FEBRUARY—APRIL 2010

Agilent Basic Instruments

INSIDE

See how USB and LAN connectivity creates new measurement capabilities

Agilent Technologies

Whatever your discipline, whatever your product, Agilent has the test technologies to help you meet today's challenges and prepare for tomorrow's. With Agilent instruments, you get more features, more functionality, more performance, more value — more reasons than ever to call your Authorized Agilent Distributor.

The 34972A data acquisition/switch unit offers new ways to connect and new ways to control.

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Reach for Agilent's new handhelds in bright orange for handheld test tools with greater visibility.

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High-speed, low-cost RF analysis for manufacturing test: the new CXA signal analyzer.

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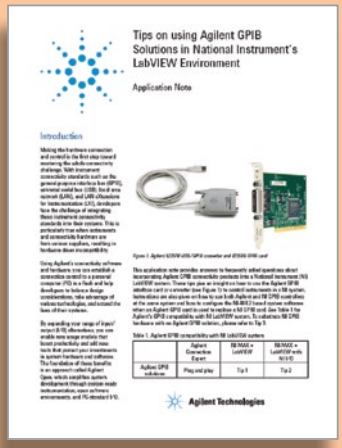

Fast, simple connectivity for instrument control and data exchange

Follow the simple steps in the free application note Tips on Using Agilent GPIB Solutions in National Instrument's LabVIEW Environment to add an Agilent GPIB converter to your LabVIEW or MAX system, use Agilent and NI converters in the same system, or replace an NI converter with an Agilent converter.

www.agilent.com/find/gpibtips

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The Right Instrument. The Right Expertise. Delivered Right Now.

Agilent and our network of Agilent Authorized Distributors have teamed up to provide fast, easy access to the world's largest selection of off-the-shelf T&M instruments. It's the best of both worlds: Agilent's measurement expertise and product breadth combined with speed, convenience and same-day shipping from our distribution partners. It's never been easier to get the right instrument in the right hands, right away.

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Authorized Distributor

Take advantage of PC connectivity to enable new and better ways of using your test instrumentation

RS232 and GPIB have done a great job of connecting instruments and computers for several decades, and they continue to be valuable technologies for legacy installations. However, many instruments now offer USB and LAN, which not only improve connectivity but actually enable new ways of working. Using readily available cables and the interfaces already built into your PC, these instruments let test engineers take advantage of the millions of hours of design time that have gone into optimizing PC networking.

Whether it's ad hoc design validation in R&D, comprehensive functional test, remote monitoring over a network, or mobile data acquisition out in the field, USB and LAN are helping engineers work more efficiently and more effectively. Here is a quick look at how one particular instrument, the new 34972A data acquisition switch unit, offers unprecedented value through enhanced connectivity.

The convenience of USB

From simple peripheral connections to easy data transport via flash drives, USB has made life easier for millions of personal computer users. That same level of convenience is now available in instruments such as the 34972A. And with data rates up to 480 Mb/s and support for up to 127 devices on a single interface, USB 2.0 has all the capability needed for many test scenarios.

For example, the 34972A offers the power of computer-controlled data acquisition—without requiring a computer at the test location. Configure scans at your PC and transfer them to the instrument on a USB flash drive. Then log data directly to the flash drive, and when you're ready, just drop it in your pocket and head back to the lab for analysis. See **Figure 1.**

The power of LAN

LAN-ready instruments such as the 34972A provide easy access over a network with per-channel measurement configuration, data logging, and data monitoring with no loss of signal integrity. Moreover, all instrument functions can be controlled by an intuitive graphical Web interface instead of a cumbersome text command line. See **Figure 2.**

LAN offers numerous advantages for test and measurement, including lower-cost hardware and cabling, widespread availability throughout most enterprises, remote or shared system control, fast data transfers, shared access to devices and files, and remote alerts and data reports.

For example, Figure 3 illustrates a test in which the 34972A is configured to increase the scan rate if the monitored temperature hits 35°C and then to activate a fan and send an email alert over the network if the temperature hits 40°C. See **Figure 3.**

Building on the LAN foundation, LXI (LAN eXtensions for Instrumentation) standardizes protocols, connectors, and other key elements for the test and measurement industry to ensure easy interoperability, even in multi-vendor systems. (For more on the many advantages of LXI, visit **www.agilent.com/find/LXI.)**

Wireless networking: the ultimate in flexible connectivity

Wireless networking is a great example of the benefits enabled by LAN connectivity, and wireless data acquisition in particular shows the power of remote instrument control. Using low-cost routers and bridges, it's easy to configure virtually any network that single or multiple users need.

