



Open the door
**to simpler
system creation**



Agilent Open: Where you can focus on what matters most

A test system isn't the center of your universe — your product is. Its test requirements determine the content and capabilities of the test system, not vice versa. And system creation shouldn't require a heroic effort from your team.

To make system development more efficient and cost-effective, we offer Agilent Open, a versatile combination of test-system hardware, I/O and software tools. Agilent Open accelerates the creation of robust test systems that are easy to enhance and maintain by giving you greater choice in measurements, connectivity and programming. With these advantages, your team has more time to focus on what matters most—the performance and reliability of your product.

Agilent Open

Measurements:

System-ready instrumentation

Development and deployment:

Open software tools

Connectivity and communication:

PC-standard I/O

The strength of Agilent Open is in more than just instruments—it's in the way we help you simplify the entire testing process with PC-standard I/O and open software tools. As technology moves forward, our reliance on widely used industry standards opens the door to greater system longevity and new developments such as LAN eXtensions for Instrumentation (LXI).

Create versatile measurement solutions with system-ready instrumentation

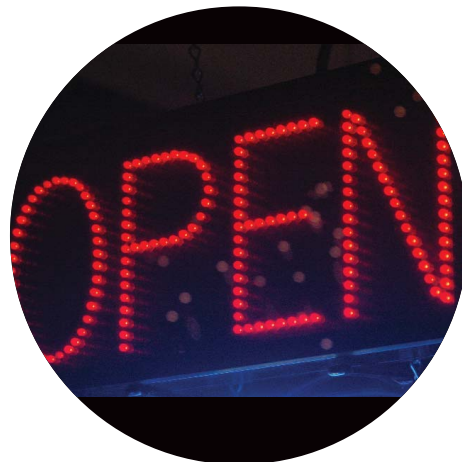
Selecting an Agilent Open instrument for your test system is an easy choice because it's designed for faster throughput, as well as easy integration into your test software and your system rack. For the ultimate in measurement versatility, check out our growing line of LXI-compliant instruments. Available in traditional, modular and building-block formats, Agilent's LXI instruments open new possibilities in testing—and enable fast, efficient system creation. Whichever instruments you choose, connect them quickly and correctly with the Agilent IO Libraries Suite. In minutes, its Agilent Connection Expert installs automatically, configures the interfaces, discovers connected instruments from hundreds of manufacturers, and verifies communication.

Achieve efficient development and deployment with open software tools

Why spend time struggling with unfamiliar programming languages just to set up a test? Agilent Open lets you work in the application development environment you already know. The key is open software tools such as standard instrument drivers and links to Microsoft® Excel or popular programming languages such as Visual Basic, C, LabVIEW, Agilent VEE Pro, Visual Basic.NET, Visual C++, Visual C# and others. Work where you prefer—and focus on your product, not the code you need to test it.

Simplify system communication and connectivity with PC-standard I/O

System I/O used to mean costly, proprietary interfaces and cables. Not any more. Today you can choose the I/O connection that fits your test requirements: most Agilent Open instruments are available with GPIB, LAN and USB ports. This flexibility lets you choose the interface that works best with your system now—and switch to another one as your needs change in the future. We also make it easy to incorporate GPIB instruments into LAN- and USB-based systems by offering a variety of interface gateways and converters.



Open new possibilities in testing

Go beyond VXI, PXI and GPIB with LXI

When the challenges of product testing threaten to overload your budget or your team, lighten the load with LXI, the test-system architecture that's based on proven, widely used standards such as Ethernet. By specifying the interaction of those standards, LXI enables fast, efficient and cost-effective creation—and reconfiguration—of test systems.

