Agilent & Our Distributor Network

Right Instrument. Right Expertise.
Delivered Right Now.

Agilent

Distribution Products Catalog

Winter 2012—Spring 2013

Anticipate ___Accelerate ___Achieve

Agilent Technologies

Technical data subject to change.

WHAT'S NEW

InfiniiVision 4000 X-Series Oscilloscopes: experience unmatched speed, usability and integration
See page 8

33500B Series waveform generators with Trueform: low-cost signal generation without the compromises
See page 3

Precision. Readiness. Fieldfox. Handheld extensions of the network and spectrum analyzers.
See page 31

N9322C spectrum analyzer (9 kHz to 7 GHz) offers a versatile set of measurements with optimized performance and usability. See page 29

U1273AX handheld DMM delivers in the harshest conditions — down to -40 °C — with 30,000-count resolution and 0.05% basic DCV accuracy. See page 12

Anticipate — Accelerate — Achieve

You face increasing technical and operational complexity. Agilent measurement and application expertise helps you anticipate these growing complexities so you can accelerate your ability to achieve both engineering and business goals.

Agilent & Our Distributor Network

Right Instrument. 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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Agilent Technologies

Authorized Distributor

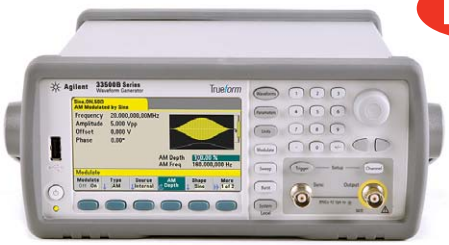
33500B Series waveform generators

With Trueform signal generation technology, create the exact waveforms you need.

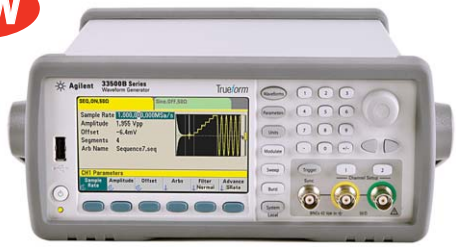
20 or 30 MHz, 1 or 2 channel, function generator, arbitrary waveform generator, and pulse generator in one instrument. Superior signal fidelity with True*form* technology provides the highest resolution, lowest distortion, and lowest jitter when compared to DDS function/arbitrary waveform generators—all at a comparable price.

With Trueform TECHNOLOGY

NEW



33500B Series, 1 channel



33500B Series, 2 channel

	33511B	33512B	33521B	335221B	33509B	33510B	33519B	33520B
Number of Channels	1	2	1	2	1	2	1	2
Sine, square, pulse bandwidth	20 MHz	20 MHz	30 MHz	30 MHz	20 MHz	20 MHz	30 MHz	30 MHz
Standard waveforms	Sine, square, ramp, pulse, triangle, Gaussian noise, PRBS (pseudorandom binary sequence), DC							
Arbitrary waveforms	Point-by-point arbitrary waveforms with sequencing, 1 MSa/channel standard, 16 MSa/channel optional				Arb is optional for these models			
Sample rate	160 MSa/s sampling with 16 bits resolution		250 MSa/s sampling with 16 bits resolution		160 MSa/s sampling with 16 bits resolution		250 MSa/s sampling with 16 bits resolution	
Modulation	AM, FM, PM, FSK, BPSK, PWM, sum (carrier + modulation)							
Burst	Counted or gated							
Noise generation	30 MHz							
Pulse width range	16 ns minimum							
Signal fidelity	<0.04% THD and <40 ps jitter (rms)							
Timebase	TCXO standard, OCXO optional for ultra-high stability							
Security	Optional NISPOM and file security							
IQ baseband signal player	n/a	optional	n/a	optional	n/a	optional	n/a	optional
Connectivity	USB, LAN (LXI Core), GPIB (IntuiLink software included)							

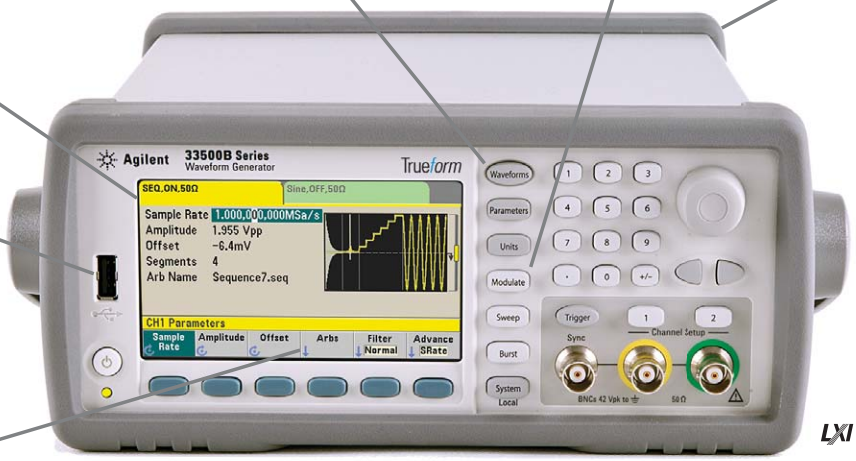
Large, color, graphic display

True*form* Technology provides true point-by-point arbitrary waveforms for more accurate representation of user defined waveforms

AM, FM, PM, FSK, and PWM modulation capabilities, sweep, and burst modes

Rear panel: USB, LAN (LXI Core), GPIB standard for easy use and connection

USB connection for easy configuration, storage and recall



20 or 30 MHz sine, square, pulse bandwidth

LXI

Free 30 day trial
of Agilent 33503A BenchLink Waveform Builder Pro software to build custom waveforms.

33200 Series function/arbitrary waveform generators

General purpose function generators with basic arbitrary waveform capabilities and high signal fidelity

33210A: When a basic 10 MHz function generator is needed along with the flexibility to upgrade at any time

33220A: Low cost, full featured 20 MHz generator with basic (64 K point) arbitrary waveform capability

33250A: Competitively-priced 80 MHz function/arbitrary waveform generator—if you need higher frequency than the 33500B Series offers

LXI

LXI

	33210A	33220A	33250A
Sine wave frequency	10 MHz	20 MHz	80 MHz
Standard waveforms	Sine, square, ramp, pulse, noise, DC volts	Sine, square, pulse, triangle, ramp, noise, sin(x)/x, exponential rise and fall, cardiac, DC volts	
Arbitrary waveforms	Optional 8 K points, sin(x)/x, exponential rise and fall, cardiac	2 to 64 K points	
Sample rate	50 MSa/s	50 MSa/s	200 MSa/s
Modulation	AM, FM PWM, sweep and burst (all internal/external)	AM, FM, PM, FSK, PWM, sweep and burst (all internal/external)	AM, FM, FSK, sweep and burst (all internal/external)
Burst	Gated, N-cycle	Gated, N-cycle	
Noise generation	7 MHz	9 MHz	50 MHz
Pulse width range	40 ns	20 ns	
Connectivity	USB, GPIB, and LAN (LXI Core) (IntuiLink software included)	USB, GPIB, and LAN (LXI Core) (IntuiLink software included)	GPIB/RS-232

Standard waveforms—including sine and square wave, ramp, pulse, noise and burst 10, 20, or 80 MHz

Arbitrary waveforms 2 points to 64 K points at 50 MSa/s or 200 MSa/s standard on the 33220A and 33250A. Arbitrary waveforms with 8 K points optional for the 33210A

External frequency reference synchronizes to an external 10 MHz clock or another 33210A, 33220A, 33250A—optional for the 33210A and 33220A, standard on the 33250A (back panel)

LXI

Intuitive, task-oriented front panel

Pulse generation with variable edge

Amplify your signal up to 50 Vp-p

Add an external output amplifier to your function generator to provide low distortion, higher voltage outputs for demanding applications

Agilent 33502A 2-ch, 50 Vp-p isolated amplifier

53200 Series RF/universal frequency counters/timers

Accelerate measurement and analysis with histograms, trend charts and statistics

- 350 MHz, with options up to 15 GHz
- Advanced capabilities: Histograms, trending, data logging, optional pulse/burst microwave measurements
- 20 ps single-shot time interval measurements
- Continuous, gap-free measurements, with time stamps on signal edges
- Onboard memory for 1 M readings
- Standard USB, GPIB, and LAN (LXI Core)
- 53181A, 53131A, 53132A counter emulation mode

Model	53210A	53220A	53230A
Type	1 channel; optional RF channel	2 channel universal; optional RF channel	
Measurements	Frequency, frequency ratio, period, max/min/peak-to-peak input voltage		
		Time interval, rise/fall time, single period, pulse width, duty cycle, phase, totalize	
			Timestamp/MDA
Analysis	Math: smoothing (reading moving average), scaling, Δ-change, null		
	Statistics: mean, standard deviation, max, peak-to-peak, count; full color display for trendline, histograms		
		Allan deviation	
Frequency range (optional)	DC to 350 MHz (6 or 15 GHz)		
Frequency resolution	10 digits/s	12 digits/s	
Time interval	NA	100 ps	20 ps
Connectivity	USB, GPIB, and LAN (LXI Core)		

53210A
53220A
53230A

LXI

81150A/81160A pulse function arbitrary noise generator

LXI

- 13 standard functions with more than 80 measurements available
- Four instruments in one: integrated pulse, function, arbitrary and noise generation capabilities, plus optional pattern generation
- Pulses with variable rise/fall times: 1 µHz–120 MHz (81150A) and 1 µHz–330 MHz (81160A), sine 1 µHz–240 MHz (81150A) and 1 µHz–500 MHz (81160A)
- White Gaussian noise with selectable crest factor, repetition time 26 days (81150A), 20 days (81160A)
- 14-bit, 2 GSa/s (81150A) 2.5 GSa/s (81160A) arbitrary waveforms
- Standard waveforms: Pulse, sine, square, triangle, ramp, noise, predefined arbitrary and optional patterns with or without bit-shaping

81100A Series pulse pattern generators

A pulse pattern generator family covering a frequency range from 15 MHz up to 660 MHz. Fully triggerable with variable width, delay and transition time.

