



S3531 Series Spectrum Analyzer Datasheet



Saluki Technology Inc.

The document applies to the instruments of the following models:

- S3531A spectrum analyzer (9kHz-1.8GHz).
- S3531B spectrum analyzer (9kHz-3.0GHz).

Standard Accessories of S3531 spectrum analyzer

Item	Name	Qty
1	Main Machine	1 Set
2	Power Cord	1 pcs
3	CD	1 pcs

Options of the S3531 spectrum analyzer:

Option Number	Item
S3531-01	Tracking Source/ Signal Generator (100kHz - 1.8GHz)
S3531-02	Tracking Source/ Signal Generator (100kHz - 3.2GHz)
S3531-03	PC control software
S3531-04	EMI near field probe kit
S3531-05	Frequency Identity module kit
S3531-06	Carry Case

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.

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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.

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1. Overview

S3531 series spectrum analyzer is a stable and good performance product. S3531 provides a cost effective solution for spectrum analysis. It is suitable for RF components R&D, manufacture, maintenance and education.

Key Features

- Good specification with small size, low weight.
- Multiple communication interfaces, support SCPI for remote access
- Multi-window, multi-trace display
- Optional dual signal source (tracking source and normal source)

2. Specification Details

2.1. Frequency

	S3531A	S3531B
Frequency range	9kHz-1.8GHz	9kHz-3GHz
Resolution	1Hz	1Hz
Frequency readout accuracy	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span} / (\text{number of sweep points} - 1)] + 1\text{Hz})$	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span} / (\text{number of sweep points} - 1)] + 1\text{Hz})$
Aging Rate	$\pm 1\text{ppm/year}$	$\pm 1\text{ppm/year}$
Temperature stability	$\pm 0.5\text{ppm} (15^\circ\text{C} \sim 35^\circ\text{C})$	$\pm 0.5\text{ppm} (15^\circ\text{C} \sim 35^\circ\text{C})$

2.2. Amplitude

		S3531A	S3531B
Amplitude			
Maximum safe input level	Average continuous power	+27dBm	+23dBm
	DC voltage	50Vdc maximum	50Vdc maximum
Input attenuator range		0 ~ 30dB, Steps of 3 dB	0 ~ 39dB, Steps of 1 dB
1dB compression		+7dBm	+7dBm
Amplitude Accuracy (20°C- 30°C)			
Comprehensive amplitude accuracy (90%)	Input range: 0dBm to -50dBm	$\pm 1.5\text{dB}$	Input range: 0dBm to -50dBm $\pm 1.5\text{dB}$

2. 3. Input /Output

		S3531A	S3531B
RF Input/Output		Type -N female (50Ω)	Type -N female (50Ω)
USB		USB 1.1 B plug	USB 1.1 B plug
LAN		10/100 Base-T, RJ-45 Connectivity	10/100 Base-T, RJ-45 Connectivity
RS232		9-pin D-sub (M)	9-pin D-sub (M)
Reference input/output	10MHz, BNC female	Input level 0dBm ~ +10dBm	Input level 0dBm ~ +10dBm
		Output level 0dBm±2dB	Output level 0dBm±2dB
Trig input	BNC female	5V TTL	5V TTL

2. 4. RBW

	S3531A	S3531B
Range	1Hz - 3MHz	1Hz - 3MHz
Resolution filter shape factor(60dB/3dB)	<5: 1 (Typ.)	<5: 1 (Typ.)
Accuracy	<5% (Typ.)	<5% (Typ.)
Video bandwidth (VBW)	10Hz - 3MHz	10Hz - 3MHz

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

Frequency	S3531A		S3531B	
	Preamp off	Preamp on	Preamp off	Preamp on
100kHz ~ 1MHz	<-100dBm-3×(f/100kHz)dB	<-120dBm-3×(f/100kHz)dB	<-95dBm-3×(f/100kHz)dB	<-110dBm-3×(f/100kHz)dB
1MHz ~ 10MHz	<-130dBm	<-150dBm	<-130dBm	<-150dBm
10MHz ~ 1GHz	<-135dBm	<-155dBm	<-135dBm	<-155dBm
1GHz ~ 1.8GHz	<-130dBm	<-153dBm	<-130dBm	<-148dBm
1.8GHz - 3GHz	-	-	<-130dBm	<-148dBm

2. 6. Phase Noise

	S3531A		S3531B	
SSB phase noise (RBW=1kHz, Sample detector, Trace average≥10)				
CF=500MHz	Carrier offset 30kHz	-90dBc/Hz	Carrier offset 30kHz	-90dBc/Hz
	Carrier offset 100kHz	-100dBc/Hz	Carrier offset 100kHz	-100dBc/Hz
	Carrier offset 1MHz	-115dBc/Hz	Carrier offset 1MHz	-115dBc/Hz

2. 7. Sweep Time

	S3531A	S3531B
Sweep time		
Full Span	3ms ~ 3000s	3ms ~ 3000s
zero span	1ms ~ 3000s	1ms ~ 3000s
Sweep mode	Continuous, single	Continuous, single

2. 8. Spurious Response

		S3531A	S3531B
TOI	>30MHz	+13dBm	+13dBm
SHI		+30dBm	+40dBm
Input related spurious		<-60dBc	<-60dBc
Inherent residual response		<-85dBm	<-85dBm

2. 9. Tracking Generator (Option)

	S3531A	S3531B
Frequency range	100kHz - 1.8GHz	100kHz - 3GHz
Output level	-30dBm To 0dBm Stepped by 1 dB	-30dBm To 0dBm Stepped by 1 dB
Output flatness	±3dB	±3dB

2. 10. General

		S3531A	S3531B
Display		8 inch TFT LCD	8 inch TFT LCD
Dimensions		335(H)×162(W)×116(D)mm	335(H)×162(W)×116(D)mm
Weight		4Kg	4Kg
Operating Temperature range		0°C to 50°C	0°C to 50°C
Storage Temperature range		-20°C to +70°C	-20°C to +70°C
Power	Input Voltage	100V-240V AC	100V-240V AC
	Input Frequency	40Hz - 60Hz	40Hz - 60Hz
	Consumption	Max 20W	Max 20W

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