

Chapter 1

General Information

Introduction



This chapter provides description, specification, and optional accessories for the **Site Master** Series instruments. This series has four members, as shown below. Throughout this manual, the term **Site Master** will refer to the series; whereas, the terms **Site Master S110, S130, S111, and S331** will refer to the applicable individual models.

<u>Model</u>	<u>Frequency Range</u>
S110	600 to 1200 MHz
S111	300 to 1200 MHz
S330	700 to 3300 MHz
S331	25 to 3300 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. 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 S111** and **S331** have a built-in distance-to-fault capability. The **Site Master S110** and **S330**, as well as models S111 and S331, allow measurement data to be converted to Fault Location via the companion Soft-

ware 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 simultaneously 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. 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.

The following items are supplied with the basic hardware.

- Soft carrying case
- Standard Calibration Components
- AC-DC adapter
- Automotive Cigarette Lighter 12 Volt DC Adapter
- 3 1/2-inch floppy disk containing the Software Tools program. This program contains Fault Location (DTF) and Smith Chart functions.
- Serial Interface Cable, Part Number 800-441
- One year Warranty (includes battery, firmware, and software)
- User's Guide
- Programming Manual



Optional Accessories

- Wiltron precision N type Short/Open, Part No. 22N50
- Site Master precision N Load, 42 dB Part No. SM/PL
- Test Port Extension Cable, 1.5 meter, Part No. TP/ECN 1.5
- Test Port Extension Cable, 3.0 meter, Part No. TP/ECN 3.0
- Test Port Extension Cable, 5.0 meter, Part No. TP/ECN 5.0
- Test Port Extension Cable, 1.5 meter, Part No. TP/EC 1.5
- Test Port Extension Cable, 3.0 meter, Part No. TP/EC 3.0
- Test Port Extension Cable, 5.0 meter, Part No. TP/EC 5.0

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- Transit Case for Site Master, Part No. 760-194A
- HP Deskjet 340 Printer, Part No. 2000-766
- Serial-to-Parallel Converter Cable (use with the HP 340 Printer), Part No. 2000-753
- Seiko DPU-411 Thermal Printer, Part No. 2000-754 or 2000-761
- Serial Interface Cable (use with the DPU-411 Printer), Part No. 2000-756
- Thermal Paper (use with the DPU-411 Printer), Part No. 2000-755

Spares

- N type Standard Short, Part No. SM/STS
- N type Standard Load, 35 dB, Part No. SM/STL
- Soft Carrying Case, Part No. D41955
- AC/DC Adapter, Part No. 40-97
- Serial Interface Cable, Part Number 800-441

Performance Specifications

Performance specifications are provided in Table 1-1.

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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>
Frequency Range	
Site Master S110	600 to 1200 MHz
Site Master S111	300 to 1200 MHz
Site Master S330	700 to 3300 MHz
Site Master S331	25 to 3300 MHz
Frequency Accuracy (CW Mode)	75 parts per million
Frequency Resolution	100 kHz
Measurement Range VSWR	1.00 to 65.00
Return Loss Resolution	0.1 dB
*Fault Location Resolution, nominal	0.8% of maximum range
Dynamic Range	54 dB
Directivity (corrected)	35 dB (Standard Calibration) 42 dB (Precision Calibration)
Test Port, Type N	50 Ohms
Max. Power output, nominal	
Site Master S110, S111	+9 dBm
Site Master S330, S331	–7 dBm (25 to 800 MHz) –3 dBm (800 to 1600 MHz) –14 dBm (1600 to 3300 MHz)
**Immunity to Interfering signals up to the level of	+10 dBm (Site Master S110, S111) –15 dBm (Site Master S330, S331)
Maximum Input (Damage Level)	+22 dBm

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

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
Maximum (burnout) level of incoming signal at port	+22 dBm
Weight	2.2 pounds
Size	8x7x2 ¹ / ₄ inches

** 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.*

Maximum Range = $\frac{(1.5 \times 10^8) (129) (V_f)}{(F2-F1)}$

*Where: F1 is start frequency
F2 is stop frequency
V_f is relative propagation velocity*

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



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