

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

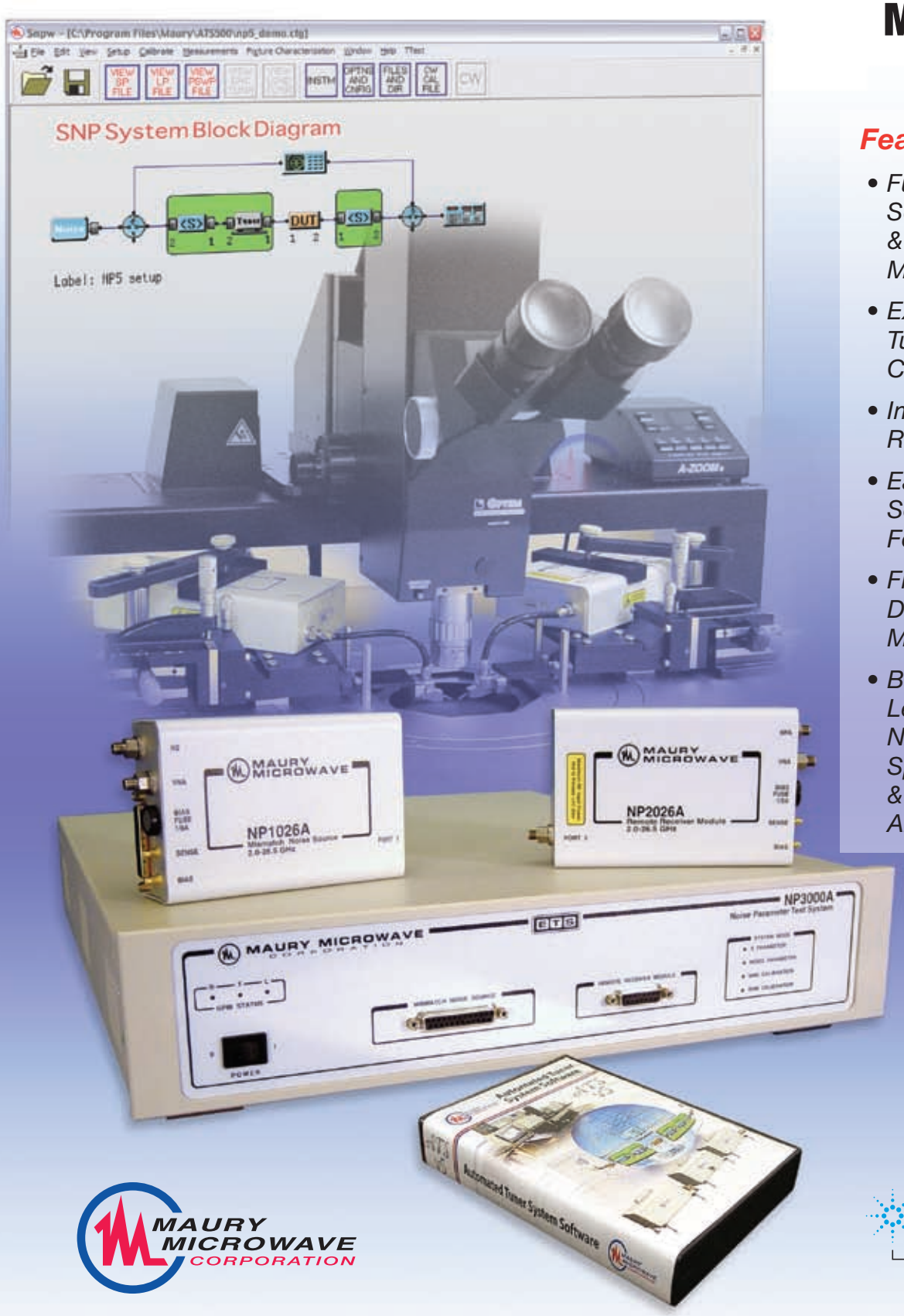
Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

