

2013 Bench Products

Test & Measurement Solutions



Overachiever.

The most powerful scope you can buy for \$1,290.



MSO/DPO2000B Mixed Signal Oscilloscope Series*

Introducing the MSO/DPO2000B Mixed Signal Oscilloscope Series. Like all of our MSO/DPO oscilloscopes, these powerful performers have the accuracy and craftsmanship you expect from Tektronix. Only the low price is surprising. Designed with you in mind, they are packed with innovative features to help speed every stage of debug. These scopes boast 16 digital channels, automated search, Wave Inspector® for navigating long records and even automated serial decode. All at a starting price that makes perfect sense, and backed by a 5-year warranty.



MSO/DPO2000B Series

Bandwidth	200 MHz, 100 MHz, 70 MHz
Channels	2 or 4 analog 16 digital (MSO Series)
Record Length	1 Mpoints
Display	7.0"
Serial Bus Options	I ² C, SPI, RS-232/422/485/UART, CAN, LIN
Optional Analysis	--
Starting Price	\$1,290



MSO/DPO3000 Series

Bandwidth	500 MHz, 300 MHz, 100 MHz
Channels	2 or 4 analog 16 digital (MSO Series)
Record Length	5 Mpoints
Display	9.0"
Serial Bus Options	I ² C, SPI, RS-232/422/485/UART, CAN, LIN, FlexRay, I ² S/L/RJ/TDM, MIL-STD 1553
Optional Analysis	Power Analysis, HDTV & Custom Video Triggering
Starting Price	\$3,380



MSO/DPO4000B and MDO4000 Series

Bandwidth	1 GHz, 500 MHz, 350 MHz, 100 MHz
Channels	2 or 4 analog 16 digital (MSO & MDO Series) 1 RF (MDO Series)
Record Length	Up to 20 Mpoints
Display	10.4"
Serial Bus Options	I ² C, SPI, RS-232/422/485/UART, CAN, LIN, FlexRay, I ² S/L/RJ/TDM, MIL-STD 1553, USB, Ethernet
Optional Analysis	Power Analysis, Limit & Mask Testing, HDTV & Custom Video Triggering
Starting Price	\$7,150

See the scope in action, analyze the specs and learn more at www.tektronix.com/mso2000

*MSO2024B shown in picture and priced at \$3,570.

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Highlights



SourceMeters
Switch Systems
Semiconductor Test
Systems
Digital Multimeters
Data Acquisition
Low-level Instruments
Power Supplies

Tektronix and Keithley - From Nanovolts to Gigahertz.

As part of the Tektronix portfolio, Keithley Instruments brings the DC test tools you need to do your job better and with greater confidence. Take a look inside to see the capabilities we provide. Together Tektronix and Keithley address your measurement needs from low level precision measurements to powerful time domain measurements.



MDO4000 Mixed Domain Oscilloscope - Transforming the way you test.

The world's first oscilloscope with a built-in spectrum analyzer

For the first time ever, you can capture time-correlated analog, digital and RF signals for a complete system view of your device. Solve the most complicated design issues, quickly and efficiently, with an oscilloscope as integrated as your design.

See page 17 for more details.



PA4000 Power Analyzer

The PA4000 performs accurate measurements, even when power is distorted or noisy. It's versatile, too, with harmonics analysis, motor measurements, PC interfaces and dual current shunts per channel all standard.

See page 28 for more details.

For an in-depth look at all of our products, including demos and 360-degree product explorers, please visit www.tektronix.com.

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Choosing Your Oscilloscope

Tektronix offers oscilloscopes for many different applications and uses. To help you choose the right scope for your needs, the most common criteria for selecting a scope are listed below, along with helpful tips for determining your requirements.

1 Bandwidth

All oscilloscopes have a low-pass frequency response that rolls off at higher frequencies. Oscilloscope bandwidth is specified as being the frequency at which a sinusoidal input signal is attenuated to 70.7% of the signal's true amplitude – the -3 dB point. Your oscilloscope must have sufficient bandwidth to capture all relevant frequency components of your signal. If you regularly work with digital signals, it may be easier to consider bandwidth by comparing signal and oscilloscope rise time specifications. Use an oscilloscope with a rise time specification five times faster than your signal rise time to keep error below 2%.

Rule: Bandwidth > 5 X Highest Signal Frequency

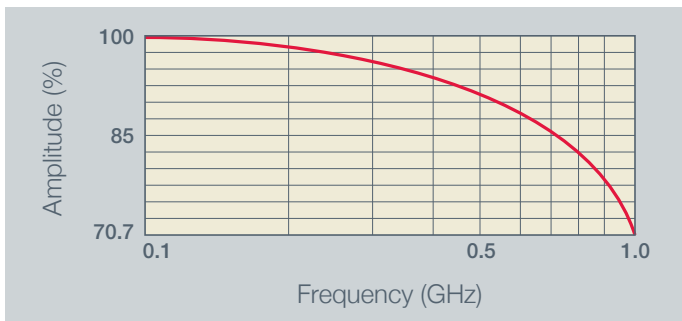


Figure 1: Typical frequency response curve for a general purpose oscilloscope

2 Sample Rate

The faster an oscilloscope samples, the greater the resolution and detail of the displayed waveform, and the less likely that critical information or events will be lost. Tektronix recommends at least 5X oversampling to ensure signal details are captured and to avoid aliasing.

Rule: Sample Rate > 5 x (Highest Frequency Component)

3 Record Length

Record length is the number of samples the oscilloscope can digitize and store in a single acquisition. Since an oscilloscope can store only a limited number of samples, the waveform duration – or length of “time” captured – will be inversely proportional to the oscilloscope's sample rate. A longer record length enables a longer time window to be captured with high resolution.

Rule: Captured Time = (Record Length) / (Sample Rate)

4 Digital Channels and Spectrum Analyzer Input

Today's oscilloscopes offer more than just analog channels for system-level troubleshooting of complex designs.

- If you need to analyze a parallel bus or multiple serial buses, the Tektronix MSO Series of mixed signal oscilloscopes offers 16 digital channels and up to 4 analog channels for analyzing multiple signals at once.
- If you are working with RF signals, the Tektronix MDO Series of mixed domain oscilloscopes offers a built-in spectrum analyzer for time-correlated analysis of analog, digital and RF signals.
















5 Features and Analysis Capability

Tektronix oscilloscopes offer a range of features and analysis capabilities. When choosing your scope, you should review available triggers, waveform search tools, automated measurements, and analysis packages such as serial bus analysis, jitter and power analysis to ensure they meet your needs.

Basic Oscilloscopes

To accurately visualize the intricate details of fast changing signals, you need an oscilloscope with uncompromised performance. Tektronix basic oscilloscopes feature Digital Real-Time Sampling with at least x5 over sampling on all channels, all the time, to precisely capture today's complex signals.



	TBS1000	TDS2000C	TPS2000B	THS3000	TDS3000C
Channels	2	2, 4	2, 4 (isolated)	4 (isolated)	2, 4
Bandwidth	25 MHz to 150 MHz	50 MHz to 200 MHz	100 MHz to 200 MHz	100 MHz to 200 MHz	100 MHz to 500 MHz
Sample Rate	500 MS/s to 1 GS/s	500 MS/s to 2 GS/s	1 GS/s to 2 GS/s	2.5 GS/s to 5 GS/s	1.25 GS/s to 5 GS/s
Max Record Length	2.5 k points	2.5 k points	2.5 k points	10 k points	10 k points
Trigger Types	Edge, Pulse (width), Video	Edge, Pulse (width), Video	Edge, Pulse (width), Video	Edge, Pulse (width), Event, Video, Non-interlaced	Edge, Logic (Pattern, State), Pulse (Glitch, Width, Runt, Slew Rate), Video, Extended Video*, Comm* *Optional
Optional Serial Bus Decode and Analysis	--	--	--	--	--
Connectivity	USB Host, USB Device, GPIB* *Optional	USB Host, USB Device, GPIB* *Optional	RS-232 (includes RS-232-to-USB Host Serial Cable), Centronics, CompactFlash	USB Host, USB Device	USB Host, LAN (10Base-T Ethernet) Optional TDS3GV Module: GPIB, RS-232, and Video Out
Waveform Math and Analysis	16 Automated Measurements, Arithmetic Waveform Math, FFT	16 Automated Measurements, Arithmetic Waveform Math, FFT, Waveform Limit Testing, Automated Datalogging Optional: TPS2PWR1: Power Measurement and Analysis	11 Automated Measurements, Arithmetic Waveform Math, FFT Optional: TPS2PWR1: Power Measurement and Analysis	21 Automated Measurements, Arithmetic Waveform Math, FFT	25 Automated Measurements, Arithmetic Waveform Math, FFT TDS3AAM: Advanced Analysis Optional: TDS3LIM: Limit Testing TDS3TMT: Telecom Mask Testing TDS3VID: HDTV and Custom Video Triggering
Software	PC Communications Software: OpenChoice® Desktop, Educator Classroom and Lab Resource CD	PC Communications Software: OpenChoice® Desktop, NI LabVIEW SignalExpress™ Tektronix Edition LE	PC Communications Software: OpenChoice® Desktop, NI LabVIEW SignalExpress™ Tektronix Edition LE	PC Communications Software: OpenChoice® Desktop	PC Communications Software: OpenChoice® Desktop, NI LabVIEW SignalExpress™ Tektronix Edition LE
Battery Operation	--	--	One TPSBAT Battery Pack Included Standard	One THSBAT Battery Pack Included Standard	Requires Optional TDS3BATC Battery Pack
Starting Price	\$520	\$890	\$2,990	\$4,110	\$5,080
Additional Resources		   	 	   	   

Bench Oscilloscopes

With the MSO/DPO Series of bench oscilloscopes, you can analyze analog and digital signals with a single instrument. And now, you can analyze your RF signals too with the MDO Series - the World's first and only mixed domain oscilloscope + spectrum analyzer. Combine that with automated serial and parallel bus analysis, innovative Wave Inspector® controls for rapid waveform navigation, and automated power measurements, and the Tektronix bench oscilloscopes provide the feature-rich tools you need to simplify and speed debug of your complex design.







	MSO/DPO2000B	MSO/DPO3000	MSO/DPO4000B	MDO4000
Channels	2, 4 analog channels; 16 digital channels (MSO2000B)	2, 4 analog channels; 16 digital channels (MSO3000)	2, 4 analog channels; 16 digital channels (MSO4000B)	4 analog channels; 16 digital channels; 1 spectrum analyzer input
Bandwidth	70 MHz, 100 MHz and 200 MHz	100 MHz to 500 MHz	100 MHz to 1 GHz	100 MHz to 1 GHz (analog)
Spectrum Analyzer Frequency Range	--	--	--	50 kHz - 3 GHz or 50 kHz - 6 GHz (RF)
Sample Rate	1 GS/s (analog); 1 GS/s (digital, only 1 pod); 500 MS/s (digital, both pods)	2.5 GS/s (analog); 121.2 ps (8.25 GS/s) MagniVu™ (digital)	2.5 GS/s to 5 GS/s (analog); 60.6 ps (16.5 GS/s) MagniVu™ (digital)	2.5 GS/s to 5 GS/s (analog); 60.6 ps (16.5 GS/s) MagniVu™ (digital)
Max Record Length	1 Mpoints	5 Mpoints	Up to 20 Mpoints	20 Mpoints
Trigger Types	Edge, Logic, Pulse Width, Runt, Set-up and Hold, Rise/Fall Time, Video, I²C*, SPI*, CAN*, LIN*, RS-232/422/485/UART*, Parallel (MSO2000B) *Optional	Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Set-up and Hold, Rise/Fall Time, Video, Extended Video*, I²C*, SPI*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, I²S/LJ/RJ/TDM*, MIL-STD-1553*, Parallel (MSO3000) *Optional	Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Set-up and Hold, Rise/Fall Time, Video, Extended Video*, I²C*, SPI*, USB*, Ethernet*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, I²S/LJ/RJ/TDM*, MIL-STD-1553*, Parallel (MSO4000B) *Optional	RF Power Level, Edge, Sequence, Logic, Pulse Width, Runt, Timeout, Set-up and Hold, Rise/Fall Time, Video, Extended Video*, I²C*, SPI*, USB*, Ethernet*, CAN*, LIN*, FlexRay*, RS-232/422/485/UART*, I²S/LJ/RJ/TDM*, MILSTD-1553*, Parallel *Optional **With optional MDO4TRIG module, RF power level can be used as source for Pulse Width, Timeout, Runt, Logic, Sequence
Optional Serial Bus Decode and Analysis	DPO2AUTO: CAN and LIN DPO2COMP: RS-232/422/485/UART DPO2EMBD: I²C, SPI	DPO3AERO: MIL-STD-1553 DPO3AUDIO: I²S, LJ, RJ, TDM DPO3AUTO: CAN and LIN DPO3COMP: RS-232/422/485/UART DPO3EMBD: I²C, SPI DPO3FLEX: FlexRay	DPO4AERO: MIL-STD-1553 DPO4AUDIO: I²S, LJ, RJ, TDM DPO4AUTO: CAN and LIN DPO4AUTOMAX: CAN, LIN and FlexRay DPO4COMP: RS-232/422/485/UART DPO4EMBD: I²C, SPI DPO4ENET: Ethernet DPO4USB: USB	DPO4AERO: MIL-STD-1553 DPO4AUDIO: I²S, LJ, RJ, TDM DPO4AUTO: CAN and LIN DPO4AUTOMAX: CAN, LIN and FlexRay DPO4COMP: RS-232/422/485/UART DPO4EMBD: I²C, SPI DPO4ENET: Ethernet DPO4USB: USB
Connectivity	USB Host, USB Device, GPIB* Optional DPO2CONN Module, LAN (10/100 Base-T Ethernet) and Video Out *Optional	USB Host (x2), USB Device, LAN (10/100 Base-T Ethernet), Video Out, GPIB* *Optional	USB Host (x4), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB* *Optional	USB Host (x4), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB* *Optional
Waveform Math and Analysis	29 Automated Measurements, Waveform and Screen Cursors, Arithmetic Waveform Math, FFT	29 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics Optional: DPO3PWR: Power Analysis DPO3VID: HDTV and Custom Triggering	41 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, Measurement Statistics, Waveform Histograms Optional: DPO4LMT: Limit and Mask Testing DPO4PWR: Power Analysis DPO4VID: HDTV and Custom Triggering	44 Automated Measurements, Waveform and Screen Cursors, Arithmetic Waveform Math, Spectrum Math, FFT, Advanced Math, Measurement Statistics, Waveform Histograms Optional: DPO4LMT: Limit and Mask Testing; MDO4TRIG: Adv. RF Power Level Trigger; DPO4PWR: Power Analysis; DPO4VID: HDTV and Custom Triggering
Software	PC communications software: OpenChoice® Desktop	PC Communications Software: OpenChoice® Desktop, NI LabVIEW Signal Express™ Tektronix Edition LE	PC Communications Software: OpenChoice® Desktop, NI LabVIEW Signal Express™ Tektronix Edition LE	PC Communications Software: OpenChoice® Desktop, NI LabVIEW Signal Express™ Tektronix Edition LE. Vector Signal Analysis Software: SignalVu-PC
Battery Operation	--	--	--	--
Starting Price	\$1,290	\$3,380	\$7,150	\$12,220
Additional Resources				

Performance Oscilloscopes

Tektronix performance oscilloscopes give you the cleanest, most trustworthy signal in the world. Discover signal fidelity issues fast with patented DPX® acquisition technology and reliably capture complex events with the advanced Pinpoint® triggering system. Quickly navigate through long record lengths with an intuitive Search and Mark capability and accelerate your design validation efforts with more than 30 different software analysis packages.



	MSO/DPO5000
Channels	4 analog channels; 16 digital channels (MSO5000)
Bandwidth	350 MHz to 2 GHz
Sample Rate	5 GS/s to 10 GS/s (analog); 60.6 ps (16.5 GS/s) MagniVu™ (digital)
Max Record Length	Up to 250 Mpoints
Trigger Types	Edge, Sequence, Logic, Pulse Width, Glitch, Runt, Timeout, Transition, Set-up and Hold, Rise/Fall Time, Video, I ² C*, SPI*, USB (Low, Full, High)*, RS-232/422/485/UART*, Parallel (MSO5000), Visual Trigger* *Optional
Optional Serial Bus Decode and Analysis	SR-ENET: 10/100Base-T Ethernet SR-AERO: Aerospace (MIL-STD 1553) SR-AUTO: Automotive (CAN/LIN/FlexRay) SR-COMP: RS-232/422/485/UART SR-CUST: Custom Serial Analysis Kit SR-DPHY: MIPI D-PHY SR-EMBD: I ² C, SPI SR-PCIE: PCI Express SR-USB: USB VNM: CAN, LIN
Connectivity	USB Host (x6), USB Device, LAN (10/100/1000 Base-T Ethernet, LXI Class C Compliant), Video Out, GPIB* *Optional
Waveform Math and Analysis	53 Automated Measurements, Waveform and Screen Cursors, Arithmetic and Advanced Waveform Math, FFT, Measurement Statistics, Waveform Histograms Optional: DDRA: DDR Memory Bus Analysis; DJA: DPOJET Advanced Jitter and Eye Diagram Analysis; ET3: Ethernet Compliance Test Solution; LT: Waveform Limit Testing; MTM: Mask Testing; PWR: Power Analysis; SignalVu Vector Signal Analysis; USB: USB Compliance Test Solution; VET: Visual Triggering; MOST: MOST 50/150 Compliance Test Solution
Software	PC Communications Software: NI LabVIEW Signal Express™ Tektronix Edition LE
Battery Operation	--
Starting Price	\$12,000
Additional Resources	   

Additional Resources Key

Product Demo



Product Explorer



Data Sheet



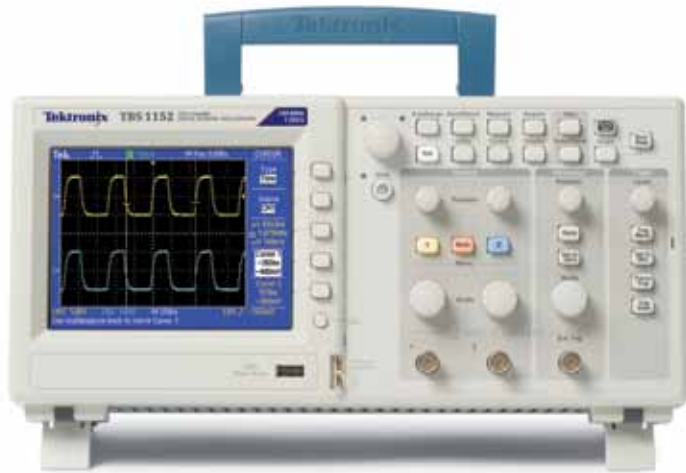
Technical Content



Tektronix Reference Library

With over 20,000 items in our premium content library, it is likely you can find answers on our website to whatever questions you have. Here is a list of our most popular downloaded content for oscilloscopes. Visit www.tektronix.com to download your copy.

1. XYZs of Oscilloscopes Primer
2. ABCs of Probes Primer
3. Fundamentals of Signal Integrity Primer
4. Debugging Serial Buses in Embedded Systems Designs Application Note
5. Power Supply Measurement and Analysis Primer



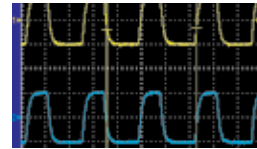
TBS1000 Series

Usually, entry-level instruments are as light in features as they are in price. But Tektronix TBS1000 Series aren't usual instruments. Ideal for students, hobbyists or any person or organization on a tight budget, TBS1000 Series oscilloscopes deliver outstanding performance, including best-in-class digital real-time sampling, pass/fail testing, and familiar, easy-to-use controls. All at a price that's equally impressive.



Product Highlights

- Up to 1 GS/s sample rate on all channels
- 16 automated measurements, and FFT analysis
- Built-in waveform limit testing
- Built-in help system and probe check wizard
- Front-panel USB host port and rear-panel USB device port
- Qualifies for Education Discount



Accurately capture signals with at least 10X oversampling on all channels with Digital Real-Time Sampling technology.



Quickly store and transfer your waveforms and settings with the front panel USB port.

Models	Analog Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
TBS1022	2	25 MHz	500 MS/s	\$520
TBS1042	2	40 MHz	500 MS/s	\$680
TBS1062	2	60 MHz	1.0 GS/s	\$830
TBS1102	2	100 MHz	1.0 GS/s	\$1,100
TBS1152	2	150 MHz	1.0 GS/s	\$1,520

Recommended Probes

Passive Voltage Probes

TPP0201	10X, 200 MHz, 300 V CAT II	\$81
TPP0101	10X, 100 MHz, 300 V CAT II	\$66
P2220	10X/1X, 200 MHz/6 MHz, 300 V CAT II/150 V CAT II	\$127

High Voltage Probes

P5200A	500X/50X, 50 MHz, ± 1300 V/± 130 V	\$945
P5100A	100X, 500 MHz, 2500 V Peak	\$945
P6015A	1000X, 75 MHz, 20 kV Peak	\$1,880

Recommended Probes

Current Probes

P6021	60 MHz, 10.6 A RMS/250 A Peak/10 mA Min	\$1,570
P6022	120 MHz, 4 A RMS/100 A Peak/1 mA Min	\$1,680
A621	5 Hz to 50 kHz, 1000 A RMS/2000 A Peak/10 mA Min	\$628
A622	100 kHz, 100 A DC/71 A RMS/100 A Peak/10 mA Min	\$634
TCP2020	50 MHz, 20 A DC/20 A RMS/100 A Peak/10 mA Min	\$2,610

Recommended Accessories

1103	TEKPROBE Power Supply	\$2,280
AC2100	Soft Carrying Case	\$130

Recommended Service

SILV200	5-year Extended Warranty	\$260
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Another Product for Consideration

Need 4 channels? The TDS2000C Series offers the same great performance as the TBS1000 on both 2- and 4-channel models, and includes a Lifetime Warranty.

Ships with Product

- Two TPP0x01 100 MHz or 200 MHz, 10X Passive Probes
- OpenChoice® Desktop Software
- Educator Classroom and Lab Resource CD
- Calibration Certificate, Quick Reference Manual, & Documentation on CD
- Power Cord
- 5-year Warranty

Help your students master the use of an oscilloscope with the included classroom labs and resources.





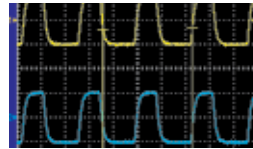
TDS2000C Series

Big performance has never been so small. Featuring Digital Real-Time Sampling, you can trust your scope to accurately capture your signal. Add in USB connectivity, 16 automated measurements and even a built-in help system, this compact oscilloscope helps you get more done in less time. It's true: big things do come in small packages.

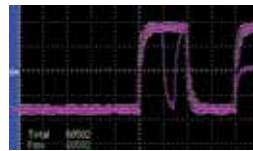


Product Highlights

- 10x oversampling on all channels
- Bright color display
- 16 automated measurements and FFT analysis
- Built-in help system and probe check wizard
- Front-panel USB host port and rear-panel USB device port
- Lifetime Warranty²



Accurately capture signals with at least 10X oversampling on all channels with Digital Real-Time Sampling technology.



Easily check if your waveforms pass or fail your specifications with built-in waveform limit testing.

Models	Analog Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
TDS2001C	2	50 MHz	500 MS/s	\$890
TDS2002C	2	70 MHz	1.0 GS/s	\$1,080
TDS2004C	4	70 MHz	1.0 GS/s	\$1,640
TDS2012C	2	100 MHz	2.0 GS/s	\$1,300
TDS2014C	4	100 MHz	2.0 GS/s	\$1,950
TDS2022C	2	200 MHz	2.0 GS/s	\$1,850
TDS2024C	4	200 MHz	2.0 GS/s	\$2,280

Recommended Probes

Passive Voltage Probes

TPP0201	10X, 200 MHz, 300 V CAT II	\$81
TPP0101	10X, 100 MHz, 300 V CAT II	\$66
P2220	10X/1X, 200 MHz/6 MHz, 300 V CAT II/150 V CAT II	\$127

High Voltage Probes

P5200A	500X/50X, 50 MHz, ±1300 V/±130 V	\$945
P5100A	100X, 500 MHz, 2500 V Peak	\$945
P6015A	1000X, 75 MHz, 20 kV Peak	\$1,880

¹For complete details visit www.tektronix.com/lifetimewarranty

Recommended Probes

Current Probes

P6021	60 MHz, 10.6 A RMS/250 A Peak/10 mA Min	\$1,570
P6022	120 MHz, 4 A RMS/100 A Peak/1 mA Min	\$1,680
A621	5 Hz to 50 kHz, 1000 A RMS/2000 A Peak/10 mA Min	\$628
A622	100 kHz, 100 A DC/71 A RMS/100 A Peak/10 mA Min	\$634
TCP2020	50 MHz, 20 A DC/20 A RMS/100 A Peak/10 mA Min	\$2,610

Recommended Accessories

1103	TEKPROBE Power Supply	\$2,280
AC2100	Soft Carrying Case	\$130

Recommended Service

SILV200	5-year Extended Warranty	\$260
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Another Product for Consideration

If you work with serial or parallel buses, the MSO/DPO2000B Series offers trigger, decode and search options for common protocols.

Ships with Product

- One TPP0x01 100 MHz or 200 MHz, 10X Passive Probe Per Analog Channel
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Power Cord
- Lifetime Warranty¹

2011 Winner of the
EETimes Annual
Creativity in
Electronics
(ACE) Award





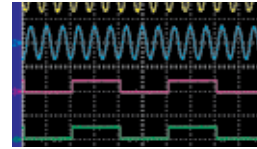
TPS2000B Series



Great performance goes beyond the lab. This compact, battery-powered oscilloscope packs big-time performance and versatility. Make floating or differential measurements with up to four isolated channels. Tackle tough electronics and power systems in challenging environments with backlit buttons and optional power analysis software. Accurately capture your signals with Digital Real-Time Sampling. Huge performance. Small footprint.

Product Highlights

- 10x oversampling on all channels
- 4 isolated analog channels
- 11 automated measurements and FFT analysis
- Optional power analysis software



Safely and easily make floating measurements with the four isolated channels.



Battery pack gives you up to 4 hours of portable operation. Hot-swap the pack for 4 more hours!

Models	Analog Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
TPS2012B	2	100 MHz	1.0 GS/s	\$2,990
TPS2014B	4	100 MHz	1.0 GS/s	\$3,950
TPS2024B	4	200 MHz	2.0 GS/s	\$4,480

Application Modules

TPS2PBN2	TPS2PWR1 Module and Four P5122 Probes	\$1,550
TPS2PWR1	Power Measurement and Analysis Module	\$670

Recommended Accessories

1103	TEKPROBE Power Supply	\$2,280
AC2100	Soft Carrying Case	\$130
TPSBAT	Additional Lithium-Ion Battery Pack (one included standard with instrument)	\$292
TPSCHG	External Battery Charger	\$507

Recommended Service

SILV200	5-year Extended Warranty	\$260
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Recommended Probes

Passive Voltage Probes

TPP0201	10X, 200 MHz, 300 V CAT II	\$81
TPP0101	10X, 100 MHz, 300 V CAT II	\$66
P2220	10X/1X, 200 MHz/6 MHz, 300 V CAT II/150 V CAT II	\$127

High Voltage Probes

P5150	50X, 500 MHz, 2500 V Peak, 1000 V RMS CAT II	\$500
P5122	100X, 200 MHz, 1000 V RMS CAT II	\$278

Current Probes

P6021	60 MHz, 10.6 A RMS/250 A Peak/10 mA Min	\$1,570
P6022	120 MHz, 4 A RMS/100 A Peak/1 mA Min	\$1,680
A621	5 Hz to 50 kHz, 1000 A RMS/2000 A Peak/10 mA Min	\$628
A622	100 kHz, 100 A DC/71 A RMS/100 A Peak/10 mA Min	\$634
TCP2020	50 MHz, 20 A DC/20 A RMS/100 A Peak/10 mA Min	\$2,610

Another Product for Consideration

For very accurate low frequency voltage and current measurements, the DMM Series offers up to 0.0024% basic DC voltage accuracy.

Ships with Product

- One TPP0101 100 MHz, 10X Passive Probe Per Analog Channel (TPS2012B & TPS2014B)
- One TPP0201 200 MHz, 10X Passive Probe Per Analog Channel (TPS2024B)
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- RS-232 to USB Adapter Cable
- One Lithium-Ion Battery with 4-hour Battery Life
- Calibration Certificate, Quick Reference Manual, & Documentation on CD
- Front Panel Cover, AC Adapter with Power Cord
- 3-year Warranty

Learn more with the “Fundamentals of Floating Measurements and Isolated Input Oscilloscopes” application note.





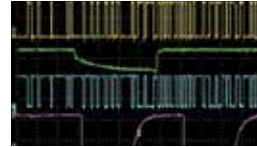
THS3000 Series

Affordable performance in a rugged, portable design. This handheld, battery-powered oscilloscope is packed with features and analysis tools. With up to 5 GS/s sampling rate and four isolated channels that can measure up to 1000 Volts you can quickly, reliably and accurately evaluate your signal characteristics on the bench or in the field.

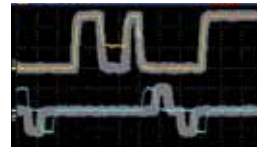


Product Highlights

- 4 fully isolated and floating channels
- 21 automated measurements
- 600 VRMS CAT III, 1000 VRMS CAT II rated inputs
- Measurement data logging with TrendPlot™
- 7 hours of continuous battery operation



Four isolated input channels easily handle any type of mixed signal inputs.



User-defined limit testing can automatically monitor your signals and output Pass or Fail results.

Models	Analog Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
THS3014	4	100 MHz	2.5 GS/s	\$4,110
THS3014-TK	4	100 MHz	2.5 GS/s	\$4,550
THS3024	4	200 MHz	5.0 GS/s	\$4,650
THS3024-TK	4	200 MHz	5.0 GS/s	\$5,100

Recommended Probes

Passive Voltage Probes

THP0301 - Y/B/M/G	300 MHz, 10X, 300 V CAT III	\$183
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High Voltage Probes

P5150 ¹	50X, 500 MHz, 2500 V Peak, 1000 V RMS CAT II	\$500
P5122	100X, 200 MHz, 1000 V RMS CAT II	\$278

Current Probes

P6021	60 MHz, 10.6 A RMS/250 A Peak/10 mA Min	\$1,570
P6022	120 MHz, 4 A RMS/100 A Peak/1 mA Min	\$1,680
A621	5 Hz to 50 kHz, 1000 A RMS/2000 A Peak/10 mA Min	\$628
A622	100 kHz, 100 A DC/71 A RMS/100 A Peak/10 mA Min	\$634
TCP2020	50 MHz, 20 A DC/20 A RMS/100 A Peak/10 mA Min	\$2,610

¹The P5150 is compatible with THS oscilloscopes, but 50X vertical scaling is not offered.

Recommended Accessories

THSBAT	Additional Spare Battery	\$312
THSCHG ²	Battery Charger	\$104
119-7900-00	AC Power Adapter	\$280

² Does not include AC power adapter.

Recommended Service

SILV400	5-year Extended Warranty	\$415
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Another Product for Consideration

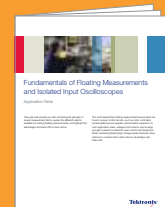
For very accurate ripple measurements on high voltage signals, the P5122 probe offers high impedance with minimal capacitive loading.

Ships with Product

- Four THP0301-Y/B/M/G 300 V CAT III, 300 MHz 10X Passive Probes
- OpenChoice® Desktop Software
- USB-A to Mini USB-B Cable for PC Communication
- Lithium-ion Battery with 7 Hour Battery Life
- Calibration Certificate, Installation/Safety Manual, Documentation on CD
- Carrying Handle, Hanging Strap
- ACHHS Soft-sided Carry Case³, AC Power Adapter with Power Cord
- Hard-sided Travel Case⁴
- Soft-sided Probe Case, Two Probe Replacement Accessory Kits⁴
- 3-year Warranty

³ Non-TK models only, ⁴ TK models only

Learn more with the "Fundamentals of Floating Measurements and Isolated Input Oscilloscopes" application note.





TDS3000C Series

Performance meets portability. Featuring up to 500 MHz bandwidth and optional battery-powered operation, this oscilloscope is as capable as it is convenient. Capture fast-changing signals with Digital Real-Time Sampling. Maximize efficiency with WaveAlert® Anomaly Detection and 25 automated measurements. Performance and versatility. Turns out, you can take it with you.



Product Highlights

- 10 kpoints record length on all channels, all the time
- 3,600 wfms/s max. waveform capture rate with DPO technology
- 25 automated measurements and FFT analysis
- Front-panel USB host port and optional rear-panel Ethernet, GPIB, and RS-232 ports



Optional battery pack gives you up to 3 hours of portable operation.



Accurately capture signals with at least 5X over-sampling on all channels with Digital Real-Time Sampling technology.

Models	Analog Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
TDS3012C	2	100 MHz	1.25 GS/s	\$5,080
TDS3014C	4	100 MHz	1.25 GS/s	\$6,220
TDS3032C	2	300 MHz	2.5 GS/s	\$7,500
TDS3034C	4	300 MHz	2.5 GS/s	\$8,930
TDS3052C	2	500 MHz	5 GS/s	\$10,800
TDS3054C	4	500 MHz	5 GS/s	\$12,800

Application Modules

TDS3LIM	Limit Testing	\$765
TDS3TMT	Telecom Mask Test Triggering	\$1,430
TDS3VID	HDTV and Custom Video Triggering	\$765

Recommended Accessories

1103	TEKPROBE Power Supply	\$2,280
TDS3GV	GPIB, RS-232, and VGA Communications Module	\$765
TDS3BATC	Lithium-ion Battery	\$637
TDS3ION	Battery Charger	\$159
AC3000	Soft Carrying Case	\$249
HCTEK4321	Hard Carrying Case (requires AC3000)	\$796

Recommended Service

SILV400	5-year Extended Warranty	\$415
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Recommended Probes

Passive Voltage Probes			
P6139B	10X, 500 MHz, 300 V CAT II		\$435
Active Voltage Probes			
P6243	10X, 1 GHz, ± 8 V		\$1,080
Differential Voltage Probes			
P6246 ¹	10X/1X, 400 MHz, ± 8.5 V/± 850 mV		\$3,470
High Voltage Probes			
P5205A	500X/50X, 100 MHz, ± 1300 V/± 130 V		\$1,390
P5210A	1000X/100X, 50 MHz, ± 5600 V/± 560 V		\$2,780
P5100A	100X, 500 MHz, 2500 V Peak		\$945
Current Voltage Probes			
TCP202A	50 MHz, 15 A DC/10.6 A RMS/50 A Peak/10 mA Min		\$2,260

¹Requires 1103 TEKPROBE Power Supply

Another Product for Consideration

If you work with serial or parallel buses, the MSO/DPO3000 Series offers trigger, decode and search options for common protocols.

Ships with Product

- One P6139B 500 MHz, 10X Passive Probe Per Analog Channel
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual, & Documentation on CD
- Front Panel Cover, Power Cord
- 3-year Warranty

Learn more about Digital Real-Time Sampling with the “Be Sure to Capture the Complete Picture” application note.





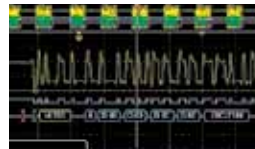
MSO/DPO2000B Series

Test more, spend less with an oscilloscope that's packed with features and is also light on price. Measure as many as 20 channels of analog and digital signals. Speed debug with automated serial and parallel bus analysis. Search your entire record instantly with Wave Inspector®. Entry level has never been so powerful.



Product Highlights

- 1 Mpoint record length on all channels
- 5,000 wfms max. waveform capture rate with DPO technology
- Over 125 available trigger combinations, including setup/hold, serial packet and parallel data
- Automated search and easy waveform navigation with Wave Inspector®
- 29 automated measurements and FFT analysis
- 5-year warranty



Quickly pan/zoom and automatically search your waveforms with Wave Inspector®.



Automatically trigger, decode and search your serial buses with optional analysis modules.

Models	Analog Channels	Digital Channels	Analog Bandwidth	Analog Sample Rate	Pricing (USD)
DPO2002B	2	--	70 MHz	1 GS/s	\$1,290
MSO2002B	2	16	70 MHz	1 GS/s	\$2,140
DPO2004B	4	--	70 MHz	1 GS/s	\$1,970
MSO2004B	4	16	70 MHz	1 GS/s	\$2,810
DPO2012B	2	--	100 MHz	1 GS/s	\$1,620
MSO2012B	2	16	100 MHz	1 GS/s	\$2,460
DPO2014B	4	--	100 MHz	1 GS/s	\$2,370
MSO2014B	4	16	100 MHz	1 GS/s	\$3,170
DPO2022B	2	--	200 MHz	1 GS/s	\$2,280
MSO2022B	2	16	200 MHz	1 GS/s	\$3,130
DPO2024B	4	--	200 MHz	1 GS/s	\$2,810
MSO2024B	4	16	200 MHz	1 GS/s	\$3,650

Application Modules

Serial Bus Triggering and Protocol Analysis

DPO2AUTO	Automotive (CAN, LIN)	\$350
DPO2COMP	Computer (RS-232)	\$350
DPO2EMBD	Embedded (I ² C, SPI)	\$350

Recommended Accessories

DPO2CONN	Ethernet and Video Out Connectivity Module	\$425
119-7465-xx	TekVPI External Power Supply	\$82
ACD2000	Soft Carrying Case	\$249

Recommended Service

SILV200	5-year Extended Warranty	\$260
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Recommended Probes

Passive Voltage Probes

TPP0200	10X, 200 MHz, 300 V CAT II	\$2620
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Active Voltage Probes

TAP1500	10X, 1.5 GHz, ± 8 V	\$2140
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Differential Voltage Probes

TDP0500 ¹	50X/5X, 500 MHz, ± 42 V/± 4.25 V	\$3,430
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High Voltage Probes

THDP0200 ¹	500X/50X, 200 MHz, ± 1500 V/± 150 V	\$1,730
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TMDP0200 ¹	250X/25X, 200 MHz, ± 750 V/± 75 V	\$1,730
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THDP0100 ¹	1000X/100X, 100 MHz, ± 6000 V/± 600 V	\$2,960
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Current Probes

TCP0020	50 MHz, 20 A DC	\$2,460
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TCP0030 ¹	120 MHz, 30 A DC	\$3,460
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TCP0150 ¹	20 MHz, 150 A DC	\$4,090
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¹ Requires 119-7465-xx TekVPI External Power Supply

Another Product for Consideration

Need more bandwidth? The MSO/DPO3000 Series offers up to 500 MHz analog bandwidth and additional performance.

Ships with Product

- One TPP0100 100MHz, 10X Passive Probe Per Analog Channel (70 MHz model)
- One TPP0200 200 MHz, 10X Passive Probe Per Analog Channel (100 MHz & 200 MHz models)
- One P6316 16 Channel Logic Probe (MSO only)
- OpenChoice® Desktop Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD, Power Cord
- 5-year Warranty

"It combines scope, logic analyzer, and protocol analyzer features into an easy-to-use, portable package. The mixed signal functionality, serial decode, small-footprint, and affordable price provide compelling value."

Alfred Mora
Electrical Engineer, Datalogic Scanning, Inc.



MSO/DPO3000 Series

Looking for an all-purpose oscilloscope? Look no further. Measure up to 20 channels of analog and digital signals with one instrument. Save time with automated measurements, and built-in serial and parallel bus analysis. Instantly search your entire record with Wave Inspector®. Efficiency. Versatility. Performance. One oscilloscope.



Product Highlights

- 5 Mpoint record length on all channels
- >50,000 wfms max. waveform capture rate with DPO technology
- Over 125 available trigger combinations, including setup/hold, serial packet and parallel data
- Automated search and easy waveform navigation with Wave Inspector®
- 29 automated measurements and FFT analysis



Analyze your digital signals with up to 121.2 ps timing resolution with MagniVu™ (MSO Series).



Automatically trigger, decode and search your serial buses with optional analysis modules.

Models	Analog Channels	Digital Channels	Analog Bandwidth	Analog Sample Rate	Digital Sample Rate Main/MagniVu™	Pricing (USD)
DPO3012	2	--	100 MHz	2.5 GS/s	--	\$3,380
MSO3012	2	16	100 MHz	2.5 GS/s	500 MS/s / 8.25 GS/s	\$4,800
DPO3014	4	--	100 MHz	2.5 GS/s	--	\$4,050
MSO3014	4	16	100 MHz	2.5 GS/s	500 MS/s / 8.25 GS/s	\$5,500
DPO3032	2	--	300 MHz	2.5 GS/s	--	\$6,380
MSO3032	2	16	300 MHz	2.5 GS/s	500 MS/s / 8.25 GS/s	\$8,520
DPO3034	4	--	300 MHz	2.5 GS/s	--	\$7,680
MSO3034	4	16	300 MHz	2.5 GS/s	500 MS/s / 8.25 GS/s	\$10,300
DPO3052	2	--	500 MHz	2.5 GS/s	--	\$8,600
DPO3054	4	--	500 MHz	2.5 GS/s	--	\$10,500
MSO3054	4	16	500 MHz	2.5 GS/s	500 MS/s / 8.25 GS/s	\$13,700

Application Modules

Serial Bus Triggering and Protocol Analysis

DPO3AERO	Aerospace (MIL-STD-1553)	\$1,100
DPO3AUDIO	Audio (I ² S, LJ, RJ and TDM)	\$1,100
DPO3AUTO	Automotive (CAN, LIN)	\$1,100
DPO3COMP	Computer (RS-232)	\$1,100
DPO3EMBD	Embedded (I ² C, SPI)	\$1,100
DPO3FLEX	Automotive (FlexRay)	\$1,100

Additional Analysis

DPO3PWR	Power Analysis	\$1,370
DPO3VID	HDTV and Custom Video Triggering	\$695

Recommended Accessories

ACD4000	Soft Carrying Case	\$247
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Recommended Service

SILV400	5-year Extended Warranty	\$415
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Recommended Probes

Passive Voltage Probes

P6139B	10X, 500 MHz, 300 V CAT II	\$435
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Differential Voltage Probes

TDP0500	50X/5X, 500 MHz, ± 42 V/± 4.25 V	\$3,430
TDP1000	50X/5X, 1 GHz, ± 42 V/± 4.25 V	\$4,840

High Voltage Probes

TMDP0200	250X/25X, 200 MHz, ± 750 V/± 75 V	\$1,730
THDP0200	500X/50X, 200 MHz, ± 1500 V/± 150 V	\$1,730
THDP0100	1000X/100X, 100 MHz, ± 6000 V/± 600 V	\$2,960
P5100A	100X, 500 MHz, 2500 V Peak	

Current Probes

TCP0020	50 MHz, 20 A DC	\$2,460
TCP0030	120 MHz, 30 A DC	\$3,460
TCP0150	20 MHz, 150 A DC	\$4,090

Ships with Product

- One P6139B 500 MHz, 10X TekVPI Passive Probe Per Analog Channel
- One P6316 16 Channel Logic Probe (MSO only)
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Front Panel Cover, Power Cord
- 3-year Warranty

Upgrade the bandwidth of your MSO/DPO3000 Series any time after your purchase up to 500 MHz, ensuring your scope can grow with your needs.



MSO/DPO4000B Series

Debug complex designs faster with an oscilloscope that's as versatile as it is powerful. Measure up to 20 channels of analog and digital signals. Analyze serial and parallel buses. Instantly search your entire record with the time-saving Wave Inspector®. Finally, an oscilloscope that multitasks as well as you do.

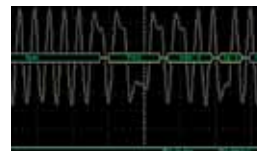


Product Highlights

- Up to 20 Mpoint record length on all channels
- >50,000 wfm/s max. waveform capture rate with DPO technology
- Over 125 available trigger combinations, including setup/hold, serial packet and parallel data
- Automated search and easy waveform navigation with Wave Inspector®
- 41 automated measurements and FFT analysis



Ships with one passive probe per analog channel, with up to 1 GHz bandwidth and an industry-best 3.9 pF of capacitive loading.



Automatically trigger, decode and search your serial and parallel bus.

Models	Analog Channels	Digital Channels	Bandwidth	Record Length (Max)	Analog Sample Rate (Max)	Digital Sample Rate Main/MagniVu™	Pricing (USD)
DPO4014B	4	--	100 MHz	20M	2.5 GS/s	--	\$7,150
MSO4014B	4	16	100 MHz	20M	2.5 GS/s	500 MS/s /16.5 GS/s	\$9,500
DPO4034B	4	--	350 MHz	20M	2.5 GS/s	--	\$10,700
MSO4034B	4	16	350 MHz	20M	2.5 GS/s	500 MS/s /16.5 GS/s	\$13,600
DPO4054B	4	--	500 MHz	20M	2.5 GS/s	--	\$14,000
MSO4054B	4	16	500 MHz	20M	2.5 GS/s	500 MS/s /16.5 GS/s	\$17,400
DPO4102B-L	2	--	1 GHz	5M	5 GS/s	--	\$9,990
DPO4102B	2	--	1 GHz	20M	5 GS/s	--	\$12,600
DPO4104B-L	4	--	1 GHz	5M	5 GS/s	--	\$13,300
DPO4104B	4	--	1 GHz	20M	5 GS/s	--	\$17,100
MSO4102B-L	2	16	1 GHz	5M	5 GS/s	500 MS/s /16.5 GS/s	\$12,800
MSO4102B	2	16	1 GHz	20M	5 GS/s	500 MS/s /16.5 GS/s	\$16,200
MSO4104B-L	4	16	1 GHz	5M	5 GS/s	500 MS/s /16.5 GS/s	\$16,400
MSO4104B	4	16	1 GHz	20M	5 GS/s	500 MS/s /16.5 GS/s	\$21,500

Application Modules

Serial Bus Triggering and Analysis

DPO4AERO	Aerospace (MIL-STD 1553)	\$1,610
DPO4-AUDIO ¹	Audio (I ² S, LJ, RJ and TDM)	\$1,450
DPO4AUTO	Automotive (CAN, LIN)	\$1,450
DPO4-AUTOMAX	Automotive (CAN, LIN, FlexRay)	\$5,040
DPO4COMP	Computer (RS-232)	\$1,450
DPO4EMBD ²	Embedded (I ² C, SPI)	\$1,450
DPO4ENET	Ethernet (10Base-T, 100Base-Tx)	\$1,610
DPO4USB ³	USB 2.0 (LS, FS, HS)	\$1,610
DPO4PWR	Power Analysis	\$1,800
DPO4LMT	Limit and Mask Testing	\$888
DPO4VID	HDTV & Custom Video Triggering	\$888

Recommended Probes

Passive Voltage Probes

TPP0502	2X, 500 MHz, 300 V CAT II	\$609
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Active Voltage Probes

TAP1500	10X, 1.5 GHz, ± 8 V	\$2,140
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Differential Voltage Probes

TDP0500	50X/5X, 500 MHz, ± 42 V/± 4.25 V	\$3,430
TDP1000	50X/5X, 1 GHz, ± 42 V/± 4.25 V	\$4,840

High Voltage Probes

TMDP0200	250X/25X, 200 MHz, ± 750 V/± 75 V	\$1,730
TPP0850	50X, 800 MHz, 2500 V Peak	\$627

Current Probes

TCP0030	120 MHz, 30 A DC	\$3,460
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Recommended Service

SILV600	5-year Extended Warranty	\$620
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Another Product for Consideration

Working with RF? The MDO4000 Series is the world's only oscilloscope with a built-in spectrum analyzer for analyzing analog, digital and RF signals.

Ships with Product

- One TPP0500 (≤ 500 MHz models) or TPP1000 (1 GHz models) Passive Voltage Probe Per Analog Channel
- One P6616 16 Channel Logic Probe (MSO only)
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Front Panel Cover, Power Cord
- 3-year Warranty

¹ Not available on DPO4102B, DPO4102B-L models.

² For SPI, only 2-wire support is available on DPO4102B, DPO4102B-L.

³ USB 2.0 HS only available on 1 GHz analog bandwidth models.

Only scope

with a built-in spectrum analyzer.

Only

\$12,200.*



- 1 Time Domain Display
- 2 Frequency Domain Display



The world's first mixed domain oscilloscope is now even more accessible.

The award-winning Tektronix MDO4000 Series Mixed Domain Oscilloscope is turning heads with its revolutionary built-in spectrum analyzer. For the first time, you can capture up to 21 time-correlated analog, digital and RF signals with one instrument. You can even view the RF spectrum at different points in time to see critical changes. Now the year's top scope is even more impressive, with new models starting at just \$12,200. Which means you can capture more signal types with one instrument than ever before. For less than ever before.

MDO4000 Mixed Domain Oscilloscope

- 4 analog channels
 - 100 MHz to 1 GHz bandwidth models
- 16 digital channels
- Parallel and serial bus triggering and analysis
- Built on the MSO4000B mixed signal oscilloscope platform
- 1 RF channel
 - 50 kHz – 3 GHz and 50 kHz – 6 GHz frequency range models
 - Ultra-wide capture bandwidth up to 3 GHz
- Unique RF analysis tools: automated markers, spectrogram display, RF vs. time traces, advanced RF triggers

► Find the right scope for your project and budget at www.scoperevolution.com.

* MSRP USD Starting Price
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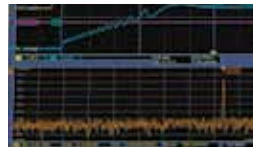
MDO4000 Series

The new revolutionary oscilloscope with a built-in spectrum analyzer. Capture time-correlated analog, digital and RF signals for a complete system view of your device. See both time and frequency domains in one glance. View the RF spectrum at any point in time to see how it changes. Quickly and efficiently solve the most complicated design issues—with an oscilloscope as integrated as your designs.

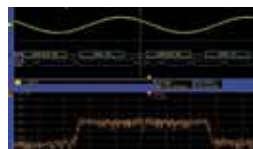


Product Highlights

- The world's first oscilloscope with a built-in spectrum analyzer
- Up to 3 GHz capture bandwidth on the spectrum analyzer input
- Integrated spectral analysis tools: automated and manual markers, spectrogram display, RF vs. time traces
- Advanced RF power level triggers available
- Built on the MSO4000B Series mixed signal oscilloscope platform



Capture time-correlated analog, digital and RF signals.



See how your RF spectrum changes over time or device state.