With the wireless network in place, standard LAN management tools let you manage both wired and wireless connections seamlessly—the connection method is completely transparent to the application software. And a variety of tools are available to handle the networking details so you can focus on your measurements. For instance, the Agilent Connection Expert auto-discovers all the instruments (from any vendor) connected to a LAN and configures the I/O library for you.

Security is a paramount concern with any network, of course, and particularly so with wireless. Here again, the benefits of leveraging computer technologies shine through. After a decade of intense engineering effort, wireless LAN offers robust security that is easy to configure.

For a closer look at wireless data acquisition using the new 34972A, download the measurement brief *Increase Data Acquisition Flexibility Using Wireless LAN* from **www.agilent.com/find/34972A.**

To learn more about the new 34972A, see page 5 or visit www.agilent.com/find/34972A

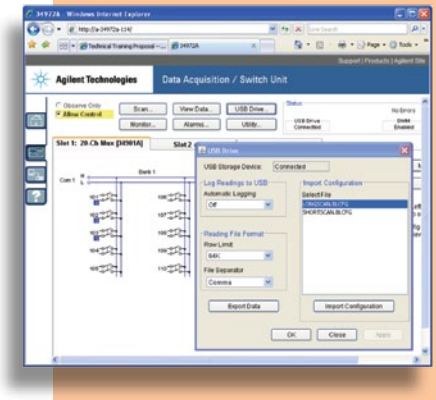


FIGURE 1 *With free BenchLink Datalogger software and support for USB flash drives, the 34972A makes it easy to acquire and transport data without requiring an on-site PC.*

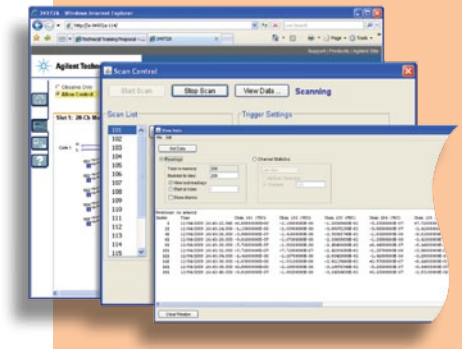


FIGURE 2 *The 34972A's built-in web interface vastly simplifies the process of configuring scans, running tests, and displaying results. The columnar results shown here, for instance, are easy to copy into a spreadsheet for detailed analysis.*

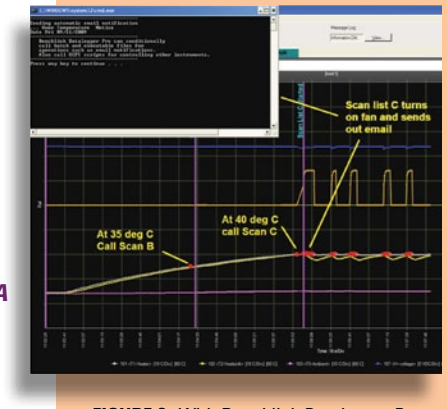


FIGURE 3 *With Benchlink Datalogger Pro software, a 34972A data acquisition unit can automatically switch to different scans based on incoming data (temperature levels in this case) and even send email alerts based on predetermined levels.*

InfiniiVision: Engineered for the best signal visibility

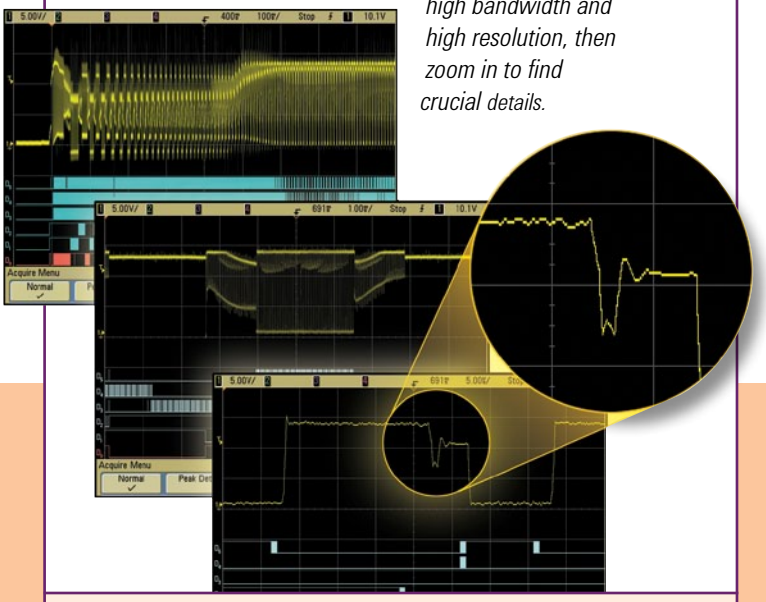
Featured in all InfiniiVision scopes:

