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Data Sheet

August 13, 2026

STANFORD RESEARCH

Stanford Research SG396 6 GHz Vector Generator

Stanford Research Systems SG396 6 GHz Vector Signal Generator The SRS SG396 is the 6 GHz member of the SG390 Series vector signal generators. RAFS synthesis provides 1 uHz resolution with analog modulation plus a dual 14-bit 125 MS/s baseband generator for vector I/Q on carriers from 400 MHz to 6.075 GHz. The N-type output covers 950 kHz to 6.075 GHz; full +16.5 dBm to -110 dBm power is specified below 4 GHz. Phase noise at 20 kHz offset is typically -114 dBc/Hz at a 1 GHz carrier (versus -116 dBc/Hz on SG392/SG394). The SRS SG396 is the 6 GHz member of the SG390 Series vector signal generators. RAFS synthesis provides 1 uHz resolution with analog modulation plus a dual 14-bit 125 MS/s baseband generator for vector I/Q on carriers from 400 MHz to 6.075 GHz. The N-type output covers 950 kHz to 6.075 GHz; full +16.5 dBm to -110 dBm power is specified below 4 GHz. Phase noise at 20 kHz offset is typically -114 dBc/Hz at a 1 GHz carrier (versus -116 dBc/Hz on SG392/SG394). Microwave and RF communications test to 6 GHz; vector-modulated carriers including QAM, PSK, FSK, and VSB; analog AM/FM/phase/pulse and octave-plus sweeps; LO generation; automated ATE.



MODEL

**Stanford Research
SG396**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

SG396

LISTING

<https://aumictechlabs.com/products/sg396-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Stanford Research Systems SG396 is a 6 GHz vector signal generator engineered for RF and microwave development requiring analog and vector modulation in a single platform. It combines Rational Approximation Frequency Synthesis (RAFS) with dual arbitrary waveform generators to deliver spur-free outputs, 1 μ Hz frequency resolution, and -116 dBc/Hz phase noise at 1 GHz. The instrument supports ASK, FSK, MSK, PSK, QAM, and VSB modulation with factory presets for GSM, EDGE, W-CDMA, APCO-25, DECT, NADC, PDC, ATSC-DTV, and TETRA standards. Frequency switching occurs in under 8 ms to within 1 ppm. Dual baseband generators operate at 125 MHz with symbol rates to 6 MHz, while 300 MHz modulation bandwidth accommodates advanced I/Q applications. Digitally controlled attenuation spans 156 steps to -130 dB, with up to +25 dB gain and calibrated power control via a 40,000-element memory matrix. Standard and optional rubidium timebases support frequency stability of 1×10^{-11} (1 s Allan variance). RF output via Type N connector (above 950 kHz) and BNC for DC to 62.5 MHz signals. Direct AWGN injection capability supports noise-injection testing workflows.

Technical Specifications

- Frequency range: DC to 6.075 GHz
- Frequency resolution: 1 μ Hz
- Frequency synthesis: Rational Approximation Frequency Synthesis (RAFS)
- Frequency switching time: 40 dBc (>35 dBc above 4 GHz)
- Modulation bandwidth: 300 MHz
- I/Q inputs: 50 Ω , ± 0.5 V
- Dual arbitrary waveform generators: 125 MHz operation, up to 6 MHz symbol rate
- AM modulation: 0 to 100% (0.1% resolution)
- AM distortion: <1% ($f_C < 62.5$ MHz, $f_M = 1$ kHz); 62.5 MHz, $f_M = 1$ kHz)
- FM frequency deviation: 0.1 Hz minimum; frequency-dependent maximum

