



SAM532 Series Spectrum Analyzer Module Datasheet



Saluki Technology Inc.

The document applies to the instruments of the following models:

- SAM532A spectrum analyzer module (9kHz - 3.6GHz)
- SAM532B spectrum analyzer module (9kHz - 7.5GHz)

Standard Accessories of SAM532 spectrum analyzer module:

No.	Item	Qty.
1	Main Machine	1 unit
2	LAN Connection Cable / Power Adapter	1 pcs
3	CD (PC software, Manual)	1 pcs

Options of the SAM532 spectrum analyzer module:

Option No.	Item	Description
SAM532-01	1.5GHz Tracking Source	Frequency range: 100kHz - 1.5GHz, for SAM532A
SAM532-02	3.6GHz Tracking Source	Frequency range: 100kHz - 3.6GHz, for SAM532A
SAM532-03	3.2GHz Tracking Source	Frequency range: 100kHz - 3.2GHz, for SAM532B
SAM532-04	Directional Antenna	Frequency range: 600MHz - 8GHz
SAM532-05	Omnidirectional Antenna	Frequency range: 300MHz - 7.5GHz
SAM532-06	Standard Housing	Spectrum analyzer module 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 36 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

SAM532 series spectrum analyzer module is the perfect choice for system integration with excellent performance, small size and high cost performance. Users can connect it with a PC to display the test screen, just click the mouse on the PC to enjoy the convenience and speed of the desktop spectrum analyzer. It can also be integrated into your system to develop related functions of spectrum analysis. The modular design of SAM532 will bring great convenience to user testing and save costs at the same time. The PC host computer directly obtains the measurement results through the USB or LAN interface. Users can flexibly carry out secondary development according to their needs, and can quickly build and upgrade the integrated test system.

Key Features

- Frequency range: 9kHz - 3.6GHz / 7.5GHz
- Resolution bandwidth: 1Hz -3MHz
- Sensitive, DANL < -158dBm
- Built-in tracking source, preamplifier, audio demodulation and frequency counting functions
- Independent source modules provide wider choices for system integration
- Adopt USB, LAN interface, easy to control connection
- Standard and complete SCPI commands make system integration testing flexible and convenient
- Small size, ultra-light weight, easy system integration

2. Specification Details

2.1. Frequency

	SAM532A	SAM532B
Frequency range	9kHz - 3.6GHz	9kHz - 7.5GHz
Frequency Readout Accuracy	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span}/(\text{number of sweep points}-1)] + 1\text{Hz})$	
Aging Rate	<1ppm/year	
Temperature Stability	<0.5ppm (15°C - 35°C)	

2.2. Amplitude

	SAM532A	SAM532B
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Measurement Range ($f_c \geq 10\text{MHz}$)	DANL to +27dBm	DANL to +20dBm
Maximum Safe Input Level	Average continuous power, +27dBm	Average continuous power, +23dBm
Maximum DC Voltage	50Vdc	50Vdc
Input Attenuator Range	0 to 39dB in 3 dB steps	0 to 30dB in 1 dB step
Accuracy (20-30°C)	$\pm 1.5\text{dB}$	$\pm 1.5\text{dB}$

2.3. Resolution Bandwidth (RBW)

	SAM532A	SAM532B
Range	1Hz to 500kHz (in 1-10 continuous steps), 1MHz, 3MHz	
Selectivity (60dB/3dB)	RBW $\leq 500\text{kHz}$	< 5:1 (typical, digital implementation, close to Gaussian shape)
Accuracy	RBW $\leq 500\text{kHz}$	<10% (typical <5%)
Video Bandwidth (VBW)	10Hz - 3MHz	

2.4. DANL (0dB attenuation, RBW=1Hz)

	SAM532A	SAM532B
Preamplifier Off	100kHz - 1MHz: $< -100\text{dBm} - 3 \times (f/100\text{kHz})\text{dB}$ 1MHz - 10MHz: $< -130\text{dBm}$ 10MHz - 1GHz: $< -135\text{dBm}$ 1GHz - 3.6GHz: $< -130\text{dBm}$	100kHz - 1MHz: $< -95\text{dBm} - 3 \times (f/100\text{kHz})\text{dB}$ 1MHz - 10MHz: $< -125\text{dBm}$ 10MHz - 2GHz: $< -133\text{dBm}$ 2GHz - 3.4GHz: $< -130\text{dBm}$ 3.4GHz - 5GHz: $< -133\text{dBm}$ 5GHz - 7.5GHz: $< -127\text{dBm}$
Preamplifier On	100kHz - 1MHz: $< -120\text{dBm} - 3 \times (f/100\text{kHz})\text{dB}$ 1MHz - 10MHz: $< -150\text{dBm}$ 10MHz - 1GHz: $< -155\text{dBm}$ 1GHz - 3.6GHz: $< -148\text{dBm}$	100kHz - 1MHz: $< -110\text{dBm} - 3 \times (f/100\text{kHz})\text{dB}$ 1MHz - 10MHz: $< -140\text{dBm}$ 10MHz - 2GHz: $< -147\text{dBm}$ 2GHz - 3.4GHz: $< -143\text{dBm}$ 3.4GHz - 5GHz: $< -145\text{dBm}$ 5GHz - 7.5GHz: $< -138\text{dBm}$

2.5. Phase Noise

	SAM532A		SAM532B	
	Carrier offset 30kHz	-90dBc/Hz	Carrier offset 30kHz	-80dBc/Hz

CF=500MHz	Carrier offset 100kHz	-100dBc/Hz	Carrier offset 100kHz	-90dBc/Hz
	Carrier offset 1MHz	-115dBc/Hz	Carrier offset 1MHz	-110dBc/Hz

2. 6. Sweep Time

	SAM532A	SAM532B
Non-zero Span	3ms - 3000s	
Zero Span	1ms - 3000s	
Sweep Mode	Continuous, single	

2. 7. Frequency Counter

	SAM532A	SAM532B
Resolution	1Hz, 10Hz, 100Hz, 1kHz	
Uncertainty	frequency reading x frequency reference accuracy + resolution	

2. 8. Spurious Response

	SAM532A	SAM532B
TOI (>30MHz)	+7dBm	+10dBm
SHI (>10MHz)	+40dBm	+40dBm
Input Related Spurious (>10MHz)	<-60dBc	<-60dBc
Residual Response (>10MHz)	<-85dBm	<-85dBm

2. 9. Tracking Source (Option)

	SAM532A	SAM532B
Frequency Range	100kHz - 1.5GHz/3.6GHz	100kHz - 3.2GHz
Output Power	-30dBm to 0dBm, in 1dBstep	
Output Flatness	± 3dB	

2. 10. Input /Output

	SAM532A	SAM532B
RF Input/Output	SMA female (50Ω)	
USB	USB 1.1 B	
LAN	10/100 Base-T, RJ-45 Connectivity	
FM/AM Audio Demodulation	Headphone jack	
Reference Input	10MHz, SMA female, Input level 0dBm to +10dBm	
Reference Output	10MHz, SMA female, Output level 0dBm±2dB	

2. 11. General

	SAM532A	SAM532B
Dimension	120 (W) × 145(D) × 28 (H) mm	140 (W) × 145(D) × 28 (H) mm
Weight	800g	<1.1kg
Operating Temperature	0°C to 50°C	
Storage Temperature	-40°C to +70°C	
Power Supply	Voltage +5.2VDC, Current 1.6A	Voltage +5.2VDC, Current 1.8A

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