

ROHDE & SCHWARZ

SMV03

The Rohde & Schwarz SMV03 is a high-performance vector signal generator designed for RF and microwave testing. Combining the analog capabilities of the SML03 with an integrated broadband I/Q modulator, it operates over a frequency range of 9 kHz to 3.3 GHz, offering highly precise modulation, low phase noise, and an integrated electronic attenuator. It is ideal for automatic test systems, research and development, and servicing applications requiring digital standard emulation.

SPECIFICATIONS

Frequency

Minimum Frequency	9 kHz Hz
Maximum Frequency	3.3 GHz Hz
Frequency Resolution	0.1 Hz

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	-140 dBm to +13 dBm (up to +19 dBm overrange)
Phase Noise	<-122 dBc/Hz at 20 kHz offset, 1 GHz carrier

Modulation

Modulation	AM, FM, Phase (ϕ M), Pulse (optional), External I/Q
Sweep Modes	RF sweep, LF sweep, Level sweep

General

Reference Oscillator	10 MHz TCXO
Interfaces	GPIO (IEEE-488.2), RS-232
Display	Backlit LCD

Physical

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

Frequency Specifications

Frequency Range	9 kHz to 3.3 GHz
Frequency Switching Speed	< 10 ms

Amplitude Specifications

Maximum Output Level	+13 dBm (up to +19 dBm overrange)
Minimum Output Level	-140 dBm
Level Resolution	0.1 dB
Level Error	< 0.5 dB
Output Impedance	50 Ω
Output Connector	N female
Attenuator Type	Electronic (interruption-free)

Spectral Purity

SSB Phase Noise	<-122 dBc/Hz (at 1 GHz, 20 kHz offset)
Harmonics	<-30 dBc (for levels < 10 dBm, $f > 1$ MHz)
Non-Harmonics	<-70 dBc (at > 10 kHz offset, $f < 1.5$ GHz)

Vector Modulation

I/Q Modulator Bandwidth (3 dB)	DC to > 60 MHz (typically 100 MHz)
I/Q Inputs	BNC female, 50 Ω , 0.5 V (0.707 V _p)

Analog Modulation

AM Modulation Depth	0% to 100%
AM Rate Range	0.1 Hz to 50 kHz
FM Maximum Deviation	up to 800 kHz (carrier dependent)
FM Rate Range	0.1 Hz to 100 kHz
Phase Modulation Maximum Deviation	up to 80 rad (carrier dependent)
Phase Modulation Rate Range	0.1 Hz to 100 kHz

Physical and Environmental

Operating Temperature Range	0 °C to +55 °C
Storage Temperature Range	-40 °C to +70 °C
Rack Height	2 HU

Power Requirements

Line Voltage Range	100 V to 240 V AC
Line Frequency Range	47 Hz to 440 Hz

Compliance and Standards

Recommended Calibration Cycle	3 years
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Hardware and Software Options

Pulse Modulator Option	SML-B3
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Internal Modulation Generator

LF Generator Frequency Range	0.1 Hz to 1 MHz
LF Generator Frequency Resolution	0.1 Hz
LF Generator Waveforms	Sine, square

I/Q Modulation

External I/Q Input Level	0.5 V (into 50 Ohm) for full scale
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TECHNOLOGY

Vector Signal Generation

APPLICATIONS

RF & Microwave Test Systems, R&D, Service

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