



SGM131 Signal Generator Module

Datasheet



Saluki Technology Inc.

The document applies to the instruments of the following models:

- SGM131A signal generator module (9kHz - 3GHz)
- SGM131B signal generator module (9kHz - 3GHz, built-in IQ modulator)

Standard Accessories of SGM131 Signal Generator Module:

Item	Name	Qty
1	Main Machine	1 Set
2	Power Adapter	1 pcs
3	CD (Manual)	1 pcs

Options of SGM131 Signal Generator Module:

Option No.	Item
SGM131-01	Internal Baseband Data Generation Option
SGM131-02	Analog External Audio Modulation
SGM131-03	RF Upper Conversion Device
SGM131-04	Directional Antenna (600MHz - 8GHz)
SGM131-05	Omnidirectional Antenna (300MHz - 7.5GHz)
SGM131-06	Standard Housing

Preface

Thanks for choosing Saluki Technology Inc instrument. We devote ourselves to meeting your demands, providing you high-quality measuring instrument and the best after-sales service. We persist with “superior quality and considerate service”, and are committed to offering satisfactory products and service for our clients.

Document No.

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Saluki Technology

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Product Quality Assurance

The warranty period of the product is 18 months from the date of delivery. The instrument manufacturer will repair or replace damaged parts according to the actual situation within the warranty period. The user should return the product to the manufacturer and prepay mailing costs. The manufacturer will return the product and such costs to the user after maintenance.

Product Quality Certificate

The product meets the indicator requirements of the document at the time of delivery. Calibration and measurement are completed by the measuring organization with qualifications specified by the state, and relevant data are provided for reference.

Quality/Settings Management

Research, development, manufacturing and testing of the product comply with the requirements of the quality and environmental management system.

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1. Overview

SGM131 series signal generator module can generate signals with frequency up to 3GHz. It has excellent performance and compact size, and has various working modes such as CW signal, analog modulation, pulse modulation, digital modulation, amplitude /frequency sweep, linear frequency modulation and up-conversion. SGM131 series is suitable for education and research, product development and system integration.

The A-type module focuses on analog signal modulation, and its maximum analog modulation rate is up to 1MHz. The B-type module focuses on digital modulation and has a built-in IQ modulator, which can flexibly support input I/Q modulation of baseband data such as various communication data links, standard public network communication standards, and cable digital TV broadcasting. The maximum baseband modulation bandwidth is up to 20MHz, which is convenient for The user builds the experimental platform. Complete standard SCPI command set and general USB and LAN interfaces bring great convenience to your remote control and secondary development.

Key Features

- Frequency range: 9kHz - 3.0GHz
- Typical output power: -120dBm to +10dBm
- Support multiple digital modulation, built-in IQ modulator
- AM/FM/ Φ M analog modulation functions, maximum modulation rate of A-type up to 1MHz
- Support pulse modulation, minimum pulse width 100ns
- Support linear frequency modulation, can simulate radar signals
- As frequency upper conversion, support external input IF signals
- Internal modulation source: sine wave, square wave, triangle wave, sawtooth wave
- USB/ LAN remote control interface, SCPI supported
- Low power consumption, light weight and compact size, suitable for system integration and installation

2. Specification Details

2.1. Frequency

	SGM131A	SGM131B
Frequency Range	9kHz - 3GHz	
Frequency Resolution	0.23Hz	
Reference Frequency	10MHz	
Temperature Stability	± 0.5 ppm (typ.)	
Internal Reference Output	10MHz, +2dBm (typ.)	

2. 2. Spectral Purity

Spectral Purity Specifications		
SSB Phase Noise	f = 1GHz	-93dBc/Hz@10kHz
Harmonic	≤ -30dBc (typ.)	
Non-Harmonic	≤ -50dBc (typ.)	

2. 3. Amplitude

	SGM131A	SGM131B
Output Power Range	9kHz - 50kHz: -120dBm to 0dBm 50kHz - 3GHz: -120dBm to +10dBm	
Power Accuracy	±1.5B (typ.)	
Output Power Resolution	0.1dB	

2. 4. Amplitude/ Frequency Scan

	SGM131A	SGM131B
Scan Type	Step scan, List scan	
Trigger Mode	Auto, External	

2. 5. Internal Modulation Source (LF)

Waveform	Sine, square, triangle, sawtooth	
Frequency Range	Sine	0.1Hz - 500kHz
	Square	0.1Hz - 20kHz
	Triangle/ Sawtooth	0.1Hz - 100kHz

2. 6. Modulation

Analog modulation (AM/FM/ΦM): support internal/external modulation source.

		SGM131A	SGM131B
AM	Modulation Depth	0 -100%	0 -100%
	Modulation Rate	20Hz - 1MHz	1Hz - 25kHz

FM	Frequency Offset	5MHz	5MHz
	Modulation Rate	20Hz - 1MHz	1Hz - 25kHz
ΦM	Modulation Phase	0° - 360°	0° - 360°
	Modulation Rate	20Hz - 1MHz	1Hz - 25kHz

Digital modulation: support internal/external modulation source

	SGM131A	SGM131B
IQ Modulator	Nonsupport	Support
Internal Source	ASK/2FSK/4FSK/8FSK/2PSK/4PSK/8PSK	Standard digital modulation
External Source	Modulation sequence	Arb (I/Q data)
Modulation Rate	1Hz - 1MHz	10kHz - 20MHz

Pulse modulation

	SGM131A	SGM131B
Break-make Ratio	≥ 70dB	
Pulse Period	200ns - 160s	
Pulse Width	100ns - 85s	

2. 7. Linear Frequency Modulation (LFM)

	SGM131A	SGM131B
Scan Range (max.)	20MHz	Nonsupport
Scan Speed	20ns - 20ms	

2. 8. IF Frequency Upper Conversion Settings

	SGM131A	SGM131B
Input IF Frequency Range	25MHz - 200MHz	
Input IF Power Range	-50dBm to 0dBm	
Output Frequency Range	301MHz – 3GHz	
Output Power Range	-120dBm to +10dBm	

2. 9. Interfaces

	SGM131A	SGM131B
RF Output	SMA female (50Ω)	
Others	MCX	
USB	USB 2.0	
LAN	10/100 Base-T	

2. 10. General

	SGM131A	SGM131B
Operating Temperature	-10°C to +45°C	
Storage Temperature	-40°C to +70°C	
Power Supply	Voltage +12VDC ±5%, Current 1.5A	
Dimension	Excluding housing: 150 (W) × 95 (D) × 28 (H) mm Including housing: 236 (W) × 308 (D) × 44 (H) mm	
Weight	700g (excluding housing)	

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