

**SITE MASTER**  
**S100/S200A/S300A/S800A series**

5 MHz to 18 GHz



Site Master is the instrument of choice for transmission line/antenna installation and maintenance. It is the best way to reduce maintenance expenses and improve quality. It replaces stacks of heavy, expensive, and complex test equipment. Site Master's frequency domain reflectometry technique allows it to find problems before they become catastrophic faults, thereby creating a huge cost savings.

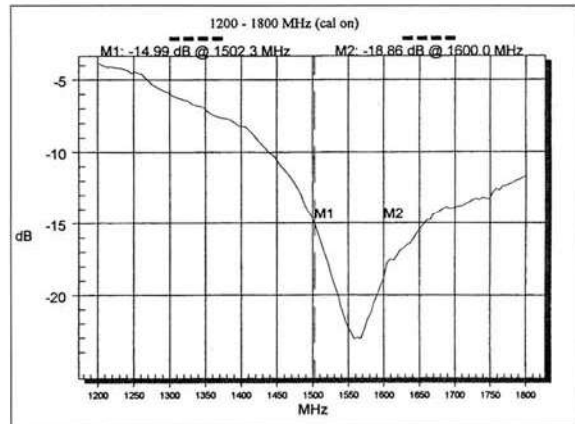
The Site Master is a precision, hand-held return loss/SWR and fault location measurement instrument. The Site Master series offers wide frequency coverage, from 5 MHz to 18 GHz. Built-in fault location, wattmeter, and bias tee capabilities are available. Light weight, rugged design and wide temperature range make it ideal for field applications. Site Master's proprietary design provides immunity to RF interference, which is important for live site testing.

Site Master Software Tools is a Windows® compatible software program provided with every Site Master unit. This software program provides many useful features, including a database for Site Master measurements, a Smith Chart displaying  $S_{11}$ , a "drag-n-drop" overlay for measurement comparison, the capability to download data to a PC, the capability to upload data such as custom cable list to selected Site Master model, and distance-to-fault calculations from return loss or SWR plots. Advanced printing capabilities are provided by Site Master software tools, including user-definable plot scaling and a multiple-plots-per-page option.

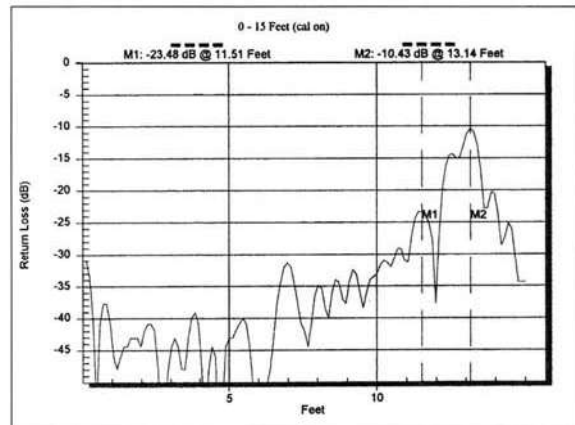
Site Master is the first test tool to provide the required accuracy, interference immunity, and repeatability for commissioning transmission lines and antennas and for maintaining today's wireless system infrastructures.

**Features**

- Accurate return loss/SWR measurements
- Built-in distance-to-fault: S113, S331A, S120A, S235A, S250A, S251A, S810A, and S818A only
- Accurately tests RF transmission lines and antennas
- Immunity to live site RF interference
- Distance-to-fault windowing functions
- Insertion Loss/Gain: S120A, S235A, S250A and S251A only
- Optional wattmeter
- Optional built-in bias tee: S251A only
- Synthesizer accurate to 75 ppm
- Internal memory saves up to 70 traces
- Direct printing via RS-232 serial port
- Remote operation via RS-232 serial port



Return loss



Distance-to-fault

**Applications**

Cellular, ISM, PCS/PCN, paging service, safety service, avionics, two-way radio, military and microwave point-to-point radio

Site Master allows implementation of preventative maintenance procedures. Unlike TDRs and spectrum analyzers/tracking generators, Site Master can spot RF degradation before failures occur. Problems can be fixed before expensive cables or waveguides are ruined.