81110A	165 MHz/10 V or 330 MHz/3.8 V
81130A	400 MHz/3.8 V or 660 MHz/2.5 V
81150A	120 MHz, 10 Vpp
81160A	330 MHz, 5 Vpp

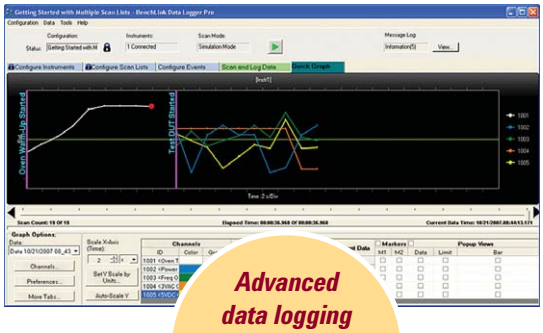
34980A multifunction data acquisition switch/measure unit

Achieve maximum versatility in a minimum footprint

This 8-slot mainframe includes a choice of 21 optional plug-in modules for custom configurations. As a one-box solution it is ideal for medium to high-density switch/measure applications in design verification, automated test, and data acquisition applications.

- Optional built-in 6½ digit DMM—make 11 measurements with more than 3000 readings/s
- High-performance switching—up to 560 2-wire multiplexer channels or 4092 matrix cross-points in one mainframe
- Built-in USB2.0, GPIB, and LAN(LXI Core)
- BenchLink Data Logger software (34826A) for high-speed data logging with no programming

For a convenient way to collect and analyze your data, expand the capabilities of Agilent 34980A data acquisition/ switch units with
Agilent BenchLink 34832A Data Logger Pro software
www.agilent.com/find/34832A



Advanced data logging without spending hours programming

21 modules to choose from

Model	Description	Key specifications
34921A-25A	Multiplexers	Up to 300 V/1 A
34931A-33A	Matrix switches	Up to 128 crosspoints
34934A	High-density switch	512-crosspoint reed matrix
34939A	High-density switch	64-channel Form A channels up to 60 W
34937A/38A	GP switches	1 A and 5 A
34941A/42A	RF switches	50 or 75 ohms
34945A	µW switch/attenuation driver	Drive 64 coils
34946A/47A	µW switches	SPDT switch to 26.5 GHz
34950A-34959A	System control	Choose from D/A, DIO, counter and breadboard

34970A/34972A data acquisition/switch unit

Modular flexibility, universal channels, no external signal conditioning: Create more measurement possibilities in less time

Get the flexibility you need with a 3-slot mainframe and your choice of 8 plug-in modules. Interface with this acquisition and switch unit by either its intuitive front panel and task-oriented, self-guiding menus, or by USB and LAN (LXI Core) (34972A) or GPIB and RS-232 (34970A).

- 6½-digit (22-bit) internal DMM measures 11 functions without external signal conditioning
- 50 k readings of non-volatile memory holds data when power is removed
- Battery-backed real-time clock for pacing scans and time stamped readings
- HI/LO alarm limits on each input channel, plus 4 TTL alarm outputs

2 mainframes to choose from

34970A: GPIB and RS-232 standard

34972A: 1 Gbit LAN (LXI Core) and USB 2.0 standard, USB memory port for extended memory and file transfer, graphical web interface for easy configuration and control

Advanced data logging without spending hours programming

For a convenient way to collect and analyze your data, expand the capabilities of Agilent 34970A/34972A data acquisition/switch units with **Agilent 34830A BenchLink Data Logger Pro software**

34972A includes Web interface capabilities for remote configuration and control

8 modules to choose from

	34901A	34902A	34903A	34904A	34905A	34906A	34907A			34908A
Description	20-channel multiplexer	16-channel multiplexer	20-channel actuator/ GP switch	4x8 matrix	Dual 4-channel RF mux, 50 Ω	Dual 4-channel RF mux, 75 Ω	Multifunction module			40-channel single-ended
Type	2-wire armature (4-wire selectable)	2-wire reed (4-wire selectable)	SPDT/ Form C	2-wire armature	Common low (untermi-nated)	Common low (untermi-nated)	Two 8-bit digital I/O ports	26-bit, 100-kHz event counter	Two 16-bit analog outputs	40-channel single-ended multiplexer
Speed (ch/sec)	60	250	120	120	60	60	NA	NA	NA	60
Max voltage	300 V	300 V	300 V	300 V	42 V	42 V	42 V	42 V	±12 V	300 V
Max current	1 A	50 mA	1 A	1 A	0.7 A	0.7 A	400 mA	NA	10 mA	1 A

InfiniiVision

4000 X-Series Oscilloscopes NEW

EXPERIENCE THE SPEED

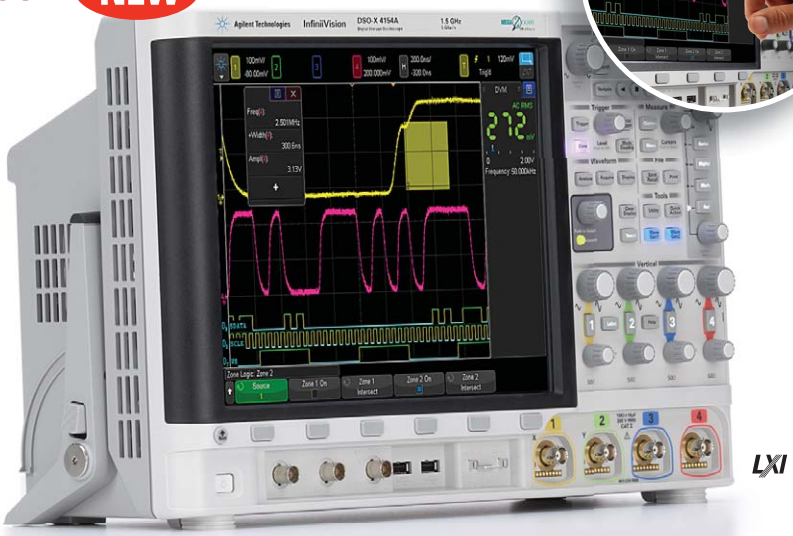
- Fastest update rate of 1,000,000 wfms/s
- Mega*Zoom* IV smart memory
- Standard segmented memory

EXPERIENCE THE USABILITY

- First capacitive touch screen display
- Industry's largest 12.1 inch display
- Industry's only InfiniiScan Zone touch triggering

EXPERIENCE THE INTEGRATION

- MSO models with integrated logic channels
- Serial protocol analysis options, including USB
- Only WaveGen built-in 20 MHz dual channel arbitrary/function generator
- Only integrated 3-digit voltmeter
- Upgrade at any time, including bandwidth to 1.5 GHz



200 MHz to 1.5 GHz

2000 & 3000 X-Series Oscilloscopes

SEE MORE

- Large 8.5 inch widescreen display
- Mega*Zoom* IV smart memory
- Fastest update rate of 1,000,000 wfms/s

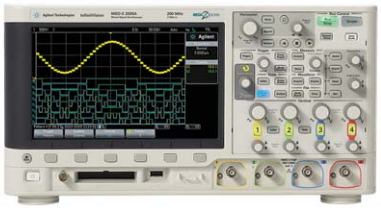
DO MORE

- MSO models with integrated logic channels
- Serial protocol options
- Only WaveGen built-in 20 MHz arbitrary/function generator
- Only integrated 3-digit voltmeter

GET MORE

- Fully-upgradable including: bandwidth to 1 GHz, MSO, serial protocol, DVM and WaveGen

100 MHz to 1 GHz



LXI

InfiniiVision 2000 X-Series oscilloscopes

70 to 200 MHz: Expand your capabilities even if you can't expand your budget

- Up to 50,000 waveform updates/second
- Only economy-class scopes with mixed signal capability
- 8.5 inch display offers 2x the viewing area and 5x the resolution of competitive scopes
- Only 20 MHz built-in WaveGen function generator
- Only integrated 3-digit voltmeter (DVM)
- Fully upgradable—bandwidth, MSO, measurement applications, WaveGen, and DVM (see page 11)

Model	BW	Max SR & Mem	Channels
DSO/MSO-X2002A	70 MHz	2 GSa/s 100 Kpts	2/2+8
DSO/MSO-X2004A			4/4+8
DSO/MSO-X2012A	100 MHz		2/2+8
DSO/MSO-X2014A			4/4+8
DSO/MSO-X2022A	200 MHz		2/2+8
DSO/MSO-X2024A			4/4+8

LXI

InfiniiVision 3000 X-Series oscilloscopes

100 MHz to 1 GHz: See more signal detail and speed trouble-shooting at an incredible value

- Up to 1,000,000 waveform updates/second
- Hardware-based measurement applications including serial analysis
- 8.5 inch display offers 50% larger and 3x the resolution of competitive scopes
- Only 20 MHz built-in WaveGen arbitrary/function generator
- Only integrated 3-digit voltmeter (DVM)
- Fully upgradable—bandwidth, MSO, memory, measurement applications, WaveGen, and DVM (see page 11)

Model	BW	Max SR & Mem	Channels
DSO/MSO-X3012A	100 MHz	4 GSa/s 2 Mpts (std) 4 Mpts (opt)	2/2+16
DSO/MSO-X3014A			4/4+16
DSO/MSO-X3024A	200 MHz		4/4+16
DSO/MSO-X3032A	350 MHz		2/2+16
DSO/MSO-X3034A			4/4+16
DSO/MSO-X3052A	500 MHz		2/2+16
DSO/MSO-X3054A			4/4+16
DSO/MSO-X3102A	1 GHz	5 GSa/s 2 Mpts (std) 4 Mpts (opt)	2/2+16
DSO/MSO-X3104A			4/4+16

