

Test Equipment Solutions Datasheet

Test Equipment Solutions Ltd specialise in the second user sale, rental and distribution of quality test & measurement (T&M) equipment. We stock all major equipment types such as spectrum analyzers, signal generators, oscilloscopes, power meters, logic analysers etc from all the major suppliers such as Agilent, Tektronix, Anritsu and Rohde & Schwarz.

We are focused at the professional end of the marketplace, primarily working with customers for whom high performance, quality and service are key, whilst realising the cost savings that second user equipment offers. As such, we fully test & refurbish equipment in our in-house, traceable Lab. Items are supplied with manuals, accessories and typically a full no-quibble 1 year warranty. Our staff have extensive backgrounds in T&M, totalling over 150 years of combined experience, which enables us to deliver industry-leading service and support. We endeavour to be customer focused in every way right down to the detail, such as offering free delivery on sales, presenting flexible technical + commercial solutions and supplying a loan unit during warranty repair, if available.

As well as the headline benefit of cost saving, second user offers shorter lead times, higher reliability and multivendor solutions. Rental, of course, is ideal for shorter term needs and offers fast delivery, flexibility, try-before-you-buy, zero capital expenditure, lower risk and off balance sheet accounting. Both second user and rental improve the key business measure of Return On Capital Employed.

We are based at Aldermaston in the UK from where we supply test equipment worldwide. Our facility incorporates Sales, Support, Admin, Logistics and our own in-house Lab.

All products supplied by Test Equipment Solutions include:

- No-quibble parts & labour warranty (we provide transport for UK mainland addresses).
- Free loan equipment during warranty repair, if available.
- Full electrical, mechanical and safety refurbishment in our 40GHz in-house Lab.
- Certificate of Conformance (calibration available on request).
- Manuals and accessories required for normal operation.
- Free insured delivery to your UK mainland address (sales).
- Support from our team of seasoned Test & Measurement engineers.
- ISO9001 quality assurance.

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Site Master™ S251C

Broadband Two-Port Transmission Line and
Antenna Analyzer

625 MHz to 2500 MHz



The World's Leading Cable and Antenna System Analyzer

THE LEADING CABLE AND ANTENNA ANALYZER FOR WIRELESS PROFESSIONALS

- Gain/Insertion, Fault Location, Return Loss/SWR and Cable Loss Measurements
- High Immunity to Live Site RF Interference
- Built-in-Bias Tee (240 mA Steady State)
- RF Source 625 to 2500 MHz at 10 kHz steps
- Trace Storage with Date/Time Stamp, Alphanumeric Labeling (Up to 200 Memory Locations)
- Cable List Pop-up Menu Contains Over 75 Cable Types and 3 Frequency Band Presets.

Easy-to-Use

Site Master's S251C menu driven interface requires little training and simplifies the field engineers and technicians task of deployment, site-to-site maintenance and troubleshooting by identifying, recording and solving problems without sacrificing measurement accuracy.

- Store ten test setups for fast repeatable testing.
- Store up to 200 measurement traces in nonvolatile memory.
- Multilingual user interface features on screen menus and messages in 5 different languages.

Powerful Data Analysis Software

Powerful data analysis software comes with every Site Master unit, providing users with an easy method of analyzing system performance, trends and problems in addition to professional report generation.

- Site Master PC software is Windows 95/98/2000/ME and NT workstation compatible and supports long alpha-numeric file names for descriptive data labeling.
- Store an unlimited number of data traces for comparison to historical performance.
- Quickly and easily download data traces from the Site Master to a PC database with a single menu selection.

Accurate, Repeatable Measurements

Utilizing vector error correction, Site Master delivers accurate, reliable and repeatable Return Loss/SWR and Fault Location measurements. Site Master's high immunity to interference allows users to conduct measurements of an active site without the loss of accuracy.

- Locate long range problems with 517 data points.
- Superior immunity to on-channel interference for testing at co-located antenna sites.
- Large, high-resolution display allows for easy viewing and trace interpretation under a variety of conditions.
- Full range of marker and limit functions facilitate quick, comprehensive measurements.