Electronic Tuners

NP5 Series
Noise Parameter Measurement Systems



Features & Benefits

- *Fully Automated Scattering, Noise & DC Parameter Measurements*
- *Extremely Fast Tuning & Device Characterization*
- *Improved Tuning Repeatability*
- *Easy On-Wafer Setup due to Small Form-Factor*
- *Fixture Embedding/ De-embedding for Maximum Accuracy*
- *Built-In Drivers for Leading Vector Network Analyzers, Spectrum Analyzers, & Noise Figure Analyzers*

MAURY MICROWAVE CORPORATION

Agilent Technologies
Channel Partner

2900 Inland Empire Blvd. • Ontario, California 91764-4804 • USA
Tel: 909-987-4715 • Fax: 909-987-1112 • http://www.maurymw.com
email: maury@maurymw.com

ELECTRONIC TUNERS - NP5 SERIES

Overview

The Maury NP5 Series is a solid state tuner-based solution that provides complete small-signal characterization of RF and microwave semiconductor devices. From high-gain/sub-1dB transistors to low-noise amplifiers, the NP5 Series can handle the most challenging characterization assignments.

When combined with a Vector Network Analyzer (VNA), a Noise Figure Analyzer (NFA), and Maury's measurement suite (ATSv5), the NP5 Series provides complete Scattering, Noise and DC parameter device characterization and analysis to 26.5 GHz.

The NP5 System is comprised of:

- One Tuner module referred to as the Mismatch Noise Source (MNS)
- One Remote Receiver Module (RRM)
- A Measurement Controller that controls both the MNS and the RRM
- The Maury ATSv5 Measurement Software Suite