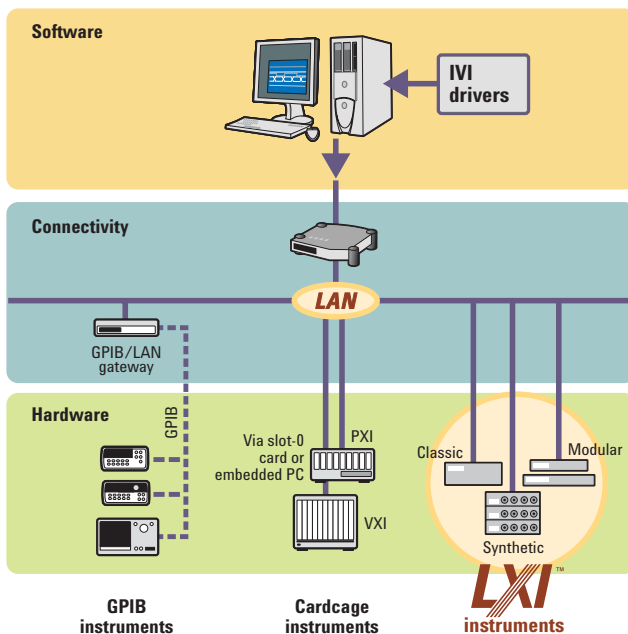
LXI is the next logical step in the evolution of LAN-based instrumentation. It includes classic "box" instruments, faceless modular instruments, and functional building-block modules. Even when space is at a premium, you don't have to sacrifice functionality, accuracy or performance.

Apply the advantages of proven standards

The LXI standard specifies the interaction of Ethernet and other proven standards. Add the speed, flexibility and compatibility of Ethernet to your test systems. Control and monitor system hardware through the Web-browser interface built into all LXI-compliant instruments. Simplify software development and modification with industry-standard IVI drivers that put instrument commands at your fingertips. Ensure easy system assembly with IEC-standard enclosures. Achieve nanosecond precision between remote and distributed systems through IEEE 1588 time synchronization. LXI lets you do all of this and more.

Reduce the overall cost of your systems

LXI isn't an "all-or-nothing" proposal. You can manage the cost of transition by creating hybrid systems that include GPIB, VXI, PXI and LXI devices. To control start-up costs, you can use individual LXI instruments and cut the overhead of adding "just one more" unit: LXI eliminates expensive cardcages, slot-0 controllers and proprietary interfaces. It's possible to further reduce hardware costs with building-block modules that decrease functional redundancy and enable versatile reconfiguration of system elements. In all, LXI provides a level of hardware reusability that softens the impact—and potential cost—of software changes in present and future systems.



With Agilent Open and LXI, LAN becomes the backbone of test systems that easily incorporate present and future test assets.

Achieve consistent system implementation

The LXI Consortium is making it easy for leading T&M manufacturers to work together to ensure your success with LXI. This broad-based support means you can address your full range of testing needs—source, measure, RF, power—with just one architecture. Well-defined device communication and triggering along with Consortium-driven compliance testing means you can count on predictable operation and true interoperability with LXI devices.

Gain leverage through greater versatility

Test-system experts are becoming scarce in many organizations and they can't be everywhere at once—onsite, offshore or anywhere in between. Extend the reach of your expertise via local and remote system connections: with LXI you can place test systems virtually anywhere on your LAN, enabling centralized troubleshooting, remote monitoring and more.

Systems themselves have a longer reach, too. LXI makes it possible to retain core measurement capabilities and performance across a variety of physical implementations: traditional instruments, faceless modular instruments and functional building-block modules.

Maximize LXI's benefits within Agilent Open

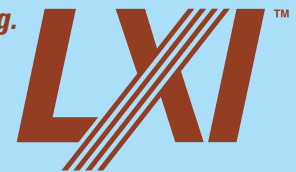
With the added leverage of Agilent Open, you can accelerate the integration of systems that include LXI devices and your existing hardware and software assets. Simplify system communication and connectivity with PC-standard I/O and Agilent interface gateways. Create versatile measurement solutions that include LXI, GPIB, VXI and more. Achieve efficient development through standard IVI drivers and the Agilent IO Libraries Suite. Leverage your test-system software across the product lifecycle—R&D, design validation, manufacturing and service. Through these powerful tools, Agilent can help you and your team open the door to simplified system creation—and new possibilities in testing.



The LXI Consortium

The Consortium is a not-for-profit corporation initially established by Agilent and VXI Technology, Inc. Its primary purpose is to promote the development and adoption of the LXI Standard as an open, accessible standard that identifies specifications and solutions relating to the functional test, measurement and data acquisition industries. The Consortium is open to all test and measurement companies — over 40 are now members — as well as industry professionals, system integrators and government representatives. For more information about the consortium, please visit its Web site at

www.lxistandard.org.