Now up to 1 GHz

NEW

LXI

InfiniiVision 4000 X-Series oscilloscopes

200 MHz to 1.5 GHz: Redefines the oscilloscope experience with touch interface and InfiniiScan Zone touch triggering

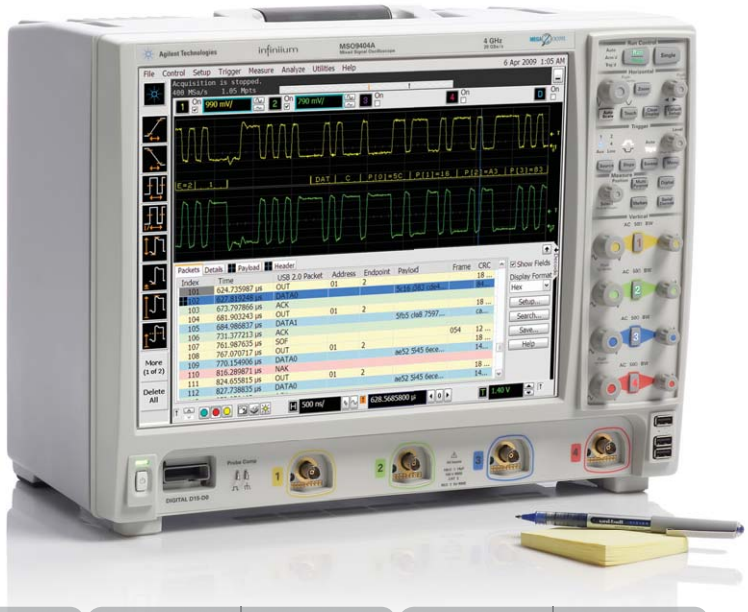
- Largest 12.1-inch capacitve touch display – 40% larger than competitive scopes
- 1,000,000 waveform updates/second
- Industry's only InfiniiScan Zone touch triggering – if you can see it, you can trigger on it
- 4 Mpts Mega*Zoom* IV responsive, uncompromised smart memory with segmented memory standard
- Only 20 MHz built-in dual channel WaveGen arbitrary/function generator
- Only integrated 3-digit voltmeter (DVM)
- Fully upgradable – bandwidth, MSO, dual-channel AWG, DVM, and serial analysis including USB (see page 11)

Model	BW	Max SR & Mem	Channels
DSO/MSO-X4022A	200 MHz	5 GSa/s 4 Mpts (std)	2/2+16
DSO/MSO-X4024A			4/4+16
DSO/MSO-X4032A	350 MHz		2/2+16
DSO/MSO-X4034A			4/4+16
DSO/MSO-X4052A	500 MHz		2/2+16
DSO/MSO-X4054A			4/4+16
DSO/MSO-X4104A	1 GHz		4/4+16
DSO/MSO-X4154A	1.5 GHz		4/4+16

Infiniium 9000 Series oscilloscopes

600 MHz to 4 GHz: Engineered for the broadest measurement capability

- Three instruments in one:
  - **Oscilloscope:** Up to 20 GSa/s sample rate, deepest memory up to 1 Gpts, upgradable bandwidth to 4 GHz
  - **Logic analyzer:** Integrated 16 digital channels in MSO models, upgradable on DSO models
  - **Protocol analyzer:** World's only scope-based protocol viewer with multi-tab viewing
- Widest range of application-specific measurement software
- Largest 15.1 inch XGA display
- Open Windows 7 operating system enables flexible analysis expansion
- InfiniiView PC-based oscilloscope analysis software



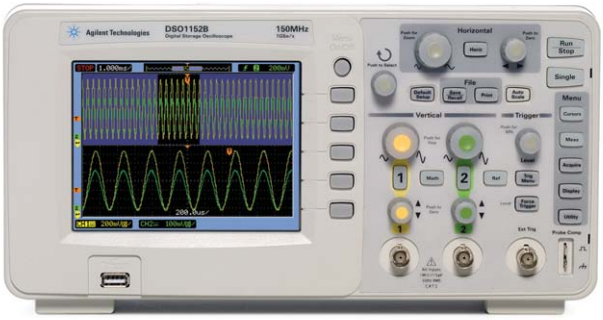
LXI

	DSO9064A	MSO9064A	DSO9104A	MSO9104A	DSO9254A	MSO9254A	DSO9404A	MSO9404A
Bandwidth	600 MHz		1 GHz		2.5 GHz		4 GHz	
Channels	4	4+16 digital	4	4+16 digital	4	4+16 digital	4	4+16 digital

1000 Series oscilloscopes

50 MHz - 200 MHz: Ultra low-cost DSO models

- 5.7 inch display
- 24 automatic measurements
- Sequential acquisition of up to 1000 trigger events
- Mask testing
- 11 language user interface
- Built-in-help menus
- USB host and device connectivity



	DSO1052B	DSO1072B	DSO1102B	DSO1152B	DSO1004A	DSO1014A	DSO1024A
Bandwidth	50 MHz	70 MHz	100 MHz	150 MHz	60 MHz	100 MHz	200 MHz
Channels	2				4		
Sample rate	1 GS/s				2 GS/s		
Memory	16 kpts				20 kpts		

Oscilloscope applications

Description	2000 X-Series	3000 X-Series	4000 X-Series (NEW)	9000 Series
Mask/waveform limit testing	DSOX2MASK	DSOX3MASK	DSOX4MASK	Standard
Segmented memory	DSOX2SGM	DSOX3SGM	Standard	Standard
WaveGen function generator	DSOX2WAVEGEN (1 ch)			
WaveGen arbitrary/function generator		DSOX3WAVEGEN (1 ch)	DSOX4WAVEGEN2 (2ch)	
Intgrated digital voltmeter	DSOXDVM	DSOXDVM	DSOXDVM	
Education training kit	DSOXEDK	DSOXEDK	DSOXEDK	
DSO to MSO upgrade kit	DSOX2MSO	DSOX3MSO / DSOXPERFMSO [1]	DSOXPERFMSO	N2901A/B/C/D
USB 2.0 triggering and decode			DSOX4USBFL / DSOX4USBH [2]	N5464A
I^2C/SPI trigger and decode		DSOX3EMBD	DSOX4EMBD	N5391B
RS-232/UART trigger and decode		DSOX3COMP	DSOX4COMP	N5462B
CAN/LIN trigger and decode		DSOX3AUTO	DSOX4AUTO	N8803B
I^2S trigger and decode		DSOX3AUDIO	DSOX4AUDIO	
Mil-Std 1553/ARINC 429 trigger and decode		DSOX3AERO	DSOX4AERO	
FlexRay trigger and decode		DSOX3FLEX	DSOX4FLEX	N8803B
Advanced Math		DSOX3ADVMATH	Standard	Standard
HDTV video analysis		DSOX3VID	DSOX4VID	
Power measurement and analysis		DSOX3PWR	DSOX4PWR	U1882A
Xilinx FPGA dynamic probe			DSOX4FPGAX	N5397A
EZJIT jitter analysis				E2681A
USB 2.0 compliance				N5416A
InfiniiView PC-based analysis software	N8900A	N8900A	N8900A	N8900A
Agilent spectrum visualizer PC-based software	64997A	64997A	64997A	64996A

1. *Order DSOX3MSO for ≤500 MHz models. Order DSOXPERFMSO for 1 GHz models.*
2. *DSOX4USBH is only available for 1 GHz and 1.5 GHz models.*

Probes

Accurate measurements start with the right probe

	2000 X-Series	3000 X-Series	4000 X-Series	9000 Series
Scope bandwidth	70 to 200 MHz	100 MHz to 1 GHz	200 MHz to 1 GHz	600 MHz to 4 GHz
Probe interface	BNC	AutoProbe Lite	AutoProbe	AutoProbe
Standard probe (scope bandwidth)	N2862B (70 MHz/100 MHz) N2863B (200 MHz)	N2862B (100 MHz) N2863B (200 MHz) N2890A (350 MHz to 1 GHz)	N2894A (all)	N2873A (all)
Passive probe 1:1	10070D, N2870A	10070D, N2870A	10070D, N2870A	10070D, N2870A
Passive probe 10:1	N2862B, N2863B	N2862B, N2863B, N2890A, N2871A, N2894A	N2894A	N2873A, N2894A
High-voltage passive probe 100:1	10076B	10076B	10076B	10076B
High-voltage passive probe 1000:1	N2771B	N2771B	N2771B	N2771B
Low Z passive probe		N2874A, N2876A	N2874A, N2876A	N2874A, N2876A
Active differential probe (high speed)		N2750A, 1130A [3]	N2750A, 1130A [3]	N2750A/51A/52A, 1130A/31A/32A [3]
Active differential probe (high voltage)	N2791A, N2891A	N2790A/91A/92A/93A, N2891A ,1141A [1]	N2790A/91A/92A/93A, N2891A, 1141A [1]	N2790A/91A/92A/93A, N2891A
Active single-ended probe		N2795A/96A, N2750A	N2795A/96A, N2750A	N2795A/96A, 1157A/58A, N2750A/51A/52A
Current probe	1146A, N2780B/81B/82B/83B [2]	1146A, 1147B, N2893A, N2780B/81B/82B/83B [2]	1146A, 1147B, N2893A, N2780B/81B/82B/83B [2]	1146A, 1147B, N2893A, N2780B/81B/82B/83B [2]

N2744 Tek to Agilent Probe Adapter

- An easy-to-use plug-on adapter to the Agilent oscilloscope's AutoProbe interface
- Provides necessary probe power, offset control and calibration to the attached TekProbe interface probe

1. *Requires 1142A power supply* 2. *Requires N2779A power supply*
3. *Order one or more InfiniiMax probe heads or connectivity kits required per amplifier model shown*

Handheld DMMs

Rich features and robust design for real-world conditions

NEW U1273AX DMM, with 30,000-count resolution, 0.05% basic DCV accuracy, and dependable performance down to -40 °C

- Low impedance mode, low pass filter and Smart Ohm for more accurate readings (U1270 Series)
- Up to 50,000 counts and 0.025% basic DCV accuracy, accurate true-RMS AC measurements (U1250 Series)
- High-contrast OLED display with 160° viewing angle (U1273AX, U1273A and U1253B)
- Low µA and high MΩ ranges, harmonic ratio measurements in AC supplies, and dual/differential temperature (U1240 Series)
- LED flashlight, Vsense non-contact voltage detection, flashing backlight display for visual feedback in noisy areas, and more. (U1230 Series)
- CAT III 1000 V and CAT IV 600 V over voltage protection (U1240, U1250, and U1270 Series)

The U1177A Infrared (IR)-to-*Bluetooth*® Adapter: Enables *Bluetooth* connection to ALL Agilent handheld DMMs. Use with the complimentary Agilent application software, Mobile Meter and Mobile Logger on your Android device to monitor and log data remotely and wirelessly (of up to 3 HH DMMs).