Key Features

- Spur-free synthesis via RAFS topology
- Vector modulation: ASK, FSK, MSK, PSK, QAM, VSB, and custom I/Q
- PSK derivatives: BPSK, QPSK, OQPSK, DQPSK, $\pi/4$ DQPSK, 8PSK, 16PSK, $3\pi/8$ 8PSK
- QAM variants: 4, 16, 32, and higher orders
- VSB variants: 8VSB, 16VSB
- Standard modulation presets: GSM, EDGE, W-CDMA, APCO-25, DECT, NADC, PDC, ATSC-DTV, TETRA
- Direct AWGN injection into signal path
- Calibrated power control with 40,000-element memory matrix
- Ovenized or optional rubidium timebase

Typical Applications

- Wireless communications development and testing
- Radar system characterization
- Satellite communications signal generation
- Modulation validation across multiple standards
- Noise injection and receiver stress testing

Compatibility & Integration

- RF output: Type N connector (≥ 950 kHz)
- Baseband output: BNC (DC to 62.5 MHz)
- External modulation: ± 0.5 V I/Q inputs at 50 Ω impedance

Features & description

From manufacturer datasheet

Features

- Widest SG390 N-type range: 950 kHz to 6.075 GHz • Vector modulation to 6.075 GHz with 300 MHz RF I/Q bandwidth • Dual 14-bit 125 MS/s baseband generator with PRBS, pattern, and user FIR • Carrier suppression greater than 40 dBc (greater than 35 dBc above 4 GHz) • Standard OCXO; optional rubidium (Opt. 04) • Ethernet, GPIB, and RS-232 remote control

SG396 Characteristics / Specifications

PARAMETER	VALUE
Model	SG396
Manufacturer	Stanford Research Systems
Instrument Type	Vector Signal Generator
Series	SG390
Alias	SG396; SRS SG396
Synthesis Method	Rational Approximation Frequency Synthesis (RAFS)
BNC Output Frequency Range	DC to 62.5 MHzNType Output Frequency Range: 950 kHz to 6.075 GHz
Frequency Resolution	1 uHz at any frequency
Switching Speed	less than 8 ms (to within 1 ppm)
Frequency Error	less than (1e-18 + timebase error) times carrier frequency
Frequency Stability	1e-11 (1 s Allan variance)
BNC Amplitude Range	1.00 Vrms to 0.001 Vrms
BNC Offset Range	+/-1.5 VDC
BNC Offset Resolution	5 mV
BNC Amplitude Accuracy	+/-5 %
BNC Harmonics	less than -40 dBc
BNC Output Coupling	DC, 50 ohm +/-2 %
N Type Power Range	+16.5 dBm to -110 dBm (below 4 GHz)
N Type Voltage Range	1.5 Vrms to 0.7 uVrms (below 4 GHz)
Power Resolution	0.01 dBm
Power Accuracy	+/-1 dB (+/-2 dB above 4 GHz and above +5 dBm or below -100 dBm)
N Type Output Coupling	AC, 50 ohm
User Load Impedance	50 ohm
Output VSWR	less than 1.6
Reverse ProtectionNType	30 VDC, +25 dBm RF

PARAMETER	VALUE
RF Harmonics	less than -25 dBc (below +7 dBm, N-type)
Close In Spurious	less than -65 dBc (offset below 10 kHz)
Far Spurious	less than -75 dBc (offset above 10 kHz)
Phase Noise at Ten Hz	-80 dBc/Hz typical (referenced to 1 GHz)
Phase Noise at One kHz	-102 dBc/Hz typical (referenced to 1 GHz)
Phase Noise at Twenty kHz	-114 dBc/Hz typical (SG396, 1 GHz)
Phase Noise at One MHz	-124 dBc/Hz typical (SG396, 1 GHz)
OCXO Stability	less than +/-0.002 ppm (0 to 45 C)
OCXO Aging	less than +/-0.05 ppm/year
Rubidium Option Stability	less than +/-0.0001 ppm (0 to 45 C, Opt. 04)
Vector Carrier Frequency Range	400 MHz to 6.075 GHz
External IQ Input Impedance	50 ohm, +/-0.5 V (rear panel)
IQ Modulation Bandwidth	300 MHz RF bandwidth
IQ Input Offset	less than 500 uV
Carrier Suppression	greater than 40 dBc (greater than 35 dBc above 4 GHz)
Baseband DAC Format	dual 14-bit at 125 MS/s
Arb Symbol Memory	up to 16 Mbits
Symbol Rate Range	1 Hz to 6 MHz (1 uHz resolution)
QAM Derivatives	4, 16, 32, 64, 256
VSB Derivatives	8 and 16 (at rates to 12 MS/s)
AM Modulation Range	0 to 100 % (decreases above +7 dBm)
Pulse On Off RatioNType	57 dB at or below 1 GHz; 40 dB from 1 GHz to 4 GHz; 35 dB at or above 4 GHz
Internal Modulation Rate High Band	1 uHz to 50 kHz (carrier above 93.75 MHz on SG386/SG396 class)
Interfaces	Ethernet; GPIB IEEE-488.2; RS-232
Line Power	less than 90 W, 90 to 264 VAC, 47 to 63 Hz with PFC
Dimensions	8.5 in x 3.5 in x 13 in (WHD)
Weight	10 lbs

PARAMETER	VALUE
Stored Configurations	9 instrument setups in non-volatile memory Notes Specs from SRS SG390 Series catalog and SG390 user manual. SG396 is the 6 GHz vector model. N-type full power range is specified below 4 GHz; confirm actual high-band level on the unit.
Widest SG390 N-type range	950 kHz to 6.075 GHz
Bandwidth	Dual 14-bit 125 MS/s baseband generator with PRBS, pattern, and user FIR - Carrier suppression greater than 40 dBc (greater than 35 dBc above 4 GHz) - Standard OCXO; optional rubidium (Opt. 04) - Ethernet, GPIB, and RS-232 remote control

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
Technical Specifications	
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Alias	SG396; SRS SG396
Synthesis Method	Rational Approximation Frequency Synthesis (RAFS)
BNC Output Frequency Range	DC to 62.5 MHz
N Type Output Frequency Range	950 kHz to 6.075 GHz
Frequency Resolution	1 uHz at any frequency
Switching Speed	less than 8 ms (to within 1 ppm)
Frequency Error	less than (1e-18 + timebase error) times carrier frequency
Frequency Stability	1e-11 (1 s Allan variance)
BNC Amplitude Range	1.00 Vrms to 0.001 Vrms
BNC Offset Range	+/-1.5 VDC
BNC Offset Resolution	5 mV
BNC Amplitude Accuracy	+/-5 %
BNC Harmonics	less than -40 dBc
BNC Output Coupling	DC, 50 ohm +/-2 %
N Type Power Range	+16.5 dBm to -110 dBm (below 4 GHz)
N Type Voltage Range	1.5 Vrms to 0.7 uVrms (below 4 GHz)
Power Resolution	0.01 dBm
Power Accuracy	+/-1 dB (+/-2 dB above 4 GHz and above +5 dBm or below -100 dBm)
N Type Output Coupling	AC, 50 ohm
User Load Impedance	50 ohm
Output VSWR	less than 1.6
Reverse Protection N Type	30 VDC, +25 dBm RF

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Phase Noise at One MHz	-124 dBc/Hz typical (SG396, 1 GHz)
OCXO Stability	less than +/-0.002 ppm (0 to 45 C)
OCXO Aging	less than +/-0.05 ppm/year
Rubidium Option Stability	less than +/-0.0001 ppm (0 to 45 C, Opt. 04)
Vector Carrier Frequency Range	400 MHz to 6.075 GHz
External IQ Input Impedance	50 ohm, +/-0.5 V (rear panel)
IQ Modulation Bandwidth	300 MHz RF bandwidth
IQ Input Offset	less than 500 uV
Carrier Suppression	greater than 40 dBc (greater than 35 dBc above 4 GHz)
Baseband DAC Format	dual 14-bit at 125 MS/s
Arb Symbol Memory	up to 16 Mbits
Symbol Rate Range	1 Hz to 6 MHz (1 uHz resolution)
QAM Derivatives	4, 16, 32, 64, 256
VSB Derivatives	8 and 16 (at rates to 12 MS/s)
AM Modulation Range	0 to 100 % (decreases above +7 dBm)
Pulse On Off Ratio N Type	57 dB at or below 1 GHz; 40 dB from 1 GHz to 4 GHz; 35 dB at or above 4 GHz
Internal Modulation Rate High Band	1 uHz to 50 kHz (carrier above 93.75 MHz on SG386/SG396 class)
Interfaces	Ethernet; GPIB IEEE-488.2; RS-232
Line Power	less than 90 W, 90 to 264 VAC, 47 to 63 Hz with PFC
Dimensions	8.5 in x 3.5 in x 13 in (WHD)
Weight	10 lbs
Stored Configurations	9 instrument setups in non-volatile memory

Specifications

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Frequency Error	less than (1e-18 + timebase error) times carrier frequency
Frequency Stability	1e-11 (1 s Allan variance)
BNC Amplitude Range	1.00 Vrms to 0.001 Vrms
BNC Offset Range	+/-1.5 VDC
BNC Offset Resolution	5 mV
BNC Amplitude Accuracy	+/-5 %
BNC Harmonics	less than -40 dBc
BNC Output Coupling	DC, 50 ohm +/-2 %
N Type Power Range	+16.5 dBm to -110 dBm (below 4 GHz)
N Type Voltage Range	1.5 Vrms to 0.7 uVrms (below 4 GHz)
Power Resolution	0.01 dBm
Power Accuracy	+/-1 dB (+/-2 dB above 4 GHz and above +5 dBm or below -100 dBm)
N Type Output Coupling	AC, 50 ohm
User Load Impedance	50 ohm
Output VSWR	less than 1.6
Reverse ProtectionNType	30 VDC, +25 dBm RF
RF Harmonics	less than -25 dBc (below +7 dBm, N-type)
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OCXO Stability	less than +/-0.002 ppm (0 to 45 C)

PARAMETER	VALUE
OCXO Aging	less than +/-0.05 ppm/year
Rubidium Option Stability	less than +/-0.0001 ppm (0 to 45 C, Opt. 04)
Vector Carrier Frequency Range	400 MHz to 6.075 GHz
External IQ Input Impedance	50 ohm, +/-0.5 V (rear panel)
IQ Modulation Bandwidth	300 MHz RF bandwidth
IQ Input Offset	less than 500 uV
Carrier Suppression	greater than 40 dBc (greater than 35 dBc above 4 GHz)
Baseband DAC Format	dual 14-bit at 125 MS/s
Arb Symbol Memory	up to 16 Mbits
Symbol Rate Range	1 Hz to 6 MHz (1 uHz resolution)
QAM Derivatives	4, 16, 32, 64, 256
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AM Modulation Range	0 to 100 % (decreases above +7 dBm)
Pulse On Off RatioType	57 dB at or below 1 GHz; 40 dB from 1 GHz to 4 GHz; 35 dB at or above 4 GHz
Internal Modulation Rate High Band	1 uHz to 50 kHz (carrier above 93.75 MHz on SG386/SG396 class)
Interfaces	Ethernet; GPIB IEEE-488.2; RS-232
Line Power	less than 90 W, 90 to 264 VAC, 47 to 63 Hz with PFC
Dimensions	8.5 in x 3.5 in x 13 in (WHD)
Weight	10 lbs
Stored Configurations	9 instrument setups in non-volatile memory

Notes

Specs from SRS SG390 Series catalog and SG390 user manual. SG396 is the 6 GHz vector model. N-type full power range is specified below 4 GHz; confirm actual high-band level on the unit.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

788 S 500 E, Pleasant Grove, UT 84062
sales@aumictech.com · +1 (484) 841-9341
<https://aumictechlabs.com>

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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.