Turn on the versatility

Get the power to choose what you need

When you work with Agilent Open, you open up new options in testing. That's because we give you greater choice in measurements, connectivity and programming.

Instruments such as the 34980A multifunction switch/measure unit and N6700 low-profile modular power system let you mix and match modules that deliver the right capabilities for your test requirements. Our wide range of traditional instruments lets you choose the right balance of cost and performance for your system.

Our current-generation instruments provide one or more PC-standard I/O ports alongside the GPIB connector. The 33220A function/arbitrary waveform generator is just one example of an instrument that maximizes your options by including GPIB, LAN and USB.

Whichever instruments and interfaces you use, the Agilent IO Libraries Suite software lets you make error-free connections every time. In less than 15 minutes (yes, minutes)—and with just one reboot—your PC can be up, running, and communicating with the instruments in your system.

These products and more are presented on pages 6 through 11. They are just a sample of what Agilent Open has to offer in measurement hardware, software tools and I/O. To learn more, please visit the Agilent Open Web site at www.agilent.com/find/open.



Agilent 34980A multifunction switch/measure unit

Mix and match switching capabilities in the compact and economical 34980A multifunction switch/measure unit, designed for medium- and high-density applications. The 34980A is an eight-slot mainframe that supports a family of 19 plug-in modules: switching, digital I/O, D/A converters, analog outputs, and counter/totalizers. The 34980A also simplifies system connectivity with GPIB, LAN and USB interfaces.

- **Optional built-in 6¹/₂-digit DMM**
- **Signal switching up to 20 GHz**
- **Digital I/O, analog outputs and counter/totalizers**
- **Up to 560 2-wire multiplexer channels or 1,024 matrix crosspoints in one mainframe**
- **Built-in Web server enables control via standard browser**
- **Priced up to 40 percent less than comparable VXI and PXI solutions**
- **LXI Class C compliance pending**



Agilent 34410/11A digital multimeters

The Agilent 34410A and 34411A 6½-digit DMMs represent our latest generation of digital multimeters. Building on the success of the widely used 34401A, the new DMMs offer significantly enhanced functionality for bench and system users. Both models offer improved accuracy, expanded memory, advanced triggering capabilities, extraordinary speed, and built-in connectivity via GPIB, USB and LAN (designed to comply with LXI Class C).

Agilent 34410A

- 10,000 readings/second at 5½ digits continuous
- 50,000 readings of non-volatile memory
- LAN, USB and GPIB all standard
- Capacitance and temperature measurements
- Data logger capability
- Dual display

Agilent 34411A

All the features of the 34410A, plus:

- 50,000 readings/second at 4½ digits continuous
- 1M reading memory
- Analog level triggering
- Pre- and post-triggering



Agilent 33220A function/arbitrary waveform generator

The 33220A uses direct digital synthesis (DDS) techniques to create a stable, accurate output and the lowest distortion in its class. It expands your testing possibilities with 11 standard waveforms up to 20 MHz, pulse signals up to 5 MHz and arbitrary waveforms with 14-bit resolution and 50 MSa/second. The included IntuiLink software lets you capture signals with an oscilloscope then download the waveform into the 33220A.

- 20 MHz sine and square waveforms
- Ramp, triangle, noise, and DC waveforms
- Pulse generation with variable edge time
- 14-bit, 50 MSa/s, 64Kpoint arbitrary waveforms
- AM, FM, PM, FSK and PWM modulation types
- Linear and logarithmic sweeps and burst mode
- Graph mode for visual verification of signal settings
- USB, GPIB and LAN interfaces
- Multiple-unit link for synchronous operation (Option 001)



Agilent CSA spectrum analyzer (N1996A)

This compact spectrum analyzer provides best-in-class performance in its price range. With exceptional ease-of-use and greater flexibility than comparable spectrum analyzers, the CSA is the right choice for a broad range of applications. Modern connectivity options enable easy integration into present and future test systems. A portable package and battery operation ensures the ability to perform quality measurements anywhere and anytime.