- Patented MegaZoom III uncovers elusive details by capturing up to 100,000 deep-memory waveforms per second
- DSO and MSO models from 100 MHz–1GHz for analog, digital or serial measurements
- Standard 3-year warranty
- Color XGA display with 256 intensity levels to show subtle signal detail
- USB, LAN, and XGA video out standard
- Wide range of applications—see table below

Mega*Zoom* III in action

Thanks to MegaZoom III technology, every InfiniiVision scope provides responsive deep memory to show you subtle signal details and infrequent events that other scopes miss.

Could your scope find the glitch buried in this motor startup sequence? With MegaZoom III, you can capture at high bandwidth and high resolution, then zoom in to find crucial details.



Gain greater insight with powerful applications

Model #	Description	5000	6000	7000
N5455A	Mask/waveform limit testing	X	X	X
N5454A	Segmented memory	X	X	X
N5423A	I²C/SPI serial trigger and decode	X	X	X
N5424A	CAN/LIN triggering and decode	X	X	X
N5457A	RS-232/UART serial decode and trigger	X	X	X
N5406A	Xilinx FPGA dynamic probe		X	X
N5434A	Altera FPGA dynamic probe		X	X
U1881A	Power measurement		X	X
89601A	Vector signal analysis		X	X
N5468A	I2S triggering and decode option	X	X	X

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For details see **www.agilent.com/find/14daytrial**

InfiniiVision 7000 Series oscilloscopes

The largest screen in its class

- 12.1" display—nearly 40% larger than the nearest competitor
- DSO and MSO models from 100 MHz to 1 GHz for analog, digital or serial measurements
- 8 Mpts memory standard

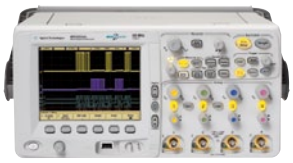
Price from: $4,955

InfiniiVision 6000 Series oscilloscopes

The only battery-powered performance scope

- DSO and MSO models from 100 MHz to 1 GHz for analog, digital, or serial measurements
- Compact form factor with GPIB
- Battery option
- 8 Mpts memory standard
- 1U high 6000L Series

Price $5,462



InfiniiVision 5000 Series oscilloscopes

Affordable performance in a compact package

- DSO models from 100 MHz to 500 MHz for analog and/or serial measurements
- Compact form factor with GPIB
- 8 Mpts memory standard

Price: From $4,479

1000 Series oscilloscopes

You can afford more scope than you think

- See more of your signal, more of the time with 20 Kpts/channel and a bright, clear display
- 23 automatic measurements, advanced triggering, go/no-go masking and more
- 2 or 4 channels; 60, 100, 200 MHz
- Weighs less than 7 pounds with a small footprint for portability

Price from: $1,142

Act now for 50% discounts on mixed-signal oscilloscope upgrades

50% OFF

Buy a new digital scope and get 50% off the upgrade to mixed-signal capability—or upgrade an existing digital scope to mixed signal and get the same 50% discount. Expires April 15, 2010.

www.agilent.com/find/scope-promo

34401A digital multimeter, 6½ digits

Industry standard benchtop DMM

- 6 ½ digits
- 12 measurement functions, plus limit testing, ratio, and min/max/average
- Basic accuracy: 0.0035% DC, 0.06% AC
- 1,000 readings/sec in ASCII format across the GPIB interface

Price from: $1,072

34410A/11A enhanced performance

Fast, accurate, performance at a value price for bench and system testing

- 6 ½ digits
- 10,000 readings/sec @ 5½ digits (34410A), 50,000 readings/sec @ 4 ½ digits (34411A)
- 14 measurement functions
- 50,000 reading NV memory
- LAN (LXI Class-C), USB, GPIB

