

Test and measurement instruments have gotten smarter, easier to use, more capable, and more stylish. In some cases, it's hard to tell where the instrument ends and where the computer begins. Here's a quick sample of today's latest instrumentation, with commentary on how these instruments have evolved from their predecessors and how usage and capability have changed. – Don Dingee

Single unit measures DC power consumption

Agilent Technologies

As the importance of Design for Energy Efficiency increases, Unit Under Test (UUT) power consumption measurements are becoming more critical than ever before. Until now, R&D engineers had to gather and configure multiple instruments, such as power supplies, scopes, function generators, Digital Multimeters (DMMs), and PCs to complete DC sourcing and measurement tasks. Executing these complex setups and tasks, which involved simultaneous connection to and physical interaction with multiple test instruments, increased the risk of error.

Today, the Agilent N6705A DC Power Analyzer saves 90 percent of the time required to set up complex DC sourcing and measurement tasks by eliminating the need for multiple pieces of equipment and complex test setups. The highly integrated instrument combines up to four advanced DC power supplies, DMM, oscilloscope, arbitrary waveform generator, and data logger. It provides an easy-to-use interface with all sourcing and measuring functions available from the front panel. R&D engineers may choose to automate tests that are too complex to do manually.

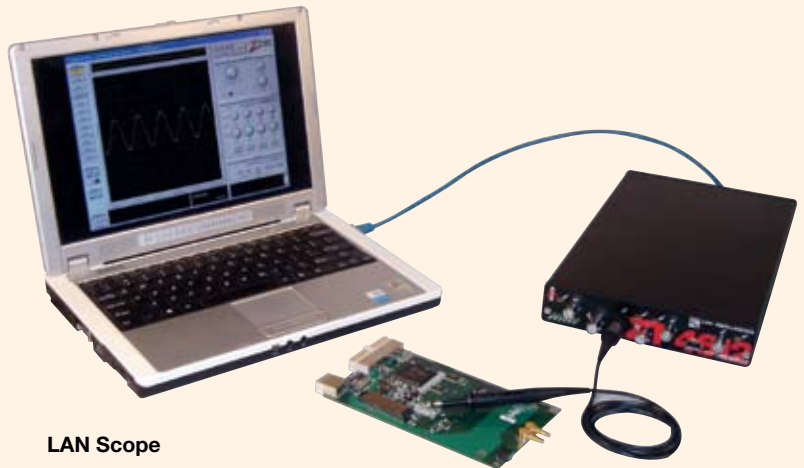


N6705A

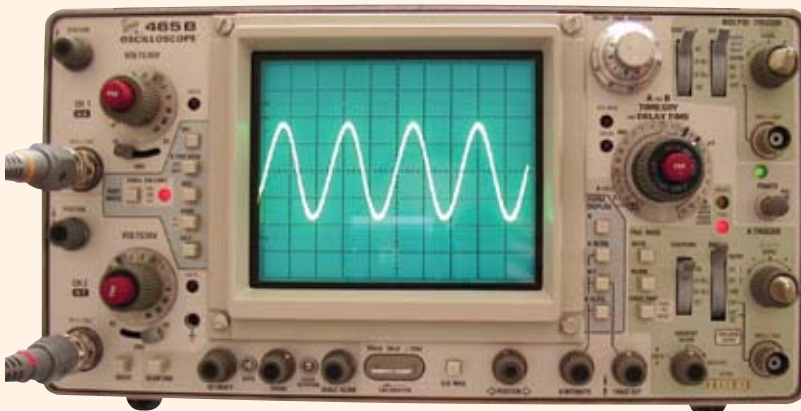
The scope of the network

ZTEC Instruments

In the mid 1980s, oscilloscopes were just making the transition from analog to digital. These units were quite hefty to accommodate large cathode ray tubes for waveform display. Physical buttons and knobs necessitated local control. These early scopes had only one or two input channels. Bandwidth was limited to tens of MHz with comparable ADC sampling rates. The earliest digital oscilloscopes had little or no waveform analysis capability.