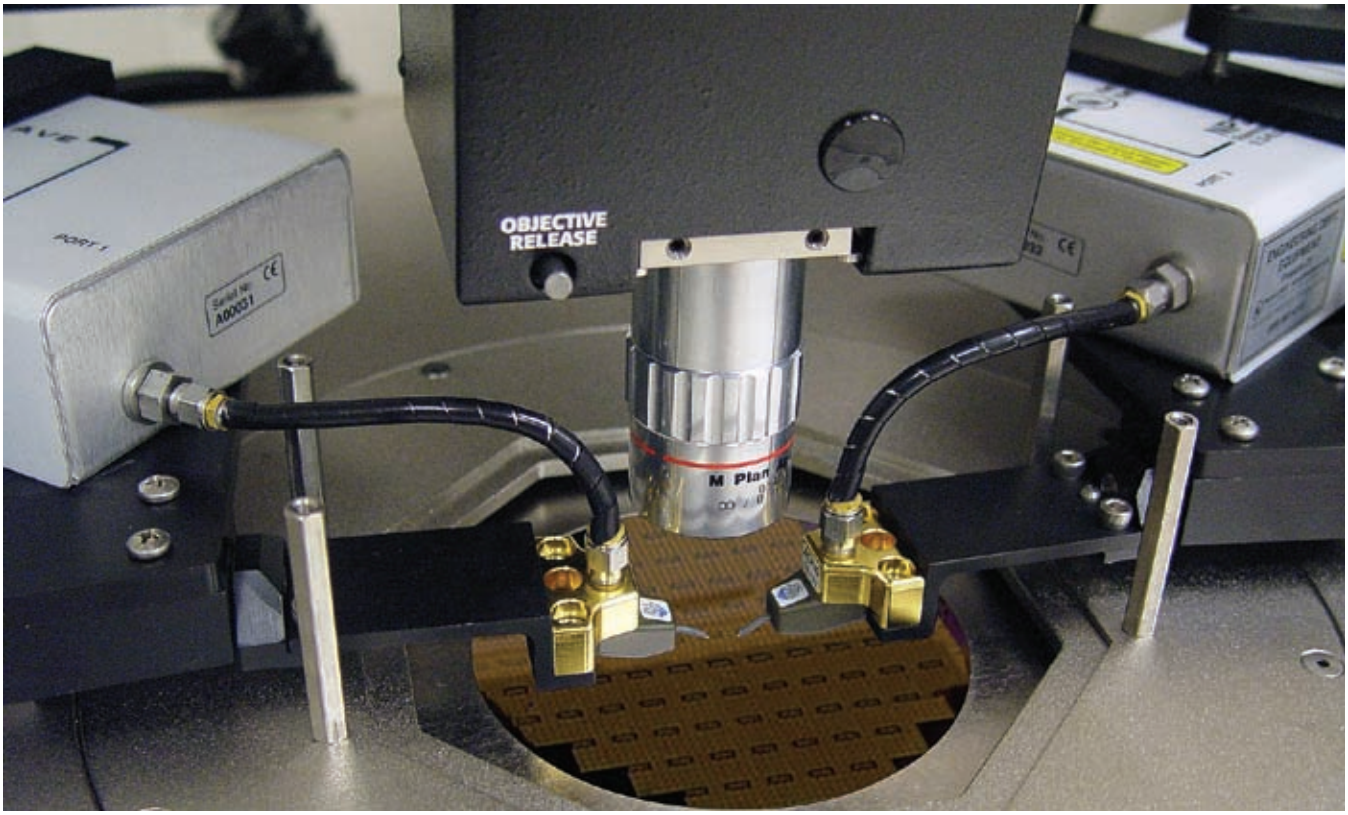
Fast Measurements – High Accuracy

The solid state architecture of the NP5 tuner system improves tuning speed over traditional mechanical tuners by a magnitude of 5. Tuner characterization and measurements, which might require hours for mechanical tuners, can be completed in a fraction of that time with the NP5 system. At the same time, the enhanced speed of solid state tuners makes possible the use of higher frequency resolution for device characterization, which greatly improves measurement accuracy without compromising throughput.

Complete Noise Characterization

The Noise measurement suite is designed to find the complete set of noise parameters consisting of Fmin, Γopt (source reflection coefficient that corresponds to Fmin), and Rn (rate of change of F). Since Γopt is complex, this adds up to a total of four scalar parameters. To find Fmin, Γopt, and Rn, noise figure (or noise power) is measured at a variety of source impedances.

Overall measurement accuracy depends on the accuracy of the s-parameter measurements and the spread, repeatability, and number of impedance states used. The NP5



Typical On-Wafer Measurement Setup.

Noise Parameter Measuring System is designed to maximize all of these. From the tuner's 369 impedances, a subset is selected that has the maximum vectoral difference at each frequency. This ensures a broad distribution in the impedance plane, across the entire frequency range.

Simple and Accurate On-Wafer Measurements

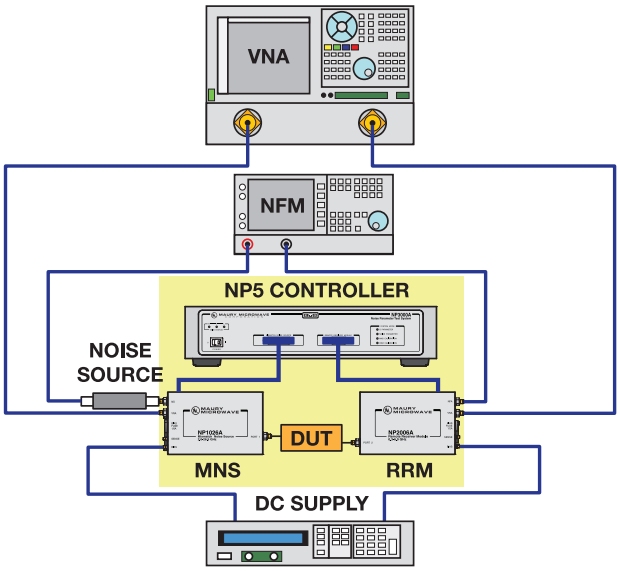
The small form-factor of the MNS and RRM modules in the NP5 system simplifies integration with a host of probe station setups. The lightweight modules and solid state technology minimize probe vibration and thus improve on-wafer calibration and measurement repeatability.

The measurement software includes helpful features such as fixture embedding/de-embedding to ensure calibration at the DUT reference planes. This enables measurement of the device's intrinsic noise parameters, which ensures development of accurate noise models including device scaling and yield characterization.