Site Master is designed for field requirements. Its rugged construction survives rough field treatment. Battery power, light weight, small size, wide temperature range, and simple user interface are exactly what field technicians want today. Technicians can test antennas from ground level because Site Master's distance-to-fault measurement compensates for cable insertion loss. Site Master offers a new and better method to install and maintain transmission lines and antennas.

## Specifications\*1

Model	S120A/S235A/S250A/S251A	S112/S113	S330A/S331A	S810A/S818A
Frequency range	600 to 1200 MHz (S120A) 1250 to 2350 MHz (S235A) 1750 to 2500 MHz (S250A) 625 to 2500 MHz (S251A)	5 to 1000 MHz (S112) 5 to 1200 MHz (S113)	700 to 3300 MHz (S330A) 25 to 3300 MHz (S331A)	3.3 to 10.5 GHz (S810A) 3.3 to 18.0 GHz (S818A)
Frequency accuracy (CW mode)	75 ppm			
Frequency resolution	100 kHz	10 kHz	100 kHz	1 MHz
Immunity to interfering RF signals up to*2	+10 dBm, Reflection +30 dBc, Transmission	+10 dBm	-15 dBm	0 dBm, <12 GHz -10 dBm, <18 GHz
Return loss	Range: 0 to 54 dB, Resolution: 0.01 dB			
SWR	Range: 1 to 65, Resolution: 0.01			
Insertion Loss/Gain	Display range: -120 to 100.0 dB Resolution: 0.1 dB (S120A, S235A, S250A, S251A)			
Distance-to-fault (S113, S120A, S235A, S250A, S251A S331A, S810A, S818A)	Vertical range Return loss: 0 to 54 dB SWR: 1 to 65 Horizontal range: 0 to 128X (resolution) Horizontal resolution, rectangular windowing resolution (meter): Coax: $(1.5 \times 10^9)(\uparrow p)/\Delta \text{ frequency}^{*3}$ Waveguide: $(1.5 \times 10^9)(\sqrt{1-(F_c/F_1)^2})/\Delta \text{ frequency}^{*4}$			
Wattmeter (RF power monitor, Option 5)	Display range: -80 to +80 dBm, 10 pW to 100 kW Detector range: -50 to +20 dBm, 10 nW to 100 mW Offset range: 0 to +60 dB Resolution: 0.1 dB, 0.1 xW			
Bias Tee (Option 10) S251A only	+15 VDC, 200 mA maximum			
Cable/Waveguide loss	Range: 0 to 20 dB, Resolution: 0.01 dB			
Test port connector	Precision N female			
Maximum input without damage	N(f) test port: +22 dBm RF power detector: +20 dBm, 50 $\Omega$			
Trace memory	40 (S110 and S330A series) 50 (S120A and S200A series) 70 (S800A series)			
Instrument configuration	9 (S110 and S330A series) 4 (S120A and S200A series) 6 (S800A series)			
Calibration memory	2 (S110 and S330A series) 4 (S120A and S200A series)*5 6 (S800A series)*5			
Temperature	Operating: 0°C to 50°C Storage: -20°C to 75°C			
Weight	1.14 kg (2.5 lbs.) nom (S110 and S330A series) 1.36 kg (3.0 lbs.) nom (S120A, S200A series, S810A series)			
Size	203.2 mm x 177.8 mm x 57.2 mm (8 in x 7 in x 2.25 in)			
General	Electromagnetic compatibility: Meets European community requirements for CE marking. RS232: 9-pin D-sub, three wire serial			

\*1: All specifications apply when calibrated at ambient temperature after a five minute warm up.

\*2: Immunity performance is represented for a typical worst-case condition. Measurements were made in CW mode by injecting a signal into the Site Master through a coupler with the same signal injected through the coupled arm. In field applications, signals are modulated and varying in frequency rather than CW. Immunity is typically better when swept frequencies are used.

