

Chapter 1

General Information

Introduction

This chapter provides a description, performance specifications, optional accessories, preventive maintenance, and calibration requirements for the Site Master models S113B, S114B, S331B, and S332B. Throughout this manual, the term Site Master will refer to the models S113B, S114B, S331B, and S332B.



<u>Model</u>	<u>Frequency Range</u>
→ S113B	5 to 1200 MHz
S114B	5 to 1200 MHz, 100 kHz to 1200 MHz Spectrum Analysis
S331B	25 to 3300 MHz
S332B	25 to 3300 MHz, 100 kHz to 3000 MHz Spectrum Analysis

Description

The Site Master is a hand held SWR/RL (standing wave ratio/return loss), and Distance-To-Fault (DTF) measurement instrument that includes a built-in synthesized signal source. All models include a keypad to enter data and a liquid crystal display (LCD) to provide graphic indications of SWR or RL over the selected frequency range and selected distance. The Site Master is capable of up to 2.5 hours of continuous operation from a fully charged field-replaceable battery and can be operated from a 12.5 dc source. Built-in energy conservation features can be used to extend battery life over an eight-hour work day.

The Site Master is designed for measuring SWR, return loss, or cable insertion loss and locating faulty RF components in antenna systems. Power monitoring is available as an option. Site Master models S114B and S332B include spectrum analysis capability. The displayed trace can be scaled or enhanced with frequency markers or a limit line. A menu option provides for an audible "beep" when the limit value is exceeded. To permit use in low-light environments, the LCD can be back lit using a front panel key.

Standard Accessories

The Software Tools PC-based software program provides a database record for storing measurement data. Site Master Software Tools can also convert the Site Master display to a Microsoft Windows™ 95/98/NT workstation graphic. Measurements stored in the Site Master internal memory can be downloaded to the PC using the included null-modem serial cable. Once stored, the graphic trace can be displayed, scaled, or enhanced with markers and limit lines. Historical graphs can be overlaid with current data, and underlying data can be extracted and used in spreadsheets or for other analytical tasks.

The Site Master Software Tools program also performs DTF (Distance To Fault) and Fault Location.

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The following items are supplied with the basic hardware.

- Soft Carrying Case
- AC-DC Adapter
- Automotive Cigarette Lighter 12 Volt DC Adapter,
- CDROM disk containing the Software Tools program. This program contains Fault Location (DTF) and Smith Chart functions
- Serial Interface Cable (null modem type)
- One year Warranty (includes battery, firmware, and software)
- User's Guide

Options

- Option 5 — Add RF Wattmeter Power Monitor

Optional Accessories

- Anritsu Precision N (m) Open/Short/Load, 42 dB, Part No. OSLN50LF
- Anritsu Precision N (f) Open/Short/Load, 42 dB, Part No. OSLNF50LF
- Anritsu Precision N (m) Short/Open, Part No. 22N50
- Anritsu Precision N (f) Short/Open, Part No. 22NF50
- Site Master Precision N (m) Load, 42 dB, Part No. SM/PL
- Site Master Precision N (f) Load, 42 dB, Part No. SM/PLNF
- 7/16 (m) Precision Open/Short/Load, Part No. 2000-767
- 7/16 (f) Precision Open/Short/Load, Part No. 2000-768
- Adapter, Precision N (m) to N (m), Part No. 34NN50A
- Adapter, Precision N (f) to N (f), Part No. 34NPNF50
- Adapter, 7/16 (f) to N (m), Part No. 510-90
- Adapter, 7/16 (f) to N (f), Part No. 510-91
- Adapter, 7/16 (m) to N (m), Part No. 510-92
- Adapter, 7/16 (m) to N (f), Part No. 510-93
- Adapter, 7/16 DIN (m) to 7/16 DIN (m), Part No. 510-96
- Adapter, 7/16 DIN (f) to 7/16 DIN (f), Part No. 510-97
- Armored Test Port Extension Cable, 1.5 meter, N (m) to N (f), Part No. 15NNF50-1.5A
- Armored Test Port Extension Cable, 3.0 meter, N (m) to N (f), Part No. 15NNF50-3.0A
- Armored Test Port Extension Cable, 5.0 meter, N (m) to N (f), Part No. 15NNF50-5.0A
- Armored Test Port Extension Cable, 1.5 meter, N (m) to N (m), Part No. 15NN50-1.5A

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Table 1-1. Performance Specifications (1 of 2)

Specifications are valid when the unit is calibrated at ambient temperature after a 5 minute warmup.