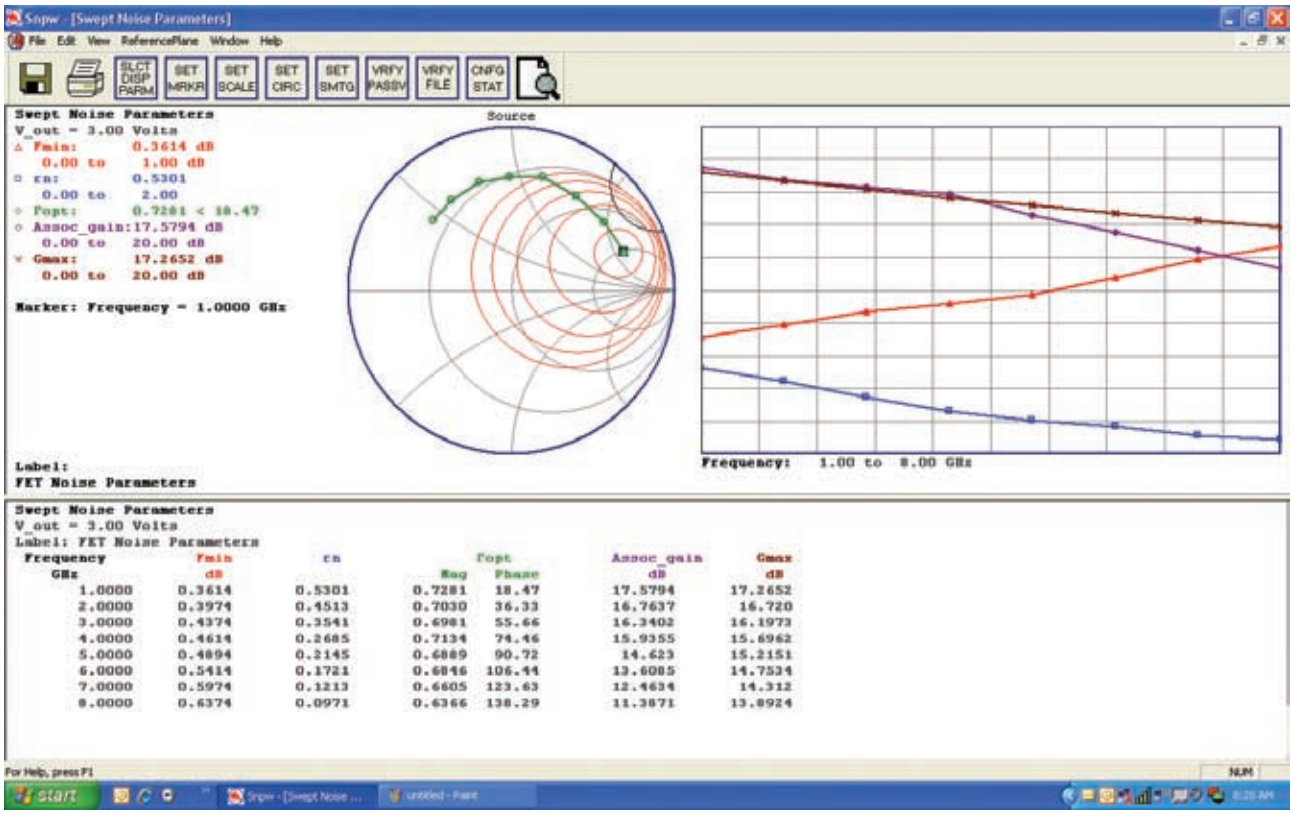
Other features include external bias control, including DUT measurement under Swept bias to automate characterization of entire wafers, and eliminate the expense and labor of dedicated test boards.

Built-in Instrument Drivers

The software suite includes drivers for most commonly used VNAs (Agilent PNA, PNA-X, 8720 and 8753 series), Noise Figure Analyzers (Agilent 8970 and 8975), Spectrum Analyzers (Agilent PSA, Rohde & Schwarz ZVM, etc.) and external power supplies.



Typical Noise Measurement Setup (Components of the NP5 System are highlighted in Yellow).



Noise Parameters (Fmin, rn, Γopt, Associated Gain and Gmax) versus Frequency for an Amplifier DUT.

Available Models

Frequency Range (GHz)	Model Number	Includes
0.3 – 6.0	NP5C001	1 ea. Controller, MNS, RRM, Software and Manual
2.0 – 26.5	NP5D001	

Complete systems, including a network analyzer, noise source, and noise figure analyzer are also available (as are calibration kits and connector gage kits, and adapters). Contact our Sales Department for detailed information.

