



# 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 No.	Item	Description
S3531-01	Field Strength Measurement	/
S3531-02	Near Field Probe Kit	/
S3531-03	Frequency Identity Module	/
S3531-04	Directional Antenna	Frequency range: 600MHz - 8GHz
S3531-05	Omnidirectional Antenna	Frequency range: 300MHz - 7.5GHz
S3531-06	SWR Bridge	Frequency range: 10MHz - 3.6GHz
S3531-07	USB Power Sensor	Frequency range: 10MHz - 6GHz
S3531-08	RF Demonstration Kit	/

## 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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S3531-02-01

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## Authorization

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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.

## Contacts

Service Tel:	886.909 602 109
Website:	<a href="http://www.salukitec.com">www.salukitec.com</a>
Email:	<a href="mailto:sales@salukitec.com">sales@salukitec.com</a>
Address:	No. 367 Fuxing N Road, Taipei 105, Taiwan (R.O.C.)

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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

- Frequency range: 9kHz - 1.8GHz / 3.0GHz
- Resolution bandwidth: 1Hz -3MHz
- Sensitive, standard pre-amplifier, best DANL < -158dBm
- Multi-window, multi-trace, clear display
- Dual signal source (tracking source and normal source)
- Standard LAN and USB interface, support SCPI
- Standard AM,FM demodulation functions
- Standard FFT 1Hz resolution bandwidth function
- Standard 1.8GHz / 3.0GHz tracking source function
- Support field strength measurement, Pass-fail, S11 and S21, channel measurement, etc. functions

## 2. Specification Details

### 2.1. Frequency

	S3531A	S3531B
<b>Frequency range</b>	9kHz - 1.8GHz	9kHz - 3.0GHz
<b>Resolution</b>	1Hz	1Hz
<b>Frequency readout accuracy</b>	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span}/(\text{number of sweep points}-1)] + 1\text{Hz})$	
<b>Aging Rate</b>	$\pm 2\text{ppm/year}$	
<b>Temperature stability</b>	$\pm 1\text{ppm} (15^\circ\text{C} \sim 35^\circ\text{C})$	

### 2.2. Amplitude

	S3531A	S3531B
<b>Amplitude</b>		

Measurement Range (fc≥10MHz)	DANL to +27dBm	DANL to +20dBm
Maximum Safe Input Level	+27dBm	+23dBm
Maximum DC Voltage	50Vdc	50Vdc
Input Attenuator Range	0 - 39dB, Steps of 3 dB	0 - 30dB, Steps of 1 dB
1dB compression	+7dBm	+7dBm
<b>Amplitude Accuracy (20°C - 30°C)</b>		
Comprehensive amplitude accuracy (90%)	Input range: 0dBm to -50dBm, ±1.5dB	

### 2. 3. Input /Output

	S3532A	S3532B
RF Input/Output	Type -N female (50Ω)	
USB	USB 1.1 B, USB 2.0 A	
LAN	10/100 Base-T, RJ-45 Connectivity	
AF Output	3.5mm mini jack for headphones	
Reference input/output	10MHz: Input level 0dBm to +10dBm	
	BNC female: Output level 0dBm±2dB	
Trig input	BNC female	5V TTL (±10V, 100mA maximum)
VGA	800*480, 60Hz 15 D-SUB pin (f)	
RS232	9 D-SUB pin (M)	

### 2. 4. RBW

	S3531A	S3531B
Range	1Hz - 500kHz (in 1 to 10 step), 1MHz, 3MHz	
Resolution filter shape factor(60dB/3dB)	<5:1 (Typ.)	
Accuracy	<5% (Typ.)	
Video bandwidth (VBW)	10Hz - 3MHz	

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

S3531A	S3531B
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Frequency	Preamp off	Preamp on	Frequency	Preamp off	Preamp on
100kHz - 1MHz	<-100dBm-3×(f/100kHz) z)dB	<-120dBm-3×(f/100kHz) dB	100kHz - 1MHz	<-100dBm-3×(f/100kHz) z)dB	<-120dBm-3×(f/100kHz) z)dB
1MHz - 10MHz	<-130dBm	<-150dBm	1MHz - 10MHz	<-130dBm	<-150dBm
10MHz - 1GHz	<-135dBm	<-155dBm	10MHz - 1GHz	<-135dBm	<-155dBm
1GHz - 1.8GHz	<-134dBm	<-153dBm	1GHz - 3.0GHz	<-130dBm	<-148dBm

## 2. 6. Phase Noise

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

## 2. 7. Sweep Time

	S3531A	S3531B
<b>Sweep time</b>		
<b>Full Span</b>	3ms - 3000s	3ms - 3000s
<b>zero span</b>	1ms - 3000s	1ms - 3000s
<b>Sweep mode</b>	Continuous, single	Continuous, single

## 2. 8. Spurious Response

	S3531A	S3531B
<b>TOI (&gt;30MHz)</b>	+13dBm	
<b>SHI (&gt;10MHz)</b>	+30dBm	
<b>Input related spurious (&gt;10MHz)</b>	<-60dBc	
<b>Inherent residual response (&gt;10MHz)</b>	<-90dBm	<-85dBm

## 2. 9. Tracking Generator

	S3531A	S3531B
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Frequency range	100kHz - 1.8GHz	100kHz - 3.0GHz
Output level	-30dBm To 0dBm Stepped by 1 dB	-30dBm To 0dBm Stepped by 1 dB
Output flatness	±3dB	±3dB

## 2.10. General

		<b>S3531A</b>	<b>S3531B</b>
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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