LAN Scope



Tek465B

Today's modern LAN-enabled digital oscilloscopes are connected to a PC where a software front-panel application may control the instrument and display the acquired waveform data from anywhere in the world. LAN oscilloscopes, which don't require a built-in display, can be extremely compact, even with four input channels. These tiny instruments have bandwidths of 1 GHz, 4 GSps sampling rates, and onboard memory for saving hundreds of millions of waveform data points. These oscilloscopes include advanced waveform math and analysis such as +, -, *, integration, differentiation, FFT analysis, and the ability to calculate dozens of waveform parameters.

48 temp sensors, no waiting

Data Translation

New and evolving eco-friendly applications for WiMAX, semiconductor testing, and bio-analytical products are demanding capability for fast, accurate temperature measurements with virtually no warm-up time. The DT9872 TEMPpoint is a PC-based instrument designed for high accuracy and industrial robustness, allowing direct Resistance Temperature Device (RTD) measurements with a PC.



DT9872

The DT9872 offers maximum precision and productivity using 48 four-wire RTD inputs with Kelvin sensing to eliminate measurement errors and provides 1,000 V channel-to-channel isolation, virtually creating 48 separate instruments in one small box. Users can quickly attach Platinum 100 ohm (Pt100), Platinum 500 ohm (Pt500), or Platinum 1,000 ohm (Pt1000) RTDs and mix and match these with voltage inputs for unsurpassed versatility in measuring -200 °C (-328 °F) to +850 °C (+1,562 °F). Using a PC and the ready-to-measure software, temperature values can be viewed, graphed, exported to Excel, and limit checked for controlling or monitoring a manufacturing process.

High-volume power supply testing

Intepro Systems

The market has exploded for AC-DC and DC-DC power converters under 1,000 W, including those for cell phones, digital music and video players, and most computer accessories. The I-9500 is the first LXI-based power supply test system to pack all the features commercial users need in one single-bay cabinet. The tester comes standard with a six-digit multimeter and four-channel digital oscilloscope, five test loads, an 850 VA AC power source, and Intepro's PowerStar 5 software, simplifying power supply family design verification, production testing, and repair.

Built around Intepro's new LXI controller, the system supports both legacy test instruments that communicate using RS-232C, IEEE-488.2, and the company's own Micro1000 and CAN communication buses while providing a migration path to future LXI instruments. The base system has a single 300 W load and four 75 W loads, an 18 input x 4 output differential multiplexer, 16 digital inputs



I-9500

Sniffing around in packets

Packet Island

VoIP equipment is proliferating but so is the cost of installing and maintaining it. The task used to call for technicians with big network "sniffers" and in-depth expertise. Packet Island has approached the problem with a new micro appliance.

The PacketPro micro appliance is portable, ready for shipping to a customer site, and can be operated remotely once plugged into the network. The open source Ethereal software can diagnose a wide variety of problems with more than 750 protocols, as well as capture and filter traffic including VoIP. Instead of having a technician on site waiting for the problem to happen again, PacketPro can watch the network 24x7.



PacketPro

Clever angle measurement

North Atlantic Industries



NAI 8810

on components, assemblies, and systems. Previously, devices featured a simple digital readout. Now, a new take on instrument design has not only improved positional accuracy and resolution but also added innovative user interface and communications capabilities.

In the 8810A, the intelligent DSP design eliminates push buttons and readouts, allowing for all actions via an integrated LCD touch screen or connecting a mouse via a front-panel USB



NAI 8810A

port. Ethernet and USB interfaces along with traditional general-purpose interface boards facilitate integration into modern automated test equipment systems. The instrument can simultaneously read two separate input signals or combine them to measure multispeed synchros/resolvers, eliminating the requirement for a separate reference generator. External reference use is also supported. The 8810A self-calibrates and enables annual verification in the field.

and 16 outputs, 48 relay drivers, and 10 5 A power relays. Five open slots provide space for growth. The architecture also can accommodate 850 VA AC, 1,250 VA AC, or 1,500 W DC power sources.

Test program development is simplified using Version 3.0 of Intepro's PowerStar 5 software, which can employ the same test set for all members of a power supply family. Test parameters can be read from a user-specified database, engineering design file, or even a marketing spreadsheet. A library of 150-plus test routines is included to reduce the time required for initial test set development. Test program set recertification, when needed, becomes a matter of changing a value in a database.