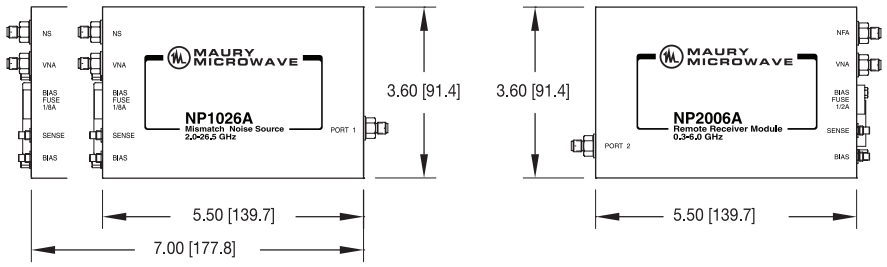
Specifications

Frequency range	300 MHz to 26.5 GHz (banded)
Resolution, NF & Gain	0.01 dB
Tuner range	1.0:1 – 10:1 369 States
Tuner repeatability	<-50 dB (residual error vector)
Bias tee current	Port 1: 125 mA fused Port 2: 500 mA fused
RRM impedance	50 ohm nominal
Measurement speed	S-parameters: see VNA specification Noise Parameters: for 16 tuner states and 8 averages typical system speed is 2 frequency points per minute
Temperature	Operating: 0° to 55° Storage: -55° to 75° C
Power	100 to 240 volts AC (+5%, -10%), 48 to 66 Hz, 150 VA max

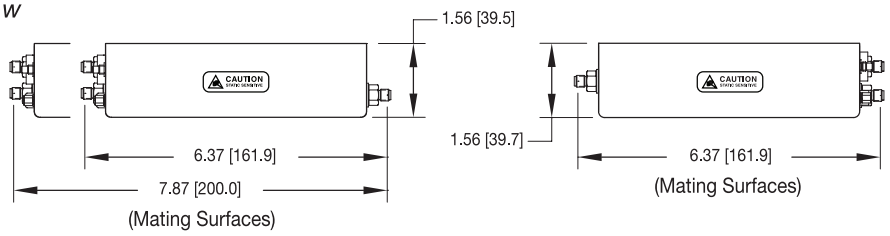
Data subject to change without notice.

Dimensions Inches and [cm]

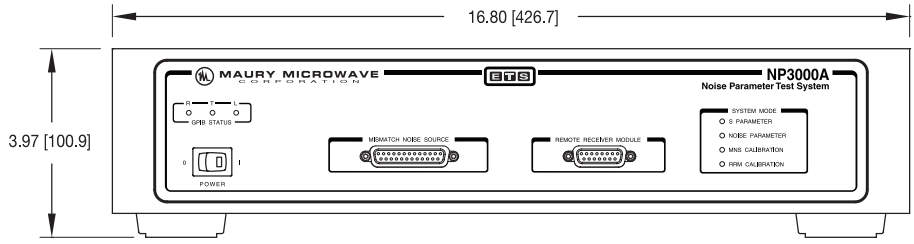
Top View



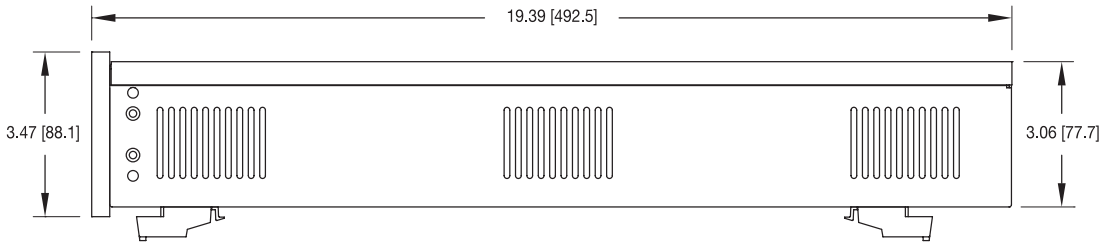
Side View



Front View



Side View



Copyright © 2009 by Maury Microwave, Inc. All Rights Reserved.

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP