

S3331 Series Handheld Spectrum Analyzer Datasheet



Saluki Technology Inc.

The document applies to the instruments of the following models:

- S3331A handheld spectrum analyzer (9kHz - 3.6GHz).
- S3331B handheld spectrum analyzer (9kHz - 7.5GHz).

Standard Accessories of S3331 handheld spectrum analyzer:

Item	Name	Qty
1	Main Machine	1 PC
2	AC/DC Adaptor	1 PC
3	Power Cord	1 PC
4	Built-in Lithium Battery	1 PC
5	Coaxial Adapter (SMA to N)	1 PC
6	CD (manual, PC software)	1 PC

Options of the S3331 handheld spectrum analyzer:

Option No.	Item	Description
S3331-01	Backup Battery	/
S3331-02	Portable soft package	/
S3331-03	Field Strength Measurement	/
S3331-04	Directional Antenna	Frequency range: 600MHz - 8GHz
S3331-05	Omnidirectional Antenna	Frequency range: 300MHz - 7.5GHz
S3331-06	Near Field Probe Kit	/
S3331-07	SWR Bridge	Frequency range: 10MHz - 3.6GHz
S3331-08	USB Power Sensor	Frequency range: 10MHz - 6GHz

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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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.

Contacts

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1. Overview

S3331 series handheld spectrum analyzer is designed for field use. It can be operated in field for 4 hours with battery power supply. Built-in options such as tracking sources, preamplifiers, field strength measurements, audio demodulation, and high-resolution bandwidth enable fast and reliable resolution of a wide range of routine measurement tasks. It also provides telecommunication ports such as USB and LAN for remote data collection and remote control. Using the standard SCPI command set, user can quickly set up and upgrade an integrated test system for measurement.

Key Features

- Frequency range: 9kHz - 3.6GHz / 7.5GHz
- Resolution bandwidth: 1Hz -3MHz
- Sensitive, standard pre-amplifier, best DANL < -160dBm
- Dedicated transient detection for fast capture of transient signals
- Low weight, small size, large bright screen, suitable for field use
- Standard LAN and USB interface, support SCPI
- Standard AM,FM demodulation functions
- Standard FFT 1Hz resolution bandwidth function
- Standard 1.5GHz / 3.2GHz tracking source function (1.5GHz for S3331A, 3.2GHz for S3331B)
- Support field strength measurement, Pass-fail, S11 and S21, channel measurement, etc. functions

2. Specification Details

2.1. Frequency

	S3331A	S3331B
Frequency range	9kHz - 3.6GHz	9kHz - 7.5GHz
Resolution	1Hz	1Hz
Frequency readout accuracy	$\pm (\text{frequency indication} \times \text{frequency reference} + 1\% \times \text{span} + 10\% \times \text{RBW} + 0.5 \times [\text{span}/(\text{number of sweep points}-1)] + 1\text{Hz})$	
Aging Rate	$\pm 1\text{ppm/year}$	
Temperature stability	$\pm 0.5\text{ppm} (15^\circ\text{C} \sim 35^\circ\text{C})$	

2.2. Amplitude

	S3331A	S3331B
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Amplitude		
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	+10dBm
Amplitude Accuracy (20°C - 30°C)		
Comprehensive amplitude accuracy (90%)	Input range: 0dBm to -50dBm, ±1.5dB	

2. 3. Input /Output

	S3331A	S3331B
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)

2. 4. RBW

	S3331A	S3331B
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

S3331A			S3331B		
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	<-95dBm-3×(f/100kHz))dB	<-110dBm-3×(f/100kHz) z)dB
1MHz - 10MHz	<-130dBm	<-150dBm	1MHz - 10MHz	<-125dBm	<-140dBm
10MHz - 1GHz	<-135dBm	<-155dBm	10MHz - 2GHz	<-133dBm	<-148dBm
1GHz - 3.6GHz	<-130dBm	<-148dBm	2GHz - 3.4GHz	<-130dBm	<-143dBm
			3.4GHz - 5GHz	<-133dBm	<-145dBm
			5GHz - 7.5GHz	<-127dBm	<-138dBm

2. 6. Phase Noise

	S3331A		S3331B	
SSB phase noise (RBW=1kHz, Sample detector, Trace average ≥10)				
CF=500MHz	Carrier offset 30kHz	-90dBc/Hz	Carrier offset 30kHz	-80dBc/Hz
	Carrier offset 100kHz	-100dBc/Hz	Carrier offset 100kHz	-90dBc/Hz
	Carrier offset 1MHz	-110dBc/Hz	Carrier offset 1MHz	-110dBc/Hz

2. 7. Sweep Time

	S3331A	S3331B
Full Span	3ms - 3000s	
Zero Span	1ms - 3000s	
Sweep Mode	Continuous, single	

2. 8. Spurious Response

	S3331A	S3331B
TOI (>30MHz)	+13dBm	
SHI (>10MHz)	+30dBm	
Input related spurious (>10MHz)	<-60dBc	
Inherent residual response (>10MHz)	<-85dBm	

2. 9. Tracking Generator

	S3331A	S3331B
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Frequency range	100kHz - 1.5GHz	100kHz - 3.2GHz
Output level	-30dBm To 0dBm Stepped by 1 dB	
Output flatness	±3dB	

2.10. General

		S3331A	S3331B		
Measurement Functions		Spectrum analyzer, Interference analyzer, field strength, emission mask, channel power, OBW, ACPR, AM/FM analysis, audio analysis			
SCPI Control		Support	Support		
No. of Markers		5	5		
Marker Counter Resolution		1Hz, 10Hz, 100Hz, 1kHz	1Hz, 10Hz, 100Hz, 1kHz		
No. of Traces		5	5		
Detector Type		Normal, +peak, -peak, sample	Normal, +peak, -peak, sample		
Display		6.5 inch TFT LCD	6.5 inch TFT LCD		
		Resolution 600*480	Resolution 600*480		
Dimensions		288(H)×182(W)×142(D)mm	288(H)×182(W)×142(D)mm		
Weight		2.8kg (Including battery)	3kg (Including battery)		
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	Battery	Capacity	7.4V 6600mAh	Capacity	7.4V 6600mAh
		Supply time	About 4 hours	Supply time	About 3.5 hours
		Charging time	About 4 hours	Charging time	About 4 hours
	Power adapter	Input Voltage	100V-240V 50/60Hz 1.5A	Input Voltage	100V-240V 50/60Hz 1.5A
		Output Voltage	9V 4000mA	Output Voltage	9V 4000mA

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