<u>Description</u>	<u>Value</u>
Site Master:	Frequency Range:
S113B, S114B	5 to 1200 MHz
S331B, S332B	25 to 3300 MHz
Frequency Accuracy (RF Source Mode)	75 parts per million @ 25°C*
Frequency Resolution	
S113B, S114B	10 kHz
S331B, S332B	100 kHz
SWR:	
Range	1.00 to 65.00
Resolution	0.01
Return Loss:	
Range	0.00 to 54.00 dB
Resolution	0.01 dB
**Distance-To-Fault (DTF):	
Range (in meters)	0 to (Resolution x dp)
Resolution (in meters)	$(1.5 \times 10^8) \left(\frac{\Delta F}{V_f} \right)$
(Rectangular Windowing)	
	Where V_f is the relative propagation velocity of the cable .
	dp is the number of data points (128, 256, 512).
	ΔF is $F_2 - F_1$ (in Hz.)
Wattmeter Power Monitor:	
Range	-80.0 to +80 dBm or 10.0 pW to 100.0 kW
Offset Range	0 to +60.0 dB
Resolution	0.1 dB or 0.1 xW
Test Port, Type N	50 Ohms
***Immunity to Interfering signals	
up to the level of: S113B, S114B	+10 dBm, reflection
S331B, S332B	-5 dBm, reflection
Maximum Input (Damage Level):	
Test Port, Type N	+22 dBm
RF Detector	+20 dBm
Measurement Accuracy:	
Measurement accuracy depends on calibration components. Precision calibration components have a directivity of 42 dB.	
Cable Insertion Loss:	
Range	0.00 to 54.00 dB
Resolution	0.01 dB
Spectrum Analyzer:	Frequency Range
S114B	100 kHz to 1200 MHz
S332B	100 kHz to 3000 MHz
Frequency Reference	
Aging	±1 ppm/yr
Accuracy	±2 ppm

Table 1-2. Performance Specifications (2 of 2)

Frequency Span	
S114B	0 Hz (zero span) 100 kHz to 1200 MHz
S332B	0 Hz (zero span) 100 kHz to 3000 MHz
Sweep Time	0.5 sec.
Resolution Bandwidth	10 kHz, 30 kHz, 100 kHz, 1 MHz
Accuracy	± 20% typical
Video Bandwidth	3 kHz, 10 kHz, 30 kHz and 300 kHz
SSB Phase Noise	
@ (1 GHz) 30 kHz offset	≤ -75 dBc/Hz
Spurious Responses	
Input Related	≤ -45 dBc
Spurious	
Residual Responses	≤ -95 dBm
Note: 10 kHz resolution bandwidth, input terminated, no attenuation	
Amplitude	
Measurement Range	-90 dBm to +20 dBm typical
Dynamic Range	≥ 60 dB typical
Maximum Safe Input Level	+20 dBm, maximum measurable safe input +27 dBm, maximum damage +27 dBm, peak pulse power +50 Vdc
Displayed Average Noise	
Level:	≤ -90 dBm (400 kHz span) typical
Display Range	
Log Scale	2 to 15 dB/div. In 1 dB steps. Ten divisions displayed.
Frequency Response	
RF Input VSWR	2.0:1
Resolution (Ref. Level)	1.0 dB
Total Level Accuracy	±2 dB ≥ 200 kHz, ±3 dB <200 kHz typical
General	
Internal Memory:	
Trace Memory	200 maximum
Instrument config.	10 setup locations
RS-232	9 pin D-sub, three wire serial
Electromagnetic Compatibility	Meets European community requirements for CE marking
Power Supply:	
External DC Input	+11 to +15 Vdc, 1250 mA max.
Temperature:	
Storage	-20° C to 75° C
Operation	0° C to 50° C
Weight:	1.82 kg (4.0 pounds)
Dimensions:	25.4 x 17.8 x 6.1 cm (10 x 7 x 2.4 inches)

* ±2 ppm/Δ°C from 25°C

** Fault location is accomplished by inverse Fourier Transformation of data taken with the Site Master. Resolution and maximum range depend on the number of frequency data points, frequency sweep range and relative propagation velocity of the cable being tested.