RECOMMENDED FOR	ELECTRICAL, HVAC AND UTILITIES			INSTALLATION AND MAINTENANCE		ELECTRONICS TROUBLESHOOTING			INDUSTRIAL		
	U1231A	**U1232A**	**U1233A**	**U1241B**	**U1242B**	**U1251B**	**U1252B**	**U1253B**	**U1271A**	**U1272A**	**U1273A/AX**
Counts	6,000			10,000		50,000			30,000		
AC bandwidth	1 kHz			2 kHz		30 kHz	100 kHz		20 kHz	100 kHz	
Voltage AC/DC	600 mV to 600 V			1 V to 1000 V		50 mV to 1000 V			300 mV to 1000 V	30 mV to 1000 V	
Current AC/DC	NA	60 µA to 10 A		1 mA to 10 A		500 µA to 10 A			300 µA to 10 A		
Battery life	500 hours			300 hours		72 hours	36 hours	8 hours	300 hours		30–60 hrs
Additional features	Built-in flashlight, continuity alert with flashing backlight, Z_{Low}		Non-contact voltage detector with V_{sense}	Switch counter	Harmonic ratio, dual and differential temperature measurements	NA	20 MHz frequency counter, programmable square wave generator	Organic LED display	Low pass filter		
									AC and/or DC voltage check	Low impedance mode, offset compensation	Organic LED display

Handheld Clamp Meters

Save money without compromising safety or convenience

- Includes DMM capabilities – resistance, capacitance, frequency and temperature
- Measures current as low as 0.01 A (U1210 Series)
- Large 2 inch jaw size with high measurement capability of up to 1000 A for AC, DC, or AC+DC (U1210 Series)
- LED light, wire separator, and hook to get and grab the right wire (U1190 Series)
- Flash alert for continuity and hazard conditions (U1190 Series)
- V_{sense} non-contact voltage detection (U1190 Series)

NEW **Now use with U1177A *Bluetooth* adapter!**

	U1211A	**U1212A**	**U1213A**	**U1191A**	**U1192A**	**U1193A**	**U1194A**
Counts	4,000			6,000			
True RMS	AC	AC	AC + DC	(Average responding)		AC	AC
Voltage AC/DC Range	400 V - 1000 V		4 V - 1000 V	60 V to 600 V			
Current	40 A - 1000 A			400 A	40 A to 600 A	60 A to 600 A	60 A to 600 A
Resistance	400 Ω to 4 kΩ		400 Ω to 40 MΩ	600 Ω to 6 kΩ	600 Ω to 60 kΩ		
Capacitance	400 µF - 4000 µF			NA	600 µF to 6 mF		
Additional features	Large 2' jaw size, back light with dual display, ACI, ACV/DCV, Diode, R, C, Freq			Wire separator, backlight, built-in flashlight, V_{sense}			
		DCI and Temp			Capacitance and frequency		
			AC+DC and duty cycle				DCI, microamp and temp

U1600 Series handheld oscilloscopes

Maximum versatility for more rigorous troubleshooting

- 5.7-inch VGA TFT LCD display with indoor, outdoor, and night-vision viewing modes (U1610A,U1620A)
- Two independent, isolated channels (U1610A, U1620A)
- Up to 2 GSa/s sample rate and up to 2 Mpts deep memory to zoom in on critical details (U1610A, U1620A)
- Perform quick waveform analysis with waveform math

	U1602B	U1604B	U1610A	U1620A
Oscilloscope channel count	2	2	2	2
Bandwidth	DC to 20 MHz	DC to 40 MHz	100 MHz	200 MHz
Maximum sampling rate	200 MSa/s interleaved, 100 MSa/s per channel		1 GSa/s interleaved, 500 MSa/s per channel	2 GSa/s interleaved, 1 GSa/s per channel
Maximum recording length	125,000 points, viewable on screen with zoom function		120 Kpts interleaved, 60 Kpts per channel	2 Mpts interleaved, 1 Mpts per channel
Internal scope storage	Up to 10 setups and traces		10 setups and waveforms can be saved and recalled internally	
Rise time	< 17.5 ns	< 8.8 ns	3.50 ns typical	1.75 ns typical
Additional features	Built-in DMM, data logger capability		Indoor, outdoor and night vision mode, built-in DMM, data logger capability, dual windows zoom	

U1700 Series handheld capacitance and LCR meters

Save time with auto-ID and one-button access

- Auto-identification of L, C and R; and detailed component analysis with DCR, Z, ESR, D, Q and θ functions.
- Tolerance and compare modes for quick component sorting
- One-button access to measurements

	U1701B	U1731C	U1732C	U1733C
Counts	11,000	20,000		
Capacitance	1000 pF to 199.99 mF	200 pF to 20 mF	20 pF to 20 mF	
Inductance	N/A	200 µH to 2000 H	20 µH to 2000 H	
Resistance	N/A	2 Ω to 200 MΩ		
Additional features	Dual display, Min/Max/Avg recording, data logging to PC			

U1733C

U1401B handheld calibrator

Simultaneous source and measure save you time and trouble

- 50,000-count resolution on dual display
- Calibrate while you measure
- Bipolar voltage and current, square-wave, auto scan, and ramp outputs
- Full-span DMM measurement and recording functions
- Includes protective holster, a rechargeable battery pack, power adapter and cord, calibrator/meter test lead kit, mA simulation test lead, certificate of calibration, and quick start guide

U1401B

Handheld DMMs on page 12

Lab accuracy at production-line speeds

U3401A/U3402A low-cost DMMs

Get the essential features and dual displays

- Up to 0.012% DV voltage accuracy
- Up to 9 measurement functions
- Simultaneous reading of DC and AC measurements on dual display
- Securable with PC-grade physical lock

4½ digit
U3401A

34405A 5½ digit economy DMM

Expand your capabilities and get more resolution

- 0.025% DC Voltage accuracy
- 10 measurement functions including temperature and capacitance
- 19 readings/sec at 4½ digit
- Simultaneous reading of DC and AC measurements on dual display

5½ digit
34405A

34401A/34410A/34411A 6½ digit high-performance DMMs

Accomplish even more with higher speeds, automated data logging and network transfers

- 0.0030% DC voltage accuracy
- 12 measurement functions including temperature and capacitance
- Up to 50,000 readings/s at 4½ digits
- Data logger with 50,000 reading non-volatile memory
- 1U high version available for manufacturing applications (L4411A)

6½ digit
34411A

U3606A multimeter/DC power supply

Get twice the measurement functionality in half the space

Allows simultaneous supply-and-measure operations

- DMM: 120,000 count resolution with DCV accuracy 0.025%
- Power supply: Dual range 30 V/1 A or 8 V/3 A output with OVP and OCP protection. Ability to source constant-voltage and constant-current directly.
- Securable with PC-grade physical lock

5½ digit
U3606A

	U3401A	U3402A	U3606A	34405A	34401A	34410A	34411A
Digits of resolution	4½	5½	5½	5½	6½	6½	6½
Measurement speed (readings/s)	3	22	37	19	1,000	10,000	50,000
Temperature	NA	NA	NA	Thermistor	NA	Thermistor, RTD	Thermistor, RTD
Connectivity	NA	NA	USB 2.0, GPIB, USBTMC 488.2 Class device	USB 2.0	GPIB, RS-232	Built-in LAN (LXI Core), USB 2.0, and GPIB	
				IntuiLink software–provides a toolbar in Microsoft Word and Excel to import multimeter data for further analysis			
Voltage & current	DC, true RMS AC, AC+DC		DC, true RMS AC				
Resistance	2-wire	2-wire, 4-wire	2-wire, 4-wire mΩ	2-wire	2-wire, 4-wire		
Other	Frequency, diode, continuity		Capacitance, frequency, diode, continuity		Frequency, diode, continuity, period	Capacitance, frequency, diode, continuity, period	

34401A 6½ digit

An optimum balance of performance, capability, and value: there's no secret why it has achieved best-seller status

1,000 readings/s in ASCII format across the GPIB bus at 4½ digits continuous

Store up to 512 readings in internal memory

10 measurement functions including 4-wire Ω, continuity and diode test

Limit testing ratio and min/max average

IntuiLink PC connectivity software included, GPIB and RS-232 standard, USB with adaptor, SCPI commands for easy system use

6½ digit 34401A

3 Hz to 300 kHz AC bandwidth

System capable with configuration rates starting at 26/s and autorange rate (DCV) >30/s

Null allows you to remove lead resistance and other fixed offsets in your measurements

0.0035 1-year DCV accuracy
0.060 1-year ACV accuracy
0.010 basic Ω accuracy

34420A 7½ digit nanovolt/micro-ohm meter

High sensitivity for low-level measurements, plus resistance and temperature

- 100 pV/100 nΩ sensitivity
- 0.1-ppm transfer accuracy
- Low-noise voltage measurements with resistance and temperature functions

7½ digit 34420A

3458A high-speed DMM

Accelerate every test with high throughout and high-speed math and statistics

- 0.05-ppm DCV transfer accuracy
- 0.1-ppm transfer accuracy
- 8-ppm 1-year DCV accuracy, optional 4-ppm
- Superior AC voltage measurement

8½ digit 3458A

The Agilent Bench

Anticipate ___Accelerate ___Achieve

1. Oscilloscope

Dramatically reduce time-to-insight with breakthrough scope technology that shows you more of your signals more of the time.
See pages 8–9.

2. Function/Arbitrary Waveform Generator

Achieve the confidence that comes from realistic and robust test signals for validating your most challenging designs: true point-by-point arbitrary waveforms, modulation and two-channel coupling.
See page 3.

3. Universal Counter

Expand your measurement and analysis capabilities with histograms, trend/strip charts, statistics, data logging and more.
See page 5.

4. Digital Multimeter

Accomplish even more a built-in Web server and LAN connectivity for remote operation, lower V/I ranges, built-in data logging and up to 50,000 readings per second.
See pages 14–15.

5. Data Acquisition/ Switch Unit

Simplify and accelerate ad hoc testing with modular flexibility, universal channels, and no external signal conditioning.
See pages 6–7.

6. Power Supplies

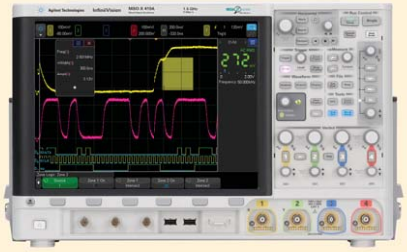
Enable faster and safer testing with built-in measurements, full DUT protection, and output sequencing.
See pages 19–22.

7. Handheld DMM

Anticipate a wider range of troubleshooting challenges, with full DMM features, frequency counter, square waves and wireless connectivity.
See pages 12–13.

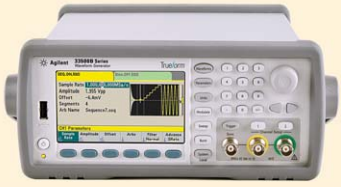
1

See Everything, Trigger on Anything



2

When an Approximation Isn't Good enough: Generating a True Waveform



With Trueform TECHNOLOGY

Imagine an oscilloscope that sees everything, triggers on anything, is as easy to use as a touch-screen tablet, and can grow into the future as your needs evolve:

- **See everything:** The 4000 X-Series oscilloscopes offer a million waveform updates per second—20 times faster than the competition. Together with the industry-leading 12.1 inch capacitive touch screen and Mega*Zoom* IV smart memory technology, you'll see more of your signal behavior and feel more confident in your designs.
- **Work the way you want:** Do you prefer the touch-screen approach of tablets and smartphones? Traditional front panel keypads? Windows-like operation with pull-down menus? Take your choice; the 4000-X Series offers all three.
- **Trigger on anything:** The 4000 X-Series redefines triggering with an innovative InfiniiScan Zone touch trigger. Just draw a box around the signals of interest, and the oscilloscope creates the trigger for you. If you can see it, you can trigger on it.
- **Get more done:** The 4000 X-Series integrate the capabilities of up to five instruments in one: oscilloscope channels, logic channels, DVM, dual-channel WaveGen function/arbitrary waveform generator, and serial protocol analyzer.
- **Protect your investment:** The 4000 X-Series provides unmatched upgradability: upgrade bandwidth, add digital channels (MSO), DVM, WaveGen, and versatile measurement applications for the ultimate investment protection.

The technologies used to digitally generate analog waveforms have long been a case study in compromise. The point per clock (PPC) method, in which each point of the waveform file is cycled through a DAC, delivers great performance but requires complicated and expensive clocking and filtering. Direct digital synthesis (DDS) is simpler and far less expensive than PPC but renders only approximations of the desired waveform and can suffer from harmonic distortion, jitter, aliasing, and even skipped points in the waveform.

The exclusive True*form* signal generation technology in the new Agilent 33500B Series waveform generators offers the high performance of PPC at the low price of DDS:

- **Twelvefold reduction in jitter** compared a traditional DDS generator, a key advantage with edge-based timing applications such as clocks, triggers, and many communication signals.
- **No skipped points** in the output waveform, even at higher frequencies.
- **Total harmonic distortion** up to five times lower than DDS.
- **Full anti-aliasing** with no external filtering required.

The Agilent 33500B Series with True*form* are especially useful for such applications as simulating a clock signal, generating a serial data signal, precise timing control (such as a trigger source or gate controller), and as a baseband IQ signal generator (option IQP).

www.agilent.com/find/usbmodularproducts
www.agilent.com/find/4263B

USB modular products

Anticipate every new challenge with reconfigurable portable test systems

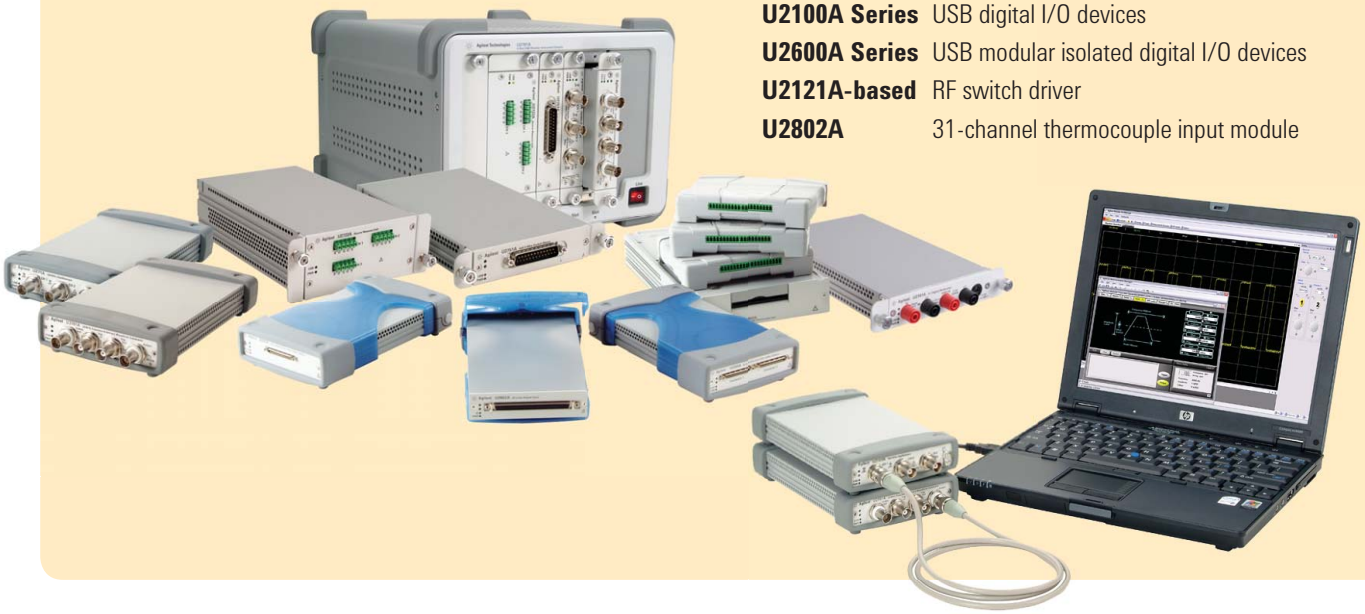
- Mix and match the USB modular instruments, DAQ modules or switching I/O units to meet your measurement needs
- The DAQ and instrument modules can be used standalone or integrated together in the USB modular chassis
- U2781A USB modular product chassis can host up to six modules and synchronize multiple instruments
- Hi-speed USB 2.0 interfaces for easy setup, plug-and-play, and hot swappable connectivity
- Bundled Agilent Measurement Manager software lets you configure and control a system with no programming

USB Modular Instruments

U2701A/02A	100/200 MHz oscilloscope
U2722A/23A	3-channel source measure unit
U2741A	5½ digit digital multimeter (DMM)
U2761A	20 MHz function generator
U2751A	4x8 switch matrix

USB Modular Data Acquisition

U2300A Series	USB modular multifunction DAQ devices
U2500A Series	USB modular simultaneous-sampling multifunction DAQ devices
U2100A Series	USB digital I/O devices
U2600A Series	USB modular isolated digital I/O devices
U2121A-based	RF switch driver
U2802A	31-channel thermocouple input module



4263B LCR meter; 100 Hz to 100 kHz

Equip your production line with accelerated LCR testing at budget-friendly prices

- 0.1% basic accuracy
- High-speed measurement: 25 ms
- 6 test frequencies:
  100 Hz, 120 Hz, 1 kHz, 10 kHz, 20 kHz, 100 kHz
- Measurement parameters
  (Z, Y, Theta, R, X, G, B, C, L, D, Q, Rdc, N, M)
- Transformer measurement capability:
  N (turns ratio), M (mutual inductance)

U8000 Series DC power supplies

Meet tight budget constraints and still get extra features

The U8000 Series non-programmable DC power supplies comprise of the triple-output U803x Series which has the unique output sequencing capability and the single-output U800x Series. Both series offer reliable power and excellent load regulation with extra features that are typically found only in more expensive supplies:

- Output sequencing capability to preset output sequences (for U803x Series)
- Total power of 375 W at three outputs (for U803x Series)
- Low output noise (as low as 1 mVrms) minimizes interference into your device-under-test (DUT)
- Excellent 0.01% load and line regulation for steady output power levels
- Fast load transient response time (50 µs) reduces test time and manufacturing cost
- Fully integrated over-voltage and over-current protection to prevent damage to your DUT

	Voltage	Current	Power
U8001A	30 V	3 A	90 W
U8002A	30 V	5 A	150 W
U8031A	Up to 30 V	Up to 6 A	375 W
U8032A	Up to 60 V	3 A	375 W

E3600 Series DC power supplies

Reliable power, repeatable results

For environments that need to watch test costs as closely as they watch test 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
- Convenient front-panel, GPIB, and RS-232 programming

E3610A-17A/20A/30A manual DC power supplies

- Up to 120 V and 6 A—just the power you need
- 30 to 60 W—single, dual, and triple outputs
- 10-turn pots—make fine adjustments easily

E3631A-34A programmable DC power supplies

- System-level performance without the high price
- 80 to 200 W—single or triple output for more power options
- Rotary knob and self-guiding keypads—precise adjustments for output resolution

E3631A
Agilent's most popular basic DC power supply

E3610A-17A/20A/30A

	GPIB, RS-232	Output	Range	Voltage	Current	Power
E3610A	N	1	2	8 V 15 V	3 A 2 A	30 W
E3611A	N	1	2	20 V 35 V	1.5 A 0.85 A	30 W
E3612A	N	1	2	60 V 120 V	0.5 A 0.25 A	30 W
E3614A	N	1	1	8 V	6 A	48 W
E3615A	N	1	1	20 V	3 A	60 W
E3616A	N	1	1	35 V	1.7 A	60 W
E3617A	N	1	1	60 V	1 A	60 W
E3620A	N	2	1	25 V	1 A	50 W
E3630A	N	3	1	6 V 20 V -20 V	2.5 A 0.5 A 0.5 A	35 W

E3631A-34A

	GPIB, RS-232	Output	Range	Voltage	Current	Power
E3631A	Y	3	1	25 V -25 V 6 V	1 A 1 A 5 A	80 W
E3632A	Y	1	2	15 V 30 V	7 A 4 A	120 W
E3633A	Y	1	2	8 V 20 V	20 A 10 A	200 W
E3634A	Y	1	2	25 V 50 V	7 A 4 A	200 W

E3600 Series DC power supplies

Reliable power, repeatable results

E3640A-49A programmable DC power supplies

- Remote sensing—eliminate voltage regulation errors due to drop in load leads
- Front and rear output terminals—flexible measurement setup
- Internal non-volatile memory—store and recall setups fast

E3640A

E3646A

E3640A-49A

Model	GPIB, RS-232	Output	Range	Voltage	Current	Power
E3640A	Y	1	2	8 V 20 V	3 A 1.5 A	30 W
E3641A	Y	1	2	35 V 60 V	0.8 A 0.5 A	30 W
E3642A	Y	1	2	8 V 20 V	5 A 2.5 A	50 W
E3643A	Y	1	2	35 V 60 V	1.4 A 0.8 A	50 W
E3644A	Y	1	2	8 V 20 V	8 A 4 A	80 W
E3645A	Y	1	2	35 V 60 V	2.2 A 1.3 A	80 W
E3646A	Y	2	2	8 V 20 V	3 A 1.5 A	60 W
E3647A	Y	2	2	35 V 60 V	0.8 A 0.5 A	60 W
E3648A	Y	2	2	8 V 20 V	5 A 2.5 A	100 W
E3649A	Y	2	2	35 V 60 V	1.4 A 0.8 A	100 W

N5700 and N8700 Series DC system power supplies

Basic high-power, single output power supplies

- 45 affordable models in compact 1U (750 and 1500 W) and 2U (3.3 and 5 kW) packages
- Built-in measurements and advance programming features simplify system design
- Perform remote programming with USB, GPIB, and LAN (LXI Core)

750 W models	1500 W models	3.3 kW models	5 kW models
N5741A 0-6 V, 0-100 A, 600 W	**N5761A** 0-6 V, 0-180 A, 1080 W	**N8731A** 0-8 V, 0-400 A, 3200 W	**N8754A** 0-20 V, 0-250 A, 5000 W
N5742A 0-8 V, 0-90 A, 720 W	**N5762A** 0-8 V, 0-165 A, 1320 W	**N8732A** 0-10 V, 0-330 A, 3300 W	**N8755A** 0-30 V, 0-170 A, 5100 W
N5743A 0-12.5 V, 0-60 A, 750 W	**N5763A** 0-12.5 V, 0-120 A, 1500 W	**N8733A** 0-15 V, 0-220 A, 3300 W	**N8756A** 0-40 V, 0-125 A, 5000 W
N5744A 0-20 V, 0-38 A, 760 W	**N5764A** 0-20 V, 0-76 A, 1520 W	**N8734A** 0-20 V, 0-165 A, 3300 W	**N8757A** 0-60 V, 0-85 A, 5100 W
N5745A 0-30 V, 0-25 A, 760 W	**N5765A** 0-30 V, 0-50 A, 1500 W	**N8735A** 0-30 V, 0-110 A, 3300 W	**N8758A** 0-80 V, 0-65 A, 5200 W
N5746A 0-40 V, 0-19 A, 760 W	**N5766A** 0-40 V, 0-38 A, 1520 W	**N8736A** 0-40 V, 0-85 A, 3300 W	**N8759A** 0-100 V, 0-50 A, 5000 W
N5747A 0-60 V, 0-12.5 A, 750 W	**N5767A** 0-60 V, 0-25 A, 1500 W	**N8737A** 0-60 V, 0-55 A, 3300 W	**N8760A** 0-150 V, 0-34 A, 5100 W
N5748A 0-80 V, 0-9.5 A, 760 W	**N5768A** 0-80 V, 0-19 A, 1520 W	**N8738A** 0-80 V, 0-42 A, 3300 W	**N8761A** 0-300 V, 0-17 A, 5100 W
N5749A 0-100 V, 0-7.5 A, 750 W	**N5769A** 0-100 V, 0-15 A, 1500 W	**N8739A** 0-100 V, 0-33 A, 3300 W	**N8762A** 0-600 V, 0-8.5 A, 5100 W
N5750A 0-150 V, 0-5 A, 750 W	**N5770A** 0-150 V, 0-10 A, 1500 W	**N8740A** 0-150 V, 0-22 A, 3300 W	
N5751A 0-300 V, 0-2.5 A, 750 W	**N5771A** 0-300 V, 0-5 A, 1500 W	**N8741A** 0-300 V, 0-11 A, 3300 W	
N5752A 0-600 V, 0-1.3 A, 780 W	**N5772A** 0-600 V, 0-2.6 A, 1560 W	**N8742A** 0-600 V, 0-5.5 A, 3300 W	

N6700 Modular Power System Family

Agilent N6705B DC Power Analyzer

Quickly achieve deep insights into DUT power consumption

- Save time and increase your productivity for sourcing and measuring DC voltage and current into your DUT—integrating DMM, scope, arb, and data logger features with up to four N6700 DC Power modules — easily controlled from the front panel
- 14585A (N6705B option 056) control and analysis PC software for the DC power analyzer (free 30-day trial)

N6700 Low Profile Modular Power Systems

Accelerate ATE with small, flexible, fast DC power

- Small size: up to 4 outputs in 1 U of rack space
- Choose from over 25 single-output N6700 DC power modules: basic, high performance, or precision
- Streamline tasks with built-in measurements, output sequencing, flexible triggering and digital I/O. LIST mode for user defined arbitrary waveforms (module dependent)
- Industry leading fast output response times (module dependent) and fast command processing (<1 ms) for high throughput
- Perform remote programming with USB, GPIB, and LAN (LXI Core)

Mainframes

Model	Description
N6700B	Low-profile MPS (400 W)
N6701A	Low-profile MPS (600 W)
N6702A	Low-profile MPS (1200 W)
N6705B	DC Power Analyzer (600 W)

Modules

Model	Type	Maximum Power	Voltage	Current	Number of slots used	Number of ranges	Ripple & Noise (Vp-p)	Programming accuracy	Up or down programming time with load - typical
N6731B	Basic	50 W	0-5 V	0-10 A	1	1	10 mV	0.1% + 19 mV	20 ms
N6732B		50 W	0-8 V	0-6.25 A			12 mV	0.1% + 19 mV	
N6733B		50 W	0-20 V	0-2.5 A			14 mV	0.1% + 20 mV	
N6734B		50 W	0-35 V	0-1.5 A			15 mV	0.1% + 35 mV	
N6735B		50 W	0-60 V	0-0.8 A			25 mV	0.1% + 60 mV	
N6736B		50 W	0-100 V	0-0.5 A			30 mV	0.1% + 100 mV	
N6741B		100 W	0-5 V	0-20 A			11 mV	0.1% + 19 mV	
N6742B		100 W	0-8 V	0-12.5 A			12 mV	0.1% + 19 mV	
N6743B		100 W	0-20 V	0-5 A			14 mV	0.1% + 20 mV	
N6744B		100 W	0-35 V	0-3 A			15 mV	0.1% + 35 mV	
N6745B		100 W	0-60 V	0-1.6 A			25 mV	0.1% + 60 mV	
N6746B		100 W	0-100 V	0-1 A			30 mV	0.1% + 100 mV	
N6773A		300 W	0-20 V	0-15 A			20 mV	0.1% + 20 mV	
N6774A		300 W	0-35 V	0-8.5 A			22 mV	0.1% + 35 mV	
N6775A		300 W	0-60 V	0-5 A			35 mV	0.1% + 60 mV	
N6776A		300 W	0-100 V	0-3 A			45 mV	0.1% + 100 mV	
N6777A		300 W	0-150 V	0-2 A			68 mV	0.1% + 150 mV	
N6751A	Performance	50 W	0-50 V	0-5 A	1	Autoranging	4.5 mV	0.06% + 19 mV	0.2ms
N6752A		100 W	0-50 V	0-10 A	1		4.5 mV	0.06% + 19 mV	0.2 ms
N6753A		300 W	0-20 V	0-50 A	2		5 mV	0.06% + 10 mV	0.4 ms
N6754A		300 W	0-60 V	0-20 A	2		6 mV	0.06% + 25 mV	0.35 ms
N6755A		500 W	0-20 V	0-50 A	2		5 mV	0.06% + 10 mV	0.5 ms
N6756A		500 W	0-60 V	0-17 A	2		6 mV	0.06% + 25 mV	0.7 ms
N6761A	Precision	50 W	0-50 V	0-1.5 A	1	Autoranging	4.5 mV	0.016% + 6 mV	0.6 ms
N6762A		100 W	0-50 V	0-3 A	1		4.5 mV	0.016% + 6 mV	0.6 ms
N6763A		300 W	0-20 V	0-50 A	2		5 mV	0.03% + 5 mV	0.4 ms
N6764A		300 W	0-60 V	0-20 A	2		6 mV	0.03% + 12 mV	0.35 ms
N6765A		500 W	0-20 V	0-50 A	2		5 mV	0.03% + 5 mV	0.5 ms
N6766A		500 W	0-60 V	0-17 A	2		6 mv	0.03% + 12 mV	0.7 ms

6600 Family high performance single output DC system power supplies

Fast outputs let you ramp up production speeds

- 40 W to 6600 W outputs, up to 120 V, and up to 875 A
- Fast, low-noise outputs increases test throughput
- Built-in measurements and advance programming features simplifies system design
- Computer control via GPIB

6611C

6653A

Series	Max power	Max voltage	Max current
6610C	50 W	8–100 V	0.5–5 A
6630B	100 W	8–100 V	1–10 A
6640A	200 W	8–120 V	1.5–20 A
6650A	540 W	8–120 V	4–50 A
6670A	2000 W	8–120 V	18–220 A
6680A	5000 W	5–40 V	128–875 A
6690A	6600 W	15–60 V	110–440 A

6030 Series basic auto-ranging DC power supplies

Built-in features help you reduce system setup time

- Built-in measurements and advance programming features simplify system design
- Full protection from over-voltage and over-current
- Computer control via GPIB

6032A

Model	Max power	Voltage	Current
6030A	1200 W	0–200 V	0–17 A
6031A	1064 W	0–20 V	0–120 A
6032A	1200 W	0–60 V	0–50 A
6033A	242 W	0–20 V	0–30 A
6035A	1050 W	0–500 V	0–5 A
6038A	240 W	0–60 V	0–10 A

6800 Series AC power source/analyzer

Achieve more with just one box: generation, measurement, and AC analysis

- Up to 1750 VA of single phase AC power and 1350 W of DC power in a single instrument
- Over-current, over-voltage, over-power, over-temperature protection, output disconnect relays, and remote inhibit capabilities to protect valuable DUTs
- Free graphical user interfaces (GUIs) with the AC source graphical user interface software and Microsoft® Excel Link connected through GPIB

6813B

Output ratings (maximum)	6811B	6812B	6813B
Power	375 VA	750 VA	1750 VA
Voltage (rms)	300 V	300 V	300 V
Current (rms)	3.25 A	6.5 A	13 A
Repetitive and non-repetitive peak current	40	40	80
Crest factor	12	6	6
Load power factor capability	0 to 1	0 to 1	0 to 1
DC power	285 W	575 W	1350 W
DC voltage	±425 V	±425 V	±425 V

N3300 Series DC electronic loads

Fast electronic loads that accelerate manufacturing test

This series consists of 2 mainframes and 6 modules. The N3300A mainframe is full rack width with 6 slots. The N3301A mainframe is half rack width with 2 slots. Any assortment of the 6 different modules can be configured into these mainframes, up to the slot capacity.

- Mix and match up to 6 modules as single, parallel, or series outputs for up to 1800 W in a single mainframe
- Measure voltage and current on each electronic load module simultaneously in constant current (CC), constant voltage (CV), and constant resistance (CR) mode
- Observe transient behavior using waveform digitization and 4096 data point buffer
- Computer control via GPIB or RS-232

N3300A

Input ratings	N3302A	N3303A	N3304A	N3305A	N3306A	N3307A
Current	0–30 A	0–10 A	0–60 A	0–60 A	0–120 A	0–30 A
Voltage	0–60 V	0–240 V	0–60 V	0–150 V	0–60 V	0–150 V
Maximum power at 40 °C	150 W	250 W	300 W	500 W	600 W	250 W

USB, GPIB, and LAN tools for PC/instrument connectivity

Protect your investments and integrate multiple interfaces in a single system

Converters

Mix and match virtually any combination of instruments and interfaces.
Easily establish error-free connections in less than 15 minutes using Agilent IO Libraries Suite.

From... ▶	To converter...	▶ To PC via...	Features
GPIB... ▶	**82357B USB/GPIB interface** 	▶ ...USB	▪ High-speed USB 2.0 with auto configuration ▪ GPIB transfer rate of up to 1.15 MB/s ▪ Connect up to 14 GPIB instruments (daisy-chained)
GPIB... ▶	**E5810A LAN/GPIB gateway** 	▶ ...LAN	▪ Share equipment and collaborate globally ▪ 10 Base-T/100 Base-TX LAN for remote control of GPIB instruments ▪ Digital display and built-in Web browser for easy setup/configuration

GPIB cards

Easily control instruments and exchange data with maximum throughput.

82350B
PCI high-performance GPIB interface card

Speed	Built-in buffering: speeds up to 900 KB/s
Size	Full PCI height
Power	5 V

82351A
PCIe® GPIB interface card

Speed	1.4 MB/s transfer rate
Size	Compact half-height
Power	3.3 V

GPIB cables and adapters

10833A/B/C/D/F or G GPIB cables: Easily connect your GPIB instruments with a PC GPIB interface using reliable and durable Agilent GPIB cables. These cables are available in various lengths ranging from 0.5 meter (1.6 ft) to 8 meters (26.2 ft). Daisy-chain multiple cables together if necessary.

10834A GPIB to GPIB adapter: The adapter extends the cable approximately 2.3 cm (0.9 in) away from the rear panel to provide clearance for other connectors, switches, and cables.

Eliminate the weak links in your measurement system...

Choose high quality for every connection

RF and microwave attenuators

Manual and programmable step attenuators

- Fast, precise signal-level control up to 50 GHz
- High reliability and exceptional repeatability reduce downtime
- Attenuation range of 121 dB in 1 dB steps can be achieved by cascading 2 attenuators in series

Fixed attenuators

- Precise attenuation, flat frequency response, and low SWR over broad frequency range up to 67 GHz
- Available in nominal attenuations of 3, 6, 10, 20, 30, 40, 50, and 60 dB to cater to various applications and setups

Agilent's most popular attenuator models

Model	Frequency range (DC to)	Type	Attenuation
8494A	4 GHz	Manual	0 to 11 dB, 1 dB steps
8494G	4 GHz	Programmable	0 to 11 dB, 1 dB steps
8491A	12.4 GHz	Fixed	3, 6, 10, 20, 30, 40, 50, 60 dB
8495B	18 GHz	Manual	0 to 70 dB, 10 dB steps
8495H	18 GHz	Programmable	0 to 70 dB, 10 dB steps
8493C	26.5 GHz	Fixed	3, 6, 10, 20, 30, 40 dB
8495D	26.5 GHz	Manual	0 to 110 dB, 10 dB steps
8497K	26.5 GHz	Programmable	0 to 90 dB, 10 dB steps
84904L	40 GHz	Programmable	0 to 11 dB, 1 dB steps
8490G	67 GHz	Fixed	3, 6, 10, 20, 30, 40 dB
J7211A/B/C	6/18/26.5 GHz	One box	0 to 121/101 dB, 1 dB steps

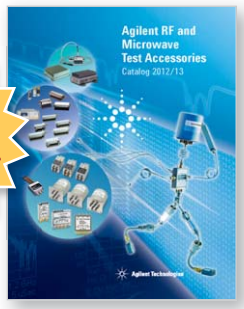
772/3/5/6/7/8D coaxial dual-directional coupler, 100 MHz to 0.94/1.9/4/18 GHz

- Nominal coupling and variation: 20 ±1.0 dB
- Directivity: >36 dB to 1 GHz
- Maximum SWR: 1.1

Agilent RF and microwave test accessories

Quickly identify and thoroughly research the industry's highest-quality RF and microwave test accessories

High quality accessories



2012/2013 Agilent RF & Microwave Test Accessory Catalog

Free copy:

www.agilent.com/find/MTAcatalog

U1818A/B active differential probe, 100 kHz to 7 or 12 GHz

- Broad bandwidth with flat frequency response, ± 1.5 dB, ensures excellent measurement accuracy and helps you achieve the best product specifications
- Low noise floor, less than -130 dBm/Hz at 10 MHz to 7 GHz, allows measurements to be made at a low signal amplitude

N1810/N1811/N1812 DC to 40/50/67 GHz SPDT switches

- Excellent 0.03 dB IL repeatability
- Long operating life of 5 million cycles
- High isolation: >70 at 67 GHz to minimize crosstalk

NEW

Agilent U1810B USB Coaxial Switch SPDT, DC to 18 GHz

- USB plug-and-play simplifies complex switching
- Type-N input connector provides a rugged and robust connection with the instrument ports
- Guaranteed 0.03 dB IL repeatability, ensures accuracy and reduces calibration cycles
- Guaranteed 5 million cycles operating life (typical 10 million cycles)
- Use with Agilent's wireless test sets, network and spectrum analyzers, and FieldFox handheld analyzers

N1913A/N1914A EPM Series power meters

Accelerate average power measurements and simplify test setup with these direct replacements for the popular E4418B/E4419B

- View test results more easily with the industry's first color LCD readout in an average power meter. Get up to four channels to speed and simplify RF average power measurements.
- Measure faster with improved measurement speed of 400 readings/s with the Agilent E-Series sensors
- USB, GPIB, and LAN (LXI Core) available
- Automate frequency/power sweep measurements with the optional external trigger in/out feature

EPM-P Series power meters (E4416A/E4417A)

Advanced capabilities for advanced power measurements.

- Accurately profile complex modulation formats of up to 5 MHz video bandwidth with 20 MSa/s continuous sampling rate
- PC software included for power and statistical analysis
- High throughput—up to 1,000 corrected readings/s via GPIB

P-Series power meters (N1911A/N1912A)

Accurate, fast, and repeatable power measurements for R&D and manufacturing environments.

- Comprehensive power, time, and statistical measurements
- Ideal for aerospace/defense, wireless communications, and wireless 802.11a/b/g networking
- Capture single-shot and repetitive events over a wide bandwidth with 30 MHz video bandwidth and 100 MSa/s, continuous sampling capability

Model number	Number of channels	Frequency range	N8480 Series sensors	P-Series sensors	E-Series E9320 sensors	E-Series E9300 sensors	E-Series CW sensors	8480D Series sensors	Standard interfaces
E4417A	2	9 kHz to 110 GHz	-35 to +44 dBm	NA	-65 to +20 dBm	-60 to +44 dBm	-70 to +20 dBm	-70 to -20 dBm	GPIB, RS-232
E4416A	1			NA	-65 to +20 dBm				GPIB, RS-232
N1914A	2			NA	NA				GPIB, LAN, USB
N1913A	1			NA	NA				GPIB, LAN, USB
N1912A	2			-35 to +20 dBm	-65 to +20 dBm				GPIB, LAN, USB
N1911A	1			-35 to +20 dBm	-65 to +20 dBm				GPIB, LAN, USB

Agilent power sensors

Achieve stable, repeatable results with all your power measurements

- **N8480 Series:** Thermocouple-based sensors offer exceptional accuracy and superior usability
  - Widest dynamic range of 55 dB with thermocouple technology
  - Built-in EEPROM feature for ease of calibration factor retrieval
  - Best-in-class linearity of less than 1%
  - Backward compatibility with EPM, EPM-P, and P-Series power meters
- **8480 Series:** Average power sensors using diode (848xD Series) and thermocouple technology (8483A)
- **E-Series:** Includes E441x wide dynamic range CW sensors, E9300 wide dynamic range average power sensors, E9320 peak and average power sensors
- **P-Series:** Peak and average power measurements of wide-bandwidth modulated signals using diode technology

USB power sensors

Get the power measurement capability of a power meter in a compact and portable form. All USB power sensors plug directly into PCs or USB-enabled Agilent instruments, and feature internal zeroing to eliminate external calibration. Setup is fast and easy; just connect and start measuring immediately with the included N1918A power analysis management software.