- **96 dBc dynamic range**
- **Excellent ease-of-use**
- **Portable for critical measurements anywhere**
- **Superior measurement confidence**
- **Automatic functions to accelerate measurements**
- **Specifications (preliminary)**
 - DANL: -146 dBm typical in 10 Hz RBW with preamp (-128 dBm without preamp)
 - TOI: $+18$ dBm (nominal)

Agilent P-Series power meters and sensors (N1911/12A and N1921/22A)

Improve productivity with the internal zeroing and calibration capabilities of the P-Series. When used in conjunction with the P-Series wideband power sensors, P-Series peak and average power meters deliver accurate and repeatable power and time measurements on wide bandwidth (30 MHz) signals and simplify your system calibration hassles. Single- and dual-channel solutions up to 40 GHz are available.

- **Internal zeroing and calibration for increased productivity**
- **30 MHz video bandwidth and 100 MSa/s continuous sampling**
- **Meter/sensor rise time and fall time: ≤ 13 ns**
- **Minimum pulse width: 50 ns**
- **Overshoot: $\leq 5\%$**
- **Maximum pulse repetition rate: 10 MHz**
- **Backward compatible with all Agilent 8480 and E-series power sensors**



Agilent N6700 low-profile modular power system

The N6700 is small, flexible and fast. With a variety of mix-and-match DC power modules, it lets you optimize both price and performance to fit your needs and budget. The N6700 is LXI Class C compliant and offers open connectivity, fast command processing time, and four outputs in a 1U enclosure, making it ideal for ATE and production test systems.

- **1U power supply with one to four outputs of 50W, 100W or 300W**
- **High-performance outputs or basic DC power**
- **Fast command processing times to improve throughput**
- **Ideal for ATE systems in R&D, design validation and manufacturing**
- **LXI Class C compliant**



Agilent N5700 Series system DC power supplies

Get just the right performance at just the right price—in a compact 1U package. These affordable 750W and 1500W single-output programmable power supplies are ideal for simple DC power applications. Every model in the N5700 series is LXI Class C compliant and provides open connectivity to simplify system development.

- **A family of 24 high-power supplies**
- **The highest power available in 1U**
- **Outputs can be connected in series or parallel**
- **Overvoltage, overcurrent and overtemperature protection**
- **LXI Class C compliant**

Agilent IO Libraries Suite (E2094P)

Eliminate the endless details—and hours of effort—that come with connecting and configuring PC-based test systems. With Agilent IO Libraries Suite on your PC, you can connect millions of instruments from hundreds of vendors as easily as you would connect a printer. The included Agilent Connection Expert enables error-free connections in less than 15 minutes.

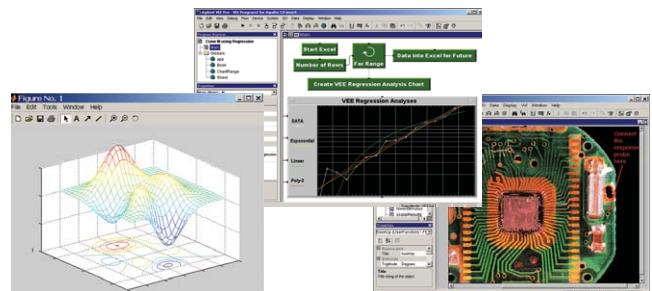
- Automatically detects connected instruments and configures the interfaces
- Compatible with GPIB, USB, LAN, RS-232C and VXI
- Provides VISA, NI-488 compatibility and SICTL to work with most test-development software
- Enables instrument communication for Agilent VEE Pro, NI LabVIEW, Microsoft Visual Studio® and more



Agilent VEE Pro 7.5 graphical programming software (W1140A-VEE)

Create tests quickly with Agilent VEE Pro, a highly productive and intuitive graphical programming environment. With enhancements such as integrated support of NI data acquisition devices, new functions to control Microsoft Excel, and streamlined access to .NET controls and functions, VEE Pro 7.5 makes it easy to handle common development tasks. A free evaluation version is available at www.agilent.com/find/adnevalvee.

- Quick configuration of devices across a variety of bus types and vendors
- Intuitive graphical interface for streamlined measurement and analysis
- Powerful analysis and presentation capabilities
- Works with Excel, Visual Studio, ActiveX, COM and .NET to provide extensibility
- Priced well below comparable applications (includes unlimited run-time distribution)



Agilent gateways and converters

Our line of interface gateways and converters makes it easy to use your existing test assets alongside next-generation instrumentation within a single system.