Specifications*¹

Frequency Range		625 to 2500 MHz
Frequency Accuracy (CW mode)		75 ppm
Frequency Resolution		10 kHz
Display Resolution		130, 259, 517 data points
Interference Immunity (dBm)	On-Channel* ²	+17 dBm
	On-Frequency* ³	+10 dBm, RF out, +30 dBc, RF in
Return Loss	Range	0 to 54 dB
	Resolution	0.01 dB
SWR	Range	1 to 65
	Resolution	0.01
RF Source	Frequency	625 to 2500 MHz at 10 kHz step
	Power Output (nominal)	Selectable, -30 dBm or +6 dBm
Insertion Loss/Gain	Measurement Range	-90 to +50 dB
	Resolution	0.1 dB
Distance-to-Fault	Vertical range	Return loss: 0 to 54 dB
		SWR: 1 to 65
	Horizontal range (meter)	0 to (data points -1) x resolution to a maximum of 1000 m (3281 ft.), where data points = 130, 259, 517
	Horizontal resolution, (rectangular windowing) (meter)	$(1.5 \times 10^9) (v_p) / \Delta \text{ frequency}^{*4}$
RF power monitor, (Option 5)	Display range	-80 to +80 dBm, 10 pW to 100 kW
	Detector range	-45 to +20 dBm, 32 nW to 100 mW
	Offset range	0 to +60 dB
	Resolution	0.1 dB, 0.1 x W
Bias Tee (Option 10A)		+15 VDC, 270 mA peak 25m sec, 240 mA steady state
Cable Loss	Range	0 to 54 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 Ω
Trace memory		up to 200
Instrument configuration with calibration		10
Custom cable configuration		50
Temperature	Operating	0 to 50°C
	Storage	-20°C to 75°C
Weight		1.81 kgs (4.0 lbs.)
Size		25.4 x 17.8 x 6.10 cm (10 x 7 x 2.4 in.)
General	Electromagnetic compatibility	Meets European community CE requirements
	RS232	9 pin D-sub, three wire serial

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

*2: On-Channel Interference Immunity is specified at >1.0 MHz of the carrier frequency.

*3: On-Frequency Interference Immunity is specified to within ± 10 kHz of the carrier frequency.

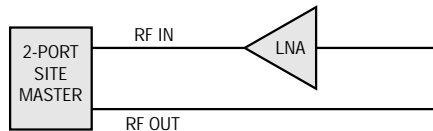
*4: Where v_p is the cable's relative propagation velocity. Δ frequency is the stop frequency minus the start frequency (in Hz).
Wide frequency sweeps improve resolution but reduce maximum display range.

SITE MASTER S251C FOR 2-PORT/TOWER TOP APPLICATIONS

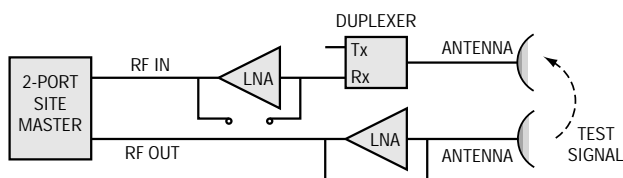
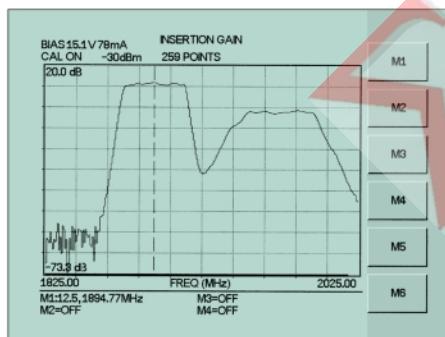
Performance enhancing design trends such as high sector-to-sector isolation, tower-mounted amplifiers and duplexed antennas add new complexities to site installation, deployment, maintenance and troubleshooting. To help simplify performance verification for these systems, a second test port for isolation, gain and insertion loss measurements is required. Addressing this need, the Site Master S251C features a second test-port for testing sector-to-sector isolation, tower-mounted amplifiers and duplexed antennas.