\*3: Where  $\uparrow p$  is the cable's relative propagation velocity.  $\Delta$  frequency is the stop frequency minus the start frequency (in Hz). Wide frequency sweeps improve resolution but reduce maximum display range.

\*4: Where  $F_c$  is the waveguide's cutoff frequency (in Hz) and  $F_1$  is the start frequency (in Hz).  $\Delta$  frequency is the stop frequency minus the start frequency (in Hz). Wide frequency sweeps improve resolution but reduce maximum display range.

\*5: S120A, S200A and S800A, series calibration stored with instrument configuration.

## Ordering Information

Please specify model/order number, name, and quantity when ordering.

Model/Order No.	Name
	<b>Main frame</b>
S112	Site Master (5 to 1000 MHz)
S113	Site Master (5 to 1200 MHz), built-in DTF
S120A	Site Master (600 to 1200 MHz), built-in DTF
S235A	Site Master (1250 to 2350 MHz), built-in DTF
S250A	Site Master (1750 to 2500 MHz), built-in DTF
S251A	Site Master (625 to 2500 MHz), built-in DTF
S330A	Site Master (700 to 3300 MHz)
S331A	Site Master (25 to 3300 MHz), built-in DTF
S810A	Site Master (3.3 to 10.5 GHz), built-in DTF
S818A	Site Master (3.3 to 18.0 GHz), built-in DTF
	<b>Standard accessories</b>
	User's Guide
	Soft Carrying Case
	AC-DC Adapter
	Automotive Cigarette Lighter/12 Volt DC Adapter
	One Year Warranty
	3.5 inch Floppy Disk containing Fault Location (DTF), Smith Chart and Software Management Tools
	Serial Interface Cable
	<b>Options</b>
Option 5	RF Watt Meter Power Monitor (RF detector not included)
Option 10	Built-in Bias Tee
	<b>Optional accessories</b>
5400-71N50	RF Detector, N(m), 50 Ohm, 1 to 3000 MHz
560-7N50B	RF Detector, N(m), 50 Ohm, 10 MHz to 20 GHz
560-7K50	RF Detector, K(m), 50 Ohm, 10 MHz to 40 GHz
560-7KVA50	RF Detector, V(m), 50 Ohm, 10 MHz to 50 GHz
IN50C	5W Limiter, N(m)-N(f), 18 GHz
22K50	Precision K(m) Short/Open, 40 GHz
22N50	Precision N(m) Short/Open, 18 GHz
22NF50	Precision N(f) Short/Open, 18 GHz
SM/STS	Standard N(m) Short, 3.5 GHz
SM/STSNF	Standard N(f) Short, 3.5 GHz
SM/PL	Precision N(m) Load, 42 dB, 3.5 GHz
SM/PLNF	Precision N(f) Load, 42 dB, 3.5 GHz
SM/STL	Standard N(m) Load, 35 dB, 3.5 GHz
28K50	Precision N(m) Load, 40 GHz
28N50-2	Precision N(m) Load, 40 dB, 18 GHz
28NF50-2	Precision N(f) Load, 40 dB, 18 GHz
2000-767	Precision Open/Short/Load, 7-16 (m), 3.5 GHz
2000-768	Precision Open/Short/Load, 7-16 (f), 3.5 GHz
15NN50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to N(m), 3.5 GHz
15NN50-3.0A	Test Port Cable Armored, 3.0 meter, N(m) to N(m), 3.5 GHz
15NN50-5.0A	Test Port Cable Armored, 5.0 meter, N(m) to N(m), 3.5 GHz
15NNF50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to N(f), 3.5 GHz
15NNF50-3.0A	Test Port Cable Armored, 3.0 meter, N(m) to N(f), 3.5 GHz
15NNF50-5.0A	Test Port Cable Armored, 5.0 meter, N(m) to N(f), 3.5 GHz
15ND50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to 7/16 (m), 3.5 GHz
15NDF50-1.5A	Test Port Cable Armored, 1.5 meter, N(m) to 7/16 (f), 3.5 GHz

