AM Depth Range	0% to 100%
AM Rate Range	DC to 50 kHz
FM Maximum Deviation	up to 400 kHz (carrier dependent)
FM Rate Range	DC to 2 MHz
Phase Modulation Maximum Deviation	up to 20 rad (carrier dependent)
Phase Modulation Rate Range	DC to 100 kHz

System Connectivity and Interfaces

RF Output Connector	N-type (female), front panel
GPIB Interface	IEEE 488.2 compliant
RS-232 Interface	Serial port

Physical and Environmental Specifications

Operating Temperature Range	0 °C to +55 °C
Rack Unit Height	2 HU

Physical and Environmental Specifications

Storage Temperature Range	-40 °C to +70 °C
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Power Requirements

Power Consumption	approx. 80 W
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Compliance and Standards

Calibration Cycle	3 years
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Hardware and Software Options

Option SML-B3	Pulse Modulator
Option SML-B5	Stereo Coder with analog and digital audio inputs
Option SML-B1	OCXO Reference Oscillator (High Stability)

LF Generator

LF Generator Frequency Range	0.1 Hz to 1 MHz
LF Generator Frequency Resolution	0.1 Hz
LF Generator Output Voltage Range	1 mV to 1 V (peak, open circuit)
LF Generator Output Impedance	approx. 10 Ω
LF Output Connector	BNC female (front panel)
LF Generator Waveforms	Sine

Overload Protection

Max. Reverse Power	50 W (from 50 Ω source)
Max. Reverse DC Voltage	35 V

RF Output

RF Output VSWR	< 1.5 ($f \leq 1$ GHz), < 1.8 (1 GHz < $f \leq 1.1$ GHz) for output levels ≤ 2 dBm
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Interfaces & Control

Command Set	SCPI
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Options

Option SML-B19	Rear panel RF and LF connectors
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Output Level

Level Switching Speed	<10 ms
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Sweep

Sweep Step Time Range	1 ms to 10 s
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Reference Frequency

External Reference Input Frequency	10 MHz
External Reference Output Frequency	10 MHz

Pulse Modulation (Option SML-B3)

Pulse Modulator Rise/Fall Time (Option SML-B3)	<20 ns
Pulse Modulator ON/OFF Ratio (Option SML-B3)	>80 dB

Power Supply

AC Supply Voltage	100 V to 240 V AC
AC Supply Frequency	47 Hz to 440 Hz

TECHNOLOGY

RF Signal Generator

APPLICATIONS

Development, servicing, and automatic test systems (ATE)

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