Gain

The Site Master S251C, features a selectable output power at +6 dBm or -30 dBm and an optional, built-in Bias Tee, to enable two-port insertion gain measurement of Tower Mounted Amplifiers (TMA) without the need of an external supply through the PDU (Power Distribution Unit) and an external attenuator. This greatly simplifies the technician's task of verifying amplifier and system performance during installation or periodic maintenance and troubleshooting intervals. Site Master's industry leading high RF interference immunity allows test signal injection between antennas with a minimum of interference induced distortion and is designed to perform both installation and maintenance tests from ground level.



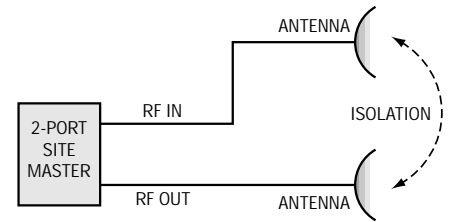
Amplifier Gain Test Measurement.



Site Master's high dynamic range enables LNA measurements at ground level.

Isolation

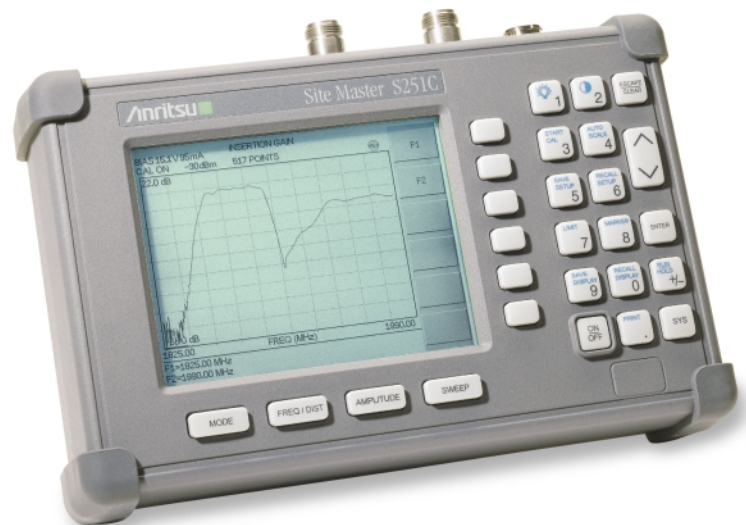
Improving isolation between antenna sectors can reduce cell-to-cell RF Interference and improve system coverage and capacity. To address this measurement requirement, the Site Master S251C features high dynamic range, which ensures that antenna isolation is accurately



Accurately measure antenna isolation with Site Master's high dynamic range.

measured during deployment and during periodic maintenance intervals – including the extremely high >90 dB isolation ranges required at RF-RF repeater sites.

Measuring antenna isolation during periodic maintenance intervals conveniently verifies antenna position after harsh weather. If the antenna has been moved from the installed mounting angle, the change in side lobe and back lobe coupling magnitudes between the antennas causes a clear performance change. Tx-Rx isolation of duplexers and filters is easily tested with Site Master's >90 dB dynamic range. Filters are easily aligned and verified to manufacturer's specifications.



ORDERING INFORMATION

Model S251C (625 MHz to 2500 MHz), Built in DTF

Standard Accessories Includes

User's Guide
Soft Carrying Case
AC-DC Adapter with Power Cord
Automotive Cigarette Lighter/12 Volt DC Adapter
One Year Warranty
CD ROM containing Fault Location (DTF), Smith Chart and Software Management Tools
Serial Interface Cable
Rechargeable Battery, NiMH



Optional Accessories

Option 5 RF Power Monitor (RF Detector not included)
Option 10A Bias Tee, 240 mA (S251C Only)