Price from: $1,298

34405A digital multimeter, 5½ digits

More capabilities, more value

- 5 ½ digits, 120,000 counts resolution
- 16 measurement functions including temperature and capacitance
- 0.025% DC voltage accuracy
- Simultaneous reading of DC and AC measurements on dual display

Price from: $750

U3400 Series digital multimeters, 4½ and 5½ digits

Low-cost basic dual display DMMs for tight budgets

- 120,000 counts resolution (50,000 count for U3401A)
- Up to 0.012% DC voltage accuracy
- 11 basic measurements including DC and True RMS AC and AC+DC voltage and current, selectable 2 or 4-wire resistance (only 2-wire for U3401A)

Price from: $449

U3606A multimeter / DC power supply

The convenient combination DMM and power supply

- DMM: 120,000 counts resolution with DC voltage accuracy 0.025%
- Power supply: dual range 30 V / 1 A or 8 V / 3 A output with OVP and OCP protection
- USB TMC 488.2 and GPIB connectivity
- Universal AC input (100 V-240 VAC, 45 Hz to 66 Hz)

Price from: $1,199

34980A multifunction switch/measurement unit

Compact, economical high-performance modular platform

- 8-slot mainframe with built-in LAN (LXI-C), USB 2.0, and GPIB
- Temperature, AC/DC volts, current, resistance, digital I/O, D/A, frequency, and period
- LXI Class C: high-performance
- Free BenchLink Data Logger software for easy data collection and analysis

Price from: $2,447

34980A plug-in modules – 21 modules available

Model	Key specifications	Price from
34921A-25A multiplexers	Up to 300 V/1 A	**$810**
34931A-34A matrix switches	Up to 512 cross points	**$912**
34937A-39A GP switches	1 A & 5 A; up to 64 chan	**$912**
34941A-47A RF and µW switches	50 & 75 Ω, SPDT switching to 26 GHz	**$818**
34950A-59A system control	D/A, DIO, counter	**$504**

34970A/72A data acquisition switch unit, 6½ digit

Agilent performance at a fraction of the cost

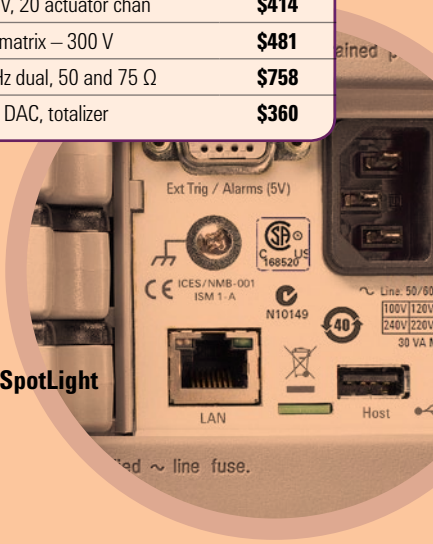
- 3-slot mainframes with built-in GPIB and RS-232 (34970A) or USB and LAN (34972A)
- Built-in signal conditioning for 11 types of input signals
- Web interface for easy configuration and control (34972A)

- HI/LO alarm limits on each channel, plus 4 TTL alarm outputs

Price from: $1,561

34970A/72A plug-in modules

Model	Key specifications	Price from
34901A-02A, 08A multiplexers	Up to 300 V, 16, 20 or 40 chan	**$481**
34903A GP switch	300 V, 20 actuator chan	**$414**
34904A matrix	4x8 matrix – 300 V	**$481**
34905A-06A RF switches	2 GHz dual, 50 and 75 Ω	**$758**
34907A multifunction	DIO, DAC, totalizer	**$360**



Get today's connectivity at yesterday's price

From now until August 15, 2010, get the versatile new 34972A for the price of the 34970A

www.agilent.com/find/34972ASpotLight

N1913/14A power meters

Replacing the popular Agilent E4418B/19B EPM meters with greater capability

- Up to four channels to speed and simplify RF average power measurements
- Improved measurement speed of 400 readings/s with the Agilent E-Series sensors
- Easily view test results with the industry's first color LCD readout in an average power meter
- GPIB, LAN, USB Interfaces