Model/Order No.	Name
15NNF50-1.5B	Test Port Cable Armored, 1.5 meter, N(m) to N(f), 18 GHz
800-109	Detector Extender Cable, 7.6 m (25 ft.)
800-110	Detector Extender Cable, 15.2 m (50 ft.)
800-111	Detector Extender Cable, 30.5 m (100 ft.)
800-112	Detector Extender Cable, 61 m (200 ft.)
SC5372	Detector Extender Cable, 100 m (328 ft.)
34NN50A	Precision N(m) to N(m) Adapter, 18 GHz
34NFNF50	Precision N(f) to N(f) Adapter, 18 GHz
34RKNF50	Precision Ruggedized K(m) to N(f) Adapter, 20 GHz
34RSN50	Precision Ruggedized WSMA(m) to N(m) Adapter, 20 GHz
K220B	Precision K(m)-K(m) Adapter, 40 GHz
K222B	Precision K(f)-K(f) Adapter, 40 GHz
1091-26	Adapter N(m) to SMA(m), 18 GHz
1091-27	Adapter N(m) to SMA(f), 18 GHz
510-90	Adapter 7-16(f) to N(m), 3.5 GHz
510-91	Adapter 7-16(f) to N(f), 3.5 GHz
510-92	Adapter 7-16(m) to N(m), 3.5 GHz
510-93	Adapter 7-16(m) to N(f), 3.5 GHz
510-96	Adapter 7/16 (m) to 7/16 (m), 3.5 GHz
510-97	Adapter 7/16 (f) to 7/16 (f), 3.5 GHz
D41955	Spare Soft Carrying Case
40-115	Spare AC/DC Adapter
806-62	Spare Automotive Cigarette Lighter/12 Volts DC adapter
800-441	Spare Serial Interface Cable
760-213	Transit Case for S800 Series Site Master
760-215	Transit Case for Site Master
2300-211	Spare Site Master Software Tools
10580-00017	Spare Site Master S330A, S331A User's Guide
10580-00009	Spare Site Master S112, S113 User's Guide
10580-00016	Spare Site Master S120A, S235A and S250A User's Guide
10580-00014	Spare Site Master S810A, S818A User's Guide
10580-00020	Spare Site Master S251A User's Guide
10580-00010	Site Master Programming Manual
10580-00008	Spare Site Master II/III Maintenance Manual (for S112, S113, S330A, S331A)
10580-00019	Spare Site Master V Maintenance Manual
2000-766	HP DeskJet Printer Includes: Serial-to-Parallel Interface Cable, Black Print Cartridge, and US Power Cable
2000-753	Spare Serial-to-Parallel Converter Cable
2000-661	Black Print Cartridge
2000-662	Rechargeable Battery for DeskJet Printer
2000-663	Power Cable (Europe) for DeskJet Printer
2000-664	Power Cable (Australia) for DeskJet Printer
2000-665	Power Cable (UK) for DeskJet Printer
2000-667	Power Cable (So. Africa) for DeskJet Printer
2000-754	Seiko DPU-414-30BU Thermal Printer (120VAC) Includes: Internal Battery, Thermal Printer Paper, Serial Cable, US Power Cable
2000-761	Seiko DPU-414-30BU Thermal Printer (220VAC) Includes: Internal Battery, Thermal Printer Paper, Serial Cable, Euro Power Cable
2000-1002	US Adapter (for Seiko DPU-414-30BU Printer)
2000-1003	Europe Adapter (for Seiko DPU-414-30BU Printer)
2000-1004	Battery Pack (for Seiko DPU-414-30BU Printer)
2000-756	Spare Serial 9-pin to 25-pin D-sub Converter Cable (Seiko DPU-411)
2000-1012	Spare Serial 9-pin (m) to 9-pin (f) Cable (for Seiko DPU-414-30BU Printer)
2000-755	Five (5) rolls of Thermal Paper