U2000 Series USB average power sensors

- Up to 1,000 readings/second
- Built-in trigger function

NEW

U2020 X-Series USB peak and average power sensors

- Measurement speed of 3,500 readings/second or higher (world's fastest USB power sensor)
- -30 to +20 dBm (peak/gated); 30 MHz video bandwidth
- Built-in trigger in/out function eliminates need for an external module or power supply

Model	Frequency range	Power range	Connector type
U2000A	10 MHz to 18 GHz	-60 to +20 dBm	Type-N
U2000B	10 MHz to 18 GHz	-30 to +44 dBm	Type-N
U2000H	10 MHz to 18 GHz	-50 to +30 dBm	Type-N
U2001A	10 MHz to 6 GHz	-60 to +20 dBm	Type-N
U2001B	10 MHz to 6 GHz	-30 to +44 dBm	Type-N
U2001H	10 MHz to 6 GHz	-50 to +30 dBm	Type-N
U2002A	50 MHz to 24 GHz	-60 to +20 dBm	3.5 mm
U2002H	50 MHz to 24 GHz	-50 to +30 dBm	3.5 mm
U2004A	9 kHz to 6 GHz	-60 to +20 dBm	Type-N
U2021XA	50 MHz to 18 GHz	-35 dBm to +20 dBm	Type-N
U2022XA	50 MHz to 40 GHz	-35 dBm to +20 dBm	2.4 mm

NEW

Value-priced express configurations give you the tools you need, as soon as you need them

New Express configurations for the Agilent CXA and EXA signal analyzers, ENA network analyzers, and the MXG signal generators provide the fastest delivery of these popular economy solutions. Each express configuration gives you the RF or microwave performance products you need, delivered RIGHT NOW. The express configurations are fully upgradable, so you can evolve as technology changes.

N9010AEP EXA signal analyzer express configuration

(9 kHz to 3.6, 7, 13.6, or 26.5 GHz)

Fast, flexible coverage of diverse analysis needs

- Includes 3.6 or 7 GHz preamplifier and 3.6 GHz electronic attenuator as standard
- ±0.27 dB absolute amplitude accuracy
- +15 dBm third order intercept (TOI) at 1 GHz
- –163 dBm displayed average noise level (DANL) with standard preamplifier at 1 GHz
- 25 MHz (standard) analysis bandwidth

N9000AEP CXA signal analyzer express configuration

(9 kHz to 3.0, 7.5, 13.6, or 26.5 GHz)

The leading low-cost tool for essential signal characterization

- **NEW** Essential signal characterization now up to 26.5 GHz
- Includes 3 or 7.5 GHz preamplifier and 3 or 6 GHz tracking generator as standard
- Up to ±0.5 dB absolute amplitude accuracy
- +17 dBm third order intercept (TOI) at 1 GHz
- -163 dBm displayed average noise level (DANL) with standard preamplifier at 1 GHz
- 10 MHz (standard) analysis bandwidth

E5061BEP & E5071CEP ENA network analyzers express configurations

High-productivity testing of today's complex RF components and circuits

- E5061BEP: 1.5 or 3 GHz; available configurations: T/R test set, S-Parameter test set, 5 Hz to 3 GHz range
- E5071CEP: 4.5, 8.5, and 20 GHz configurations; >123 dB dynamic range (typ); low trace noise; fastest measurements in its class; integrated S-parameter test set
- Visual Basic for on-board automation
- ECal modules: more-accurate calibration in less time
- USB, GPIB, LAN (LXI Core)

N9010AEP EXA

N9000AEP CXA

E5061BEP ENA

N5181AEP MXG RF analog signal generator express configuration

- 100 kHz to 1, 3, or 6 GHz with AM/FM/phase modulation included as standard
- +23 dBm output power at 1 GHz (optional) to compensate for system losses or drive device into compression
- Accurate and repeatable output power for calibration and verification
- –121 dBc/Hz (typical) phase noise at 1 GHz and 20 kHz offset is useful for VCO substitution
- 5 ms frequency switching speed (typical) to increase throughput

N5183AEP MXG microwave analog signal generator express configuration

- 100 kHz to 20 GHz with AM/FM/phase modulation and step attenuator included as standard
- +18 dBm output power at 1 GHz (optional) to compensate for system losses or drive device into compression
- Excellent power and level accuracy for calibration and verification
- –113 dBc/Hz (typical) phase noise at 1 GHz and 20 kHz offset is useful for VCO substitution
- 5 ms frequency switching speed to increase throughput

N5181AEP MXG

N5183AEP MXG

From basic to advanced functionality; designed for the most demanding manufacturing and R&D testing

N9320B spectrum analyzer

(9 kHz to 3 GHz)

Value-priced performance with robust measurement features

- Optional tracking generator: 100 kHz to 3 GHz
- Optional AM/FM and ASK/FSK demodulation
- Optional EMC RBW filters (–6 dB)
- USB, LAN, GPIB connectivity; USB power sensor support
- Remote control PC software

NEW

N9322C spectrum analyzer

(9 kHz to 7 GHz)

Broad measurement set with optimized performance and usability

- Ideal for ISM band wireless, C-band satellite, military radio, component verification
- -162 dBm DANL (typical, pre-amp on, normalized to 1 Hz)
- 2 ms to 1000 s sweep time (span ≥100 Hz)
- 7 GHz tracking generator, built-in VSWR bridge
- AM/FM, ASK/FSK demodulation
- Task planner simplifies automation
- USB, LAN, GPIB connectivity; USB power sensor support

N9310A signal generator

- Ideal for benchtop R&D, education, field measurements, and manufacturing
- Rugged body, large display, and full-size front panel
- Standard USB connectivity for test automation and memory stick support
- 9 kHz to 3 GHz frequency coverage with 0.1 Hz resolution
- Extensive analog modulation: AM, FM, phase, and pulse modulation
- Optional I/Q modulator
- Optional precision frequency reference

Ask about N9311X RF and microwave accessories kit

Accelerate field testing and troubleshooting with rugged handheld RF tools

N9342C/N9343C/N9344C
handheld spectrum analyzers (HSA)

Field testing just got easier

- N9344C: 9 kHz to 20 GHz
- N9343C: 9 kHz to 13.6 GHz
- N9342C: 9 kHz to 7 GHz
- Geographic information available from built-in GPS receiver and GPS antenna
- Innovative task planner option reduces setup time by up to 95% while enabling test automation and improving consistency
- Built-in tracking generator, 5 MHz to 7 GHz
- Power suite, USB power sensor support, AM/FM modulation, time-gated sweep, spectrogram, interference analysis
- MIL-PRF Class 2 compliant, rugged, weather-resistant design and maximum 4-hour field-replaceable battery
- Channel scanner (Option SCN)
- ASK/FSK modulation analysis (Option DMA)
- Reference clock synchronization with global positioning system (GPS)
- Cable and antenna test (exclusive to the N9342C)

N9344C

N9340B
handheld spectrum analyzer (HSA)

Take the speed and performance of lab-quality spectrum analysis with you

- 9 kHz to 3 GHz handheld spectrum analyzer with best-in-class specifications
- One-button measurement (channel power, ACPR, OBW, field strength, spectrum emission mask)
- Scalar network analysis: insertion loss, amplifier gain, filter passband (Option TG3)
- Interference analysis with spectrogram and N9311X-504 directional antenna
- Demodulation (AM/FM, ASK/FSK)

N9340B

N9330B
handheld cable and antenna tester

Fast, easy tools for essential installation and maintenance tasks

- 25 MHz to 4 GHz handheld cable and antenna tester
- Measure SWR/return loss/cable loss, and distance-to-fault (DTF)
- Calibrate with the electronic calibrator for fast and hassle-free calibration
- Make high-accuracy power measurement with Agilent U2000 Series USB power sensor

N9330B

Fieldfox handheld analyzers

Routine maintenance, in-depth troubleshooting and anything in between —14 new models

Lab-quality precision, ready to go wherever you need it

Agilent FieldFox RF and microwave analyzers earn a place in your kit with precision measurements, flexible operation to accommodate both novices and experts, and rugged designs that stand up in the toughest conditions. FieldFox offers maximum frequencies from 4 GHz to 26.5 GHz in a variety of configurations: cable and antenna analyzers, vector network analyzers, spectrum analyzers and all-in-one combination analyzers.

Ultimate in flexibility with up to ten instruments in one, including power meter, vector voltmeter and time domain analysis

Precision measurements that leverage algorithms and one-button routines from Agilent's high-end benchtop network and spectrum analyzers

- Easy to update and extend with versatile options
- Rugged and reliable (3 year warranty); water-resistant and dust-free cases
- Compact and lightweight (3.0 kg, 6.6 lbs) with long battery life (3.5 hrs)
- Wide operating temperature: –10 to +55 °C (14 to 131 °F)
- MIL-PRF 28800F Class 2 compliance
- MIL-STD-810G, Method 511.5, Procedure 1, operation in explosive environments

	RF analyzer	NEW RF & microwave combination analyzers	RF vector network analyzer	NEW Microwave vector network analyzers	NEW Microwave spectrum analyzers
Model number	N9912A	N9913/4/5/6/7/8A	N9923A	N9925/6/7/8A	N9935/6/7/8A
Maximum frequency	4, 6 GHz	4, 6.5, 9, 14, 18, 26.5 GHz	4, 6 GHz	9, 14, 18, 26.5 GHz	9, 14, 18, 26.5 GHz
Cable and antenna analyzer	•	•	•	•	VSWR and reflection
Vector network analyzer	Partial set of capabilities	•	•	•	
Spectrum analyzer, interference analyzer	•	•			•
Tracking generator, independent source	•	•			•
Vector voltmeter	Partial set of capabilities	•	•	•	
Built-in power meter	•	•		•	•
Power meter with USB sensor	•	•	•	•	•
Built-in GPS receiver	External only	•	External only	•	•
Built-in DC source		•		•	•

CHOOSING AN OSCILLOSCOPE: Can you meet today's budget requirements while anticipating tomorrow's bandwidth requirements?

The oscilloscope experience redefined: InfiniiVision 4000 X-Series oscilloscopes

NEW

These 200 MHz to 1.5 GHz oscilloscopes deliver waveform update rates 20 times faster than the competition, the power of Mega*Zoom* IV smart memory, and an intuitive GUI—all with a capacitive touchscreen interface.

Experience the speed to find the most difficult problems in your design with 1 million waveforms/sec update rate, Mega*Zoom* IV smart memory and standard segmented memory.

Experience the usability of the first scope design for touch capability with the industry's largest 12.1 inch capacitive touch display and innovative InfiniiScan Zone touch triggering.

Experience the integration of 5 instruments in one: oscilloscope, logic analyzer, protocol analyzer, WaveGen dual channel 20 MHz arbitrary/function generator, and 3-digit voltmeter, with the ability to upgrade your scope at any time including bandwidth to 1.5 GHz.

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