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

1N50C Limiter, N(m) to N(f), 50 Ohm, 10 MHz to 50 GHz
22N50 Precision N(m) Short/Open, 18 GHz
22NF50 Precision N(f) Short/Open, 18 GHz
SM/PL Precision N(m) Load, 42 dB, 4.0 GHz
SM/PLNF Precision N(f) Load, 42 dB, 4.0 GHz
OSLN50LF Precision Open/Short/Load, DC to 4.0 GHz, 50 Ohm, N(m)
OSLNF50LF Precision Open/Short/Load, DC to 4.0 GHz, 50 Ohm, N(f)
2000-767 Precision Open/Short/Load, 7/16 (m), 4.0 GHz
2000-768 Precision Open/Short/Load, 7/16 (f), 4.0 GHz

15NN50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to N(m), 6.0 GHz
15NN50-3.0C Test Port Cable Armored, 3.0 meter, N(m) to N(m), 6.0 GHz
15NN50-5.0C Test Port Cable Armored, 5.0 meter, N(m) to N(m), 6.0 GHz
15NNF50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to N(f), 6.0 GHz
15NNF50-3.0C Test Port Cable Armored, 3.0 meter, N(m) to N(f), 6.0 GHz
15NNF50-5.0C Test Port Cable Armored, 5.0 meter, N(m) to N(f), 6.0 GHz
15ND50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(m), 6.0 GHz
15NDF50-1.5C Test Port Cable Armored, 1.5 meter, N(m) to 7/16 DIN(f), 6.0 GHz

34NN50A Precision N(m) to N(m) Adapter, 18 GHz
34NPNF50 Precision N(f) to N(f) Adapter, 18 GHz

1091-26 Adapter, DC to 18 GHz, 50 Ohm, N(m) to SMA(m)
1091-27 Adapter, DC to 18 GHz, 50 Ohm, N(m) to SMA(f)
1091-80 Adapter N(f) to SMA(m), 18 GHz
1091-81 Adapter N(f) to SMA(f), 18 GHz
1091-172 Adapter, DC to 1.3 GHz, 50 Ohm, N(m) to BNC(f)
510-90 Adapter 7/16(f) to N(m), 7.5 GHz
510-91 Adapter 7/16(f) to N(f), 7.5 GHz
510-92 Adapter 7/16(m) to N(m), 7.5 GHz
510-93 Adapter 7/16(m) to N(f), 7.5 GHz
510-96 Adapter 7/16 DIN(m) to 7/16 DIN(m), 7.5 GHz
510-97 Adapter 7/16 DIN(f) to 7/16 DIN(f), 7.5 GHz

48258 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
760-215A Transit Cases for Anritsu Site Master
2300-347 Anritsu Site Master Software Tools

10580-00065 Anritsu Site Master S251C User's Guide

633-27 Rechargeable Battery, NiMH (C Series only)
2000-1029 Battery Charger, NiMH with Universal Power Supply

Printers

2000-766 HP DeskJet Printer, model 350
Includes: Interface Cable, Black Print Cartridge, and US Power Cable
2000-753 Spare Serial-to-Parallel Converter Cable
2000-661 Black Print Cartridge
2000-663 Power Cable (Europe) for DeskJet Printer
2000-664 Power Cable (Australia) for DeskJet Printer
2000-665 Power Cable (U.K.) for DeskJet Printer
2000-667 Power Cable (So. Africa) for DeskJet Printer
2000-1008 Seiko DPU-414-30B Thermal Printer
Includes: Internal Battery, Thermal Printer Paper, Serial Cable, Power Cable
2000-1012 Spare Serial 9 pin (male) to 9 pin (female) cable (for Seiko DPU-414-30B)
2000-755 Five (5) rolls of Thermal Paper
2000-1002 U.S. Adapter (for Sieko DPU-414-30B)
2000-1003 Euro Adapter (for Sieko DPU-414-30B)
2000-1194 Japan Adapter (for Sieko DPU-414-30B)



Sales Centers:

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