Price from: $3,888

U2000 Series USB power sensors

Fast, accurate average-power measurements—without a power meter

- Precision power sensors plug directly to your PC or USB-enabled Agilent instruments (with firmware upgrade)
- Accuracy: < 0.12 dB (50 MHz @ 0 dBm)
- Variety of models: 9 kHz to 24 GHz, -60 dBM to +44 dBm, Type-N or 3.5 mm connectors

Price from: $2,608

U1240 and U1250 Series handheld digital multimeter

Benchtop capabilities in a full-featured handheld

- World's first handheld DMM with OLED display for ultra-sharp readings (U1253B)
- 4-digit, 10,000 count and 4 ½-digit, 50,000 count dual display
- CAT III 1000 V / CAT IV 600 V safety rating
- True RMS and up to 0.09% basic DCV accuracy

Price from: $201

U1210 Series handheld clamp meters

Handle big currents more safely

- Large 2" clamp opening
- CAT III 1000V / CAT IV 600 V safety rating
- Measures as low as 0.01 mA up to 1000 A
- Includes full featured DMM with resistance, capacitance, frequency and temperature functions

Price from: $250

U1600 Series, U1700 Series, U1401B handhelds

Protect yourself with some of the safest handheld instruments available today

- U1600 Series: handheld digital oscilloscope with large 4.5" color display, 125,000 points maximum recording length, 200 MSa/s maximum sampling rate
- U1700 Series: handheld capacitance/LCR meters with tolerance mode and selectable test frequency (LCR meters)
- U1401B: handheld multi-function calibrator/meter with simultaneous source and measure capability

Price from: $150

N5700 and N8700 Series system DC power

Compact,high-power, single-output power supplies

- 45 affordable models in compact 1U (750 and 1500 W) and 2U (3.3 and 5 kW) packages
- LAN, (LXI-C), USB and GPIB to simplify test-system development
- Easy front-panel operation
- Outputs of up to 600 V or up to 400 A

Price: From $2,447

E3600 Series DC power

Reliable power, repeatable results

- Extremely low output noise—as low as 1 mVp-p/0.2 mVrms
- Tight 0.01% load and line regulation for steady output power levels
- Fast load transient response time (<50 µs)
- Choice of models from 30 to 200 W output power

Price from: $451

U8000 Series DC power

Low-cost power with high-end capabilities

- 90 or 150 W, single-output, non-programmable
- Excellent load regulation: <0.01%+2 mV
- 50 µs transient response
- Over-voltage and over-current protection

Price from: $307

Model	Power	Voltage	Current	Output	Price from
U8001A	90 W	30 V	3 A	Single	**$307**
U8002A	150 W	30 V	5 A	Single	**$385**
E3631A	80 W	6 V ±25 V	5 A 1 A	Triple	**$1,294**
E3632A	120 W	15 V 30 V	7 A 4 A	Single	**$1,131**
E3633A	200 W	8 V 20 V	20 A 10 A	Single	**$1,368**
E3634A	200 W	25 V 50 V	7 A 4 A	Single	**$1,368**
E3646A	60 W	8 V 20 V	3 A 1.5 A	Dual	**$1,033**

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Function, arbitrary waveform, and pulse generator in one instrument

- Available waveforms: Ramp, triangle, noise, pulse generation with variable edge, and DC waveforms, AM, FM and more.
- Linear and logarithmic sweeps and burst operation modes
- Graph mode for visual verification of signal settings

Model	Description arbitrary waveforms	Connectivity	Price from
33210A 10 MHz	14-bits, 50 MSa/s, 8K points, (with option 002) with 5 MHz edge pulse	USB, GPIB, and LAN (LXI-C)	**$1,197**
33220A 20 MHz	14-bits, 50 MSa/s, 64K points with 5 MHz edge pulse	USB, GPIB, and LAN (LXI-C)	**$1,863**
33250A 80 MHz	12-bits, 200 MSa/s, 64K points with 50 MHz edge pulse	GPIB, RS-232 (USB optional)	**$4,579**

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- DC to 225 MHz (optional to 12.4 GHz)
- Frequency, frequency ratio, time interval, rise/fall time, phase, and much more
- Automatic limit testing, math (scale and offset), statistics (minimum, maximum, mean, standard deviation)
- Standard IntuiLink software, GPIB, and RS-232 (print only)

