

ANRITSU

MG3694A

The Anritsu MG3694A is a high-performance synthesized microwave signal generator covering the 2 GHz to 40 GHz frequency range in its base configuration. It is part of the MG3690A series, renowned for its exceptional phase noise, high output power, and comprehensive modulation capabilities. Highly configurable, its range can be extended down to 0.1 Hz with optional low-frequency coverage and up to 110 GHz or beyond with external multipliers. The MG3694A is designed for demanding applications in R&D, manufacturing, and defense, offering analog ramp sweep, step sweep, and full modulation capabilities.

SPECIFICATIONS

Frequency

Minimum Frequency	2 GHz Hz
Maximum Frequency	40 GHz Hz
Frequency Resolution	0.01 Hz
Frequency Range	2 GHz to 40 GHz (extendable to 0.1 Hz with options, up to 110 GHz with multipliers)
Internal Reference Frequency Accuracy	$< \pm 2 \times 10^{-8}$ over 0 °C to 55 °C
Internal Reference Aging Rate	$< 5 \times 10^{-10}$ per day
External Reference Input Impedance	50 Ω
Phase Offset Range	-360° to +360°
Phase Offset Resolution	0.1°

Output

Maximum Output Power	+13 dBm dBm
Output Power Range	+13 dBm to -15 dBm (down to -120 dBm with Option 2 step attenuator)
Phase Noise	-94 dBc/Hz @ 10 kHz offset, 10 GHz carrier

Modulation

Modulation	AM, FM, Phase (Φ), Pulse
Sweep Modes	Step Sweep, List Sweep, Analog Ramp Sweep
Option 7 LF Generator Waveforms	Sine, Square, Triangle, Positive Ramp, Negative Ramp, Gaussian Noise, Uniform Noise
Option 7 LF Generator Sine Wave Range	0.1 Hz to 10 MHz

General

Reference Oscillator	Internal 10 MHz ovenized crystal oscillator (OCXO)
Interfaces	GPIO (IEEE-488.2), RS-232
Display	Backlit LCD
Warm-up Time	1 hour (typical from standby)
Memory Storage Registers	10 non-volatile storage registers plus default setup
Secure Mode	Standard feature, erases all user memory

Physical

Power Supply	90 to 264 VAC, 47 to 440 Hz
Dimensions (W×H×D)	133 mm H x 429 mm W x 597 mm D mm
Weight	18 kg kg

Amplitude

Maximum Output Power (2 to 20 GHz)	+13 dBm
Maximum Output Power (20 to 40 GHz)	+6 dBm
Maximum Output Power with Option 15 (2 to 20 GHz)	+19 dBm
Maximum Output Power with Option 15 (20 to 40 GHz)	+13 dBm
Amplitude Resolution	0.01 dB
Output Impedance	50 Ω nominal
Output SWR	< 2.0 typical
Step Attenuator Range	110 dB (with Option 2)
Step Attenuator Resolution	10 dB steps

Spectral Purity

Harmonics (2 to 20 GHz)	< -30 dBc
Harmonics (20 to 40 GHz)	< -30 dBc
Spurious (Non-Harmonics)	< -60 dBc
SSB Phase Noise at 10 GHz (100 kHz offset)	-102 dBc/Hz

Analog Modulation

Pulse Modulation On/Off Ratio	> 80 dB
Pulse Modulation Rise/Fall Time	< 10 ns typical
Modulation Sources	Internal or External

Sweep and Operating Modes

Step Sweep Dwell Time Range	1 ms to 99 s
Number of Sweep Points	Up to 1601 (step sweep)
Sweep Trigger Modes	Auto, External, Single, GPIO

System Connectivity and Interfaces

RF Output Connector	K female (2.92 mm)
GPIO Command Set	SCPI, Native (Anritsu 60A/68B/69B compatible)
RS-232 Baud Rate	Up to 115.2 kbps
External Connections	BNC female (Trigger In, AM In, FM In, Phase In, Pulse In, 10 MHz Ref In/Out)

Physical and Environmental

Operating Temperature Range	0 °C to 50 °C
Storage Temperature Range	-40 °C to 75 °C
Relative Humidity	5% to 95% non-condensing
Altitude (Operating)	Up to 4,600 meters
Rack Unit Height	3U

Power Requirements

Power Consumption	350 VA maximum
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Hardware and Software Options

Option 2	Mechanical Step Attenuator
Option 3	Ultra-Low Phase Noise
Option 4	10 MHz to 2 GHz frequency coverage
Option 22	0.1 Hz to 10 MHz Audio Frequency coverage
Option 15	High Output Power

Performance

Level Resolution	0.01 dB
Frequency Switching Time (Standard)	< 40 ms
Frequency Switching Time (with Option 12)	< 1.1 ms (typical)
SSB Phase Noise at 10 GHz (10 kHz offset, with Option 3)	-115 dBc/Hz (typical)

Inputs & Outputs

Reference Output Frequency	10 MHz
Reference Output Level	1 Vp-p (typical into 50 Ω)

Options

Option 5 Analog Modulation	Adds AM, FM, and Phase Modulation capabilities
Option 6 Internal Pulse Generator	Provides pulse delays, pulse widths, and multi-pulse capabilities
Option 7 Internal LF Generator	Provides internal AM, FM, and PM source with two independent waveforms (requires Option 5)
Option 12 Fast Switching	Improves frequency switching speed to < 1.1 ms typical
Option 14 Auxiliary RF Output	Provides 2 GHz to 20 GHz rear-panel auxiliary RF output
Option 18 Rear Panel RF Output	Moves the RF output connector to the rear panel
Option 20 Scan Modulation	Provides up to 60 dB modulation depth, DC to 50 kHz (requires Option 5)

Power

AC Line Voltage Range	90 to 264 Vac
AC Line Frequency Range	48 Hz to 440 Hz

TECHNOLOGY

Synthesized Signal Generation

APPLICATIONS

RF & Microwave Testing, Radar, Communications

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