Agilent E5810A LAN/GPIB gateway

- Enables remote control of GPIB instruments via your LAN
- Protects your investment in GPIB-only equipment



Agilent E5813A LAN/USB gateway & USB hub

- Enables remote connection to multiple USB devices
- Breaks the five-meter limit on USB connections



Agilent 82357A USB/GPIB interface

- Provides easy connections between a PC and up to 14 GPIB-only instruments
- Eliminates the need for switch changes, PC cards and external power supplies



Agilent E5805A USB/4-port RS-232C

- Creates a direct connection with your desktop or laptop PC
- Provides a simple USB interface to four RS-232C devices



Experience maximum flexibility

Morph functional building blocks into multiple instruments



Synthetic instrumentation (SI) is a new concept in testing that maximizes your flexibility while minimizing the lifetime cost of a system. SI enhances flexibility by separating instrumentation into basic functional components: an SI module might be a digitizer, downconverter, or D-to-A converter. System developers can use these modules as building blocks to emulate a wide variety of measurement instruments. Through SI software modules, developers can create specific measurement functions that connect and control the required building-block hardware modules.

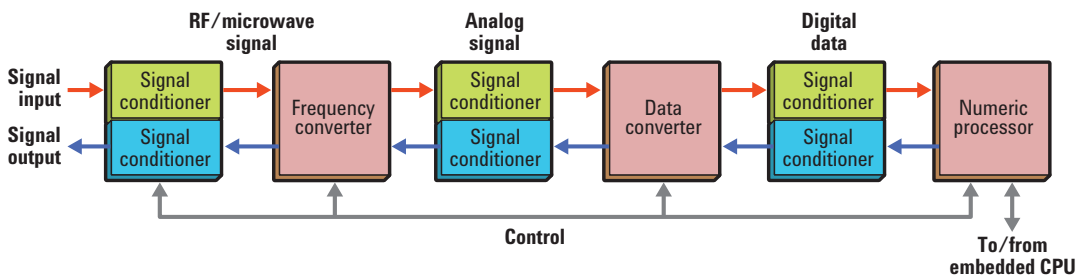
SI minimizes total cost of ownership by extending system lifetime. The highly modular architecture ensures a long support life by making it easy to insert updated or upgraded technology to replace discontinued hardware and accommodate future requirements. Compliance with the LXI standard also provides greater I/O longevity—and the promise of enhanced performance as LAN continues to evolve.

Agilent synthetic instruments

Agilent offers the industry's highest performance—and smallest footprint—RF and microwave devices in the SI format. You can create a wide variety of signal generation and signal analysis capabilities with our growing line of LXI-based synthetic instruments.

- **N8201A 26.5 GHz performance downconverter LXI module**
- **N8211A 20/40 GHz performance analog upconverter LXI Module**
- **N8212A 20 GHz performance vector upconverter LXI Module**
- **N8221A 30 MS/s IF digitizer LXI module**
- **N8241A 15-bit arbitrary waveform generator LXI module**
- **N8242A 10-bit arbitrary waveform generator LXI module**

When used within Agilent Open, these modules can help you accelerate the creation of robust test systems that are easy to enhance and maintain.



A basic synthetic instrument consists of a frequency converter, a data converter, and a numeric processor. To emulate a standard instrument, an SI software module connects and controls multiple building-block hardware modules.



Open up more time for what matters most

Simplify the entire testing process with Agilent Open

The three pillars of Agilent Open help you accelerate the creation of robust, cost-effective test systems that are easy to enhance and maintain. PC-standard I/O simplifies system communication and connectivity. System-ready hardware enables you to create fast, versatile measurement solutions. Open software tools help you increase the efficiency of system development and deployment. By spending less time on system development, your team has more time to focus on what matters most—the performance and reliability of your product.

Agilent Open and our Web site are open 24/7 to help you. To get the whole story, please visit www.agilent.com/find/open.

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Agilent Technologies' Test and Measurement Support, Services, and Assistance

Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise

Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you receive your new Agilent equipment, we can help verify that it works properly and help with initial product operation.

Your Advantage

Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and onsite education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

For more information on Agilent Technologies' products, applications or services, please contact your local Agilent office.

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©Agilent Technologies, Inc. 2005
Printed in USA, December 23, 2005
5989-2042EN



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