Anritsu

Site Master ™
S112, S113
Personal SWR/RL and Fault Location Tester

User's Guide

Hand-Held Tester For Antennas, Transmission Lines And Other RF Components

Chapter 1
General Information

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Introduction

This chapter provides description, specification, and optional accessories for the **Site Master** Series instruments. This series has two members, as shown below. Throughout this manual, the term **Site Master** will refer to the series; whereas, the terms **Site Master S112, S113** will refer to the applicable individual models.

Model	Frequency Range
S112	5 to 1000 MHz
S113	5 to 1200 MHz

Description

The **Site Master** (Figure 1-1) is a hand held SWR/RL(standing wave ratio/return loss) and Distance-To-Fault measurement instrument that includes a built-in synthesized signal source and an optional power monitor. It uses a keypad to enter data and a liquid crystal display (LCD) to provide a graphical indication of SWR or RL over the selected frequency range. The **Site Master S113** has a built-in distance-to-fault capability. The **Site Master S112**, as well as model **S113**, allows measurement data to be converted to Fault Location via the companion Software Tools program. The **Site Master** is capable of up to two hours of continuous operation from a fully charged internal battery. It can also be operated from a 12.5 dc source (which will also simulta-

neously charge the battery). 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 capability is available as an option. The displayed trace can be scaled and/or enhanced with settable frequency markers and/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

A PC based software program (called Software Tools) provides an on-line database record for storing measurement data. **Site Master** Software Tools can also convert the **Site Master** display to a Microsoft Windows 3.x graphic. Measurements stored in the **Site Master** internal memory are down-loaded to the PC using the included serial cable. This null-modem serial cable connects between the Serial Interface connector on the **Site Master** and a Com Port on a DOS/Windows-based PC. Once stored, the graphic trace can then be displayed, scaled, and/or enhanced with markers and limit lines. Historical graphs can be overlaid with current data by using the PC’s mouse in “drag-n-drop” fashion. The underlying data can be extracted and used in spreadsheets or for other analytical tasks.

The Software Tools program also performs DTF (Distance To Fault) or Fault Location by clicking on the appropriate icon.

Performance Specifications

Performance specifications are provided in Table 1-1.

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

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

Description	Value
Frequency Range:	
Site Master S112	5 to 1000 MHz
Site Master S113	5 to 1200 MHz
Frequency Accuracy (CW Mode)	75 parts per million @25°C*
Frequency Resolution	10 kHz
SWR:	
Range	1.00 to 65.00
Resolution	0.01
Return Loss:	
Range	0.0 to 54.00 dB
Resolution	0.01 dB
Cable Insertion Loss:	
Range	0.0 to 20.00 dB
Resolution	0.01 dB
**Distance-To-Fault (DTF):	
Range	0 to (Resoution x 129)
Resolution (in meters) (Rectangular Windowing)	$\frac{(1.5 \times 10^8)(V_p)}{\Delta Frequency}$ Where V_p is the cable's relative propagation velocity.

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

Wattmeter Power Monitor:	
Range	–50.0 to +20 dBm *or* 10.0 nW to 100.0 mW
Offset Range	0 to +60.0 dB 0.1 dB *or*
Resolution	0.1 xW
Test Port, Type N	50 Ohms
***Immunity to Interfering signals up to the level of	+10 dBm
Maximum Input (Damage Level):	
Test Port, Type N	+22 dBm
RF Detector	+20 dBm
Measurement Accuracy: Measurement accuracy depends on calibration components. Standard calibration components have a directivity of 35 dB. Precision calibration components have a directivity of 42 dB.	
Temperature:	
Storage	–20° C to 75° C
Operation	0° C to 50° C
Weight:	2.2 pounds
Size:	8x7x2¼ 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.*

**** Immunity measurement is made in CW mode with incoming intefering signal exactly at the same frequency (worst case situation). Typical immunity is better when swept frequency is used.*