Model	Type	Resolution (frequency, time interval)	Price from
53131A	Two channel universal optional 3rd channel	10 digit/sec, 500 ps	**$2,168**
53132A	Two channel universal optional 3rd channel	12 digit/sec, 150 ps	**$3,363**
53181A	One channel RF, optional 2nd channel	10 digit/sec, RF	**$1,889**

82350B PCI high-performance GPIB interface

Easily control instruments and exchange data with maximum throughput

- Built-in buffering for speeds up to 900 KB/s
- IEEE-488 interface connect up to 14 instruments
- Dual processor supports Windows® 2000/XP/Vista

Price from: $531

82357B USB/GPIB interface

High-speed USB 2.0 with fast, easy, plug-and-play connection and auto configuration

- GPIB transfer rate of more than 1.15 MB/s
- Direct PC (USB) to GPIB instrument connection
- IEEE-488 interface (connect up to 14 instruments)

Price from: $541

N9310A RF signal generator

Compact size and unbeatable value

- 9 kHz to 3 GHz CW output, 20 Hz to 80 kHz low frequency (LF) output
- -127 to +13 dBm output level range (maximum +20 dBm settable)
- -95 dBc/Hz SSB phase noise
- Extensive analog modulation: AM, FM, Phase, and Pulse modulation
- Optional IQ modulator, 40 MHz bandwidth

Price from: $7,273

N9320B RF spectrum analyzer

Value-priced performance with powerful enhancements

- AM/FM, ASK/FSK demod, LAN, GPIB, USB power sensor support
- Frequency range: 9 kHz to 3 GHz
- DANL: -148 dBm with pre-amp on
- RBW: 10 Hz to 1 MHz
- Free remote control PC software

Price from: $7,871

N1996A CSA spectrum analyzer

Perfect combination of performance, price, and portability

- Portable at only 7.5 kg (16.5 lbs) and 2 hours of continuous battery operation
- AM/FM demod, preamp, spectrogram
- Frequency range of 100 kHz up to 6 GHz with a RBW of 10 Hz to 5 MHz

Price from: $9,565

N9000A CXA signal analyzer

Low-cost versatility for essential signal characterization

9 kHz to 3.0 or 7.5 GHz

- Multiple simultaneous detectors
- Up to 6 display traces and 12 markers
- Absolute accuracy: ±0.5 dB (95% conf.)
- DANL (@ 1 GHz): -148 dBm (-161 dBm with preamp)
- Application-specific measurements and applications
- GPIB, USB 2.0, and LAN (LXI class C)

Price from: $12,657

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TRIO Smartcal

NEW

New 34972A LXI Data Acquisition Switch Unit

See page 3

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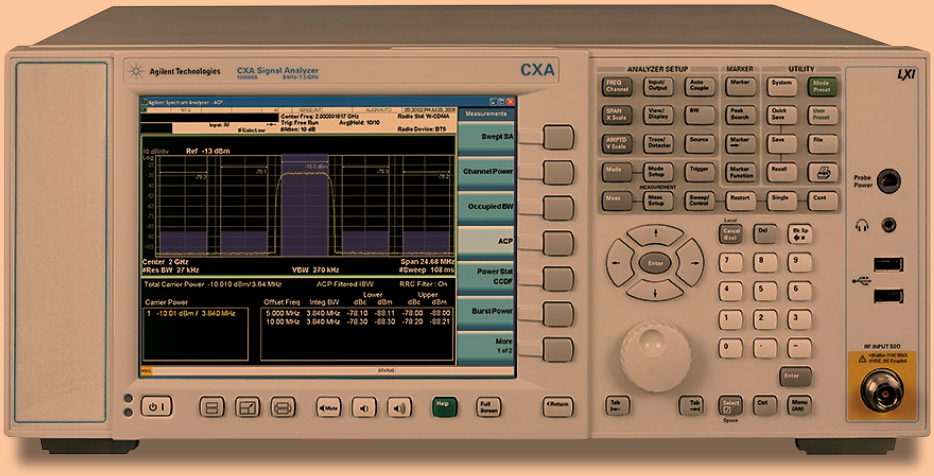
N9000A CXA Signal Analyzer

Unique display innovations help you get new products to market in less time and at lower cost

- 9 kHz to 3.0 or 7.5 GHz with multiple simultaneous detectors
- Up to 6 display traces and 12 markers
- Application-specific measurements and applications
- GPIB, USB 2.0, and LAN (LXI class C)



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