Models	Analog Channels	Digital Channels	Analog Bandwidth	Analog Sample Rate	Digital Sample Rate Main/MagniVu™	Spectrum Analyzer Input	Spectrum Analyzer Frequency Range	Pricing (USD)
MDO4014-3	4	16	100 MHz	2.5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 3 GHz	\$12,220
MDO4034-3	4	16	350 MHz	2.5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 3 GHz	\$16,700
MDO4054-3	4	16	500 MHz	2.5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 3 GHz	\$20,700
MDO4054-6	4	16	500 MHz	2.5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 6 GHz	\$24,200
MDO4104-3	4	16	1 GHz	5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 3 GHz	\$25,200
MDO4104-6	4	16	1 GHz	5 GS/s	500 MS/s /16.5 GS/s	1	50 kHz – 6 GHz	\$29,200

Application Modules

Serial Bus Triggering and Protocol Analysis

DPO4AE-RO	Aerospace (MIL-STD 1553)	\$1,610
DPO4 AUDIO	Audio (I ² S, LJ, RJ and TDM)	\$1,450
DPO4AUTO	Automotive (CAN, LIN)	\$1,450
DPO4-AUTOMAX	Automotive (CAN, LIN, FlexRay)	\$5,040
DPO4COMP	Computer (RS-232)	\$1,450
DPO4EMBD	Embedded (I ² C, SPI)	\$1,450
DPO4ENET	Ethernet (10BASE-T, 100BASE-TX)	\$1,610
DPO4USB ¹	USB 2.0 (LS, FS, HS)	\$1,610

Additional Analysis

MDO4TRIG	Adv. RF Power Level Triggering	\$1,750
DPO4PWR	Power Analysis	\$1,800
DPO4LMT	Limit and Mask Testing	\$888
DPO4VID	HDTV & Custom Video Triggering	\$888

¹USB 2.0 HS only available on 1 GHz analog bandwidth models.

Recommended Service

SILV900	5-year Extended Warranty	\$930
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Recommended Probes

Passive Voltage Probes

TPP1000	10X, 1 GHz, 300 V CAT II	\$948
TPP0500	10X, 500 MHz, 300 V CAT II	\$627
TPP0502	2X, 500 MHz, 300 V CAT II	\$609

Active Voltage Probes

TAP1500	10X, 1.5 GHz, ± 8 V	\$2,140
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Differential Voltage Probes

TDP0500	50X/5X, 500 MHz, ± 42 V/± 4.2 V	\$3,430
TDP1000	50X/5X, 1 GHz, ± 42 V/± 4.2 V	\$4,840

High Voltage Probes

THDP0200	500X/50X, 200 MHz, ± 1500 V/± 150 V	\$1,730
TPP0850	50X, 800 MHz, 2500 V Peak	\$781

Current Probes

TCP0030	120 MHz, 30 A DC	\$3,460
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Ships with Product

- Four TPP0500 (≤500 MHz models) or TPP1000 (1 GHz models) Passive Voltage Probes
- One P6616 16 Channel Logic Probe
- N-to-BNC Adapter (103-0045-00)
- OpenChoice® Desktop and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Front Panel Cover, Power Cord
- 3-year Warranty

2012
“Product of the Year”
Award Winner

- Test & Measurement World





MSO/DPO5000 Series

The performance you've wanted. A price you never thought possible. Measure up to 20 channels of analog and digital signals. Analyze specialty applications with over 10 optional software packages. View up to 16 decoded serial and parallel buses on your display at once. Performance and value. Some engineers have all the luck.

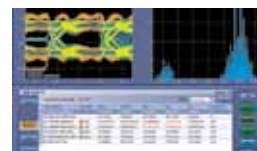


Product Highlights

- Windows 7 Ultimate 64-bit operating system and touch-screen display
- >250,000 wfms max. waveform capture rate with FastAcq™ technology
- Over 350 available trigger combinations, including setup/hold, serial packet and parallel data
- Automated search on up to 8 waveform events with Wave Inspector®
- 53 automated measurements and FFT analysis



Ships with four passive probes with up to 1 GHz bandwidth and an industry-best 3.9 pF of capacitive loading.



Includes the DPOJET essentials jitter and eye pattern analysis software package - free.

Models	Analog Channels	Digital Channels	Analog Bandwidth	Analog Sample Rate (4 Channels/2 Channels)	Digital Sample Rate Main/MagniVu™	Pricing (USD)
DPO5034	4	--	350 MHz	5 GS/s	--	\$12,000
MSO5034	4	16	350 MHz	5 GS/s	500 MS/s /16.5 GS/s	\$15,800
DPO5054	4	--	500 MHz	5 GS/s	--	\$15,600
MSO5054	4	16	500 MHz	5 GS/s	500 MS/s /16.5 GS/s	\$19,300
DPO5104	4	--	1 GHz	5 GS/s /10 GS/s	--	\$19,700
MSO5104	4	16	1 GHz	5 GS/s /10 GS/s	500 MS/s /16.5 GS/s	\$23,400
DPO5204	4	--	2 GHz	5 GS/s /10 GS/s	--	\$25,000
MSO5204	4	16	2 GHz	5 GS/s /10 GS/s	500 MS/s /16.5 GS/s	\$28,700

Software Packages

Serial Bus Triggering and Protocol Analysis

SR-AERO	MIL-STD-1553B	\$2,060
SR-AUTO	CAN/LIN/FlexRay	\$2,060
SR-COMP	Computer (RS-232)	\$2,060
SR-DPHY	MIPI D-PHY	\$2,060
SR-EMBD	Embedded (I ² C, SPI)	\$2,060
SR-ENET	Ethernet	\$2,060
SR-PCIE	PCI Express	\$2,060
SR-USB	USB 2.0 (LS, FS, HS)	\$2,060

Compliance Test

ET3	Ethernet	\$5,600
MOST	MOST50/150	\$2,690
USB	USB 2.0	\$2,860

Additional Analysis

DDRA	DDR Memory	\$6,030
DJA	Advanced Jitter and Eye Diagram	\$4,450
PS1, 2, 3	Power Solution Bundles	Varies
PWR	Power Analysis	\$3,400
SVE	SignalVu Essentials - Vector Signal Analysis Software	\$1,990
VET	Visual Trigger/Search	\$2,420

Additional software packages are available. For a complete listing, please visit www.tektronix.com/mso5000

Recommended Probes

Passive Voltage Probes

TPP1000	10X, 1 GHz, 300 V CAT II	\$948
TPP0502	2X, 500 MHz, 300 V CAT II	\$609

Active Voltage Probes

TAP1500	10X, 1.5 GHz, ± 8 V	\$2,140
TAP2500	10X, 2.5 GHz, ± 4 V	\$3,740

Differential Voltage Probe

TDP0500	50X/5X, 500 MHz, ± 42 V/± 4.2 V	\$3,430
TDP1000	50X/5X, 1 GHz, ± 42 V/± 4.2 V	\$4,840
TDP1500	10X/1X, 1.5 GHz, ± 8.5 V/± 850 mV	\$5,540

High Voltage Probes

TMDP0200	50X, 800 MHz, 2500 V Peak	\$1,730
THDP0200	500X/50X, 200 MHz, ± 1500 V/± 150 V	\$1,730
THDP0100	1000X/100X, 100 MHz, ± 6000 V/± 600 V	\$2,960
TPP0850	50X, 800 MHz, 2500 V Peak	\$627

Current Probes

TCP0020	50 MHz, 20 A DC	\$2,460
TCP0030	120 MHz, 30 A DC	\$3,460
TCP0150	20 MHz, 150 A DC	\$4,090

Ships with Product

- Four TPP0500 (350 MHz and 500 MHz models) or TPP1000 (1 GHz and 2 GHz models) Passive Voltage Probes
- One P6616 16 Channel Logic Probe (MSO only)
- NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Front Panel Cover, Power Cord
- 1-year Warranty

Instrument Options

Record Length

Opt. 2RL	25M/Ch	\$3,270
Opt. 5RL	50M/Ch	\$5,450
Opt. 10RL	125M/Ch	\$11,900

Limitations apply. See data sheet for full details.

Recommended Service

R3	3-year Extended Warranty	Varies
R5	5-year Extended Warranty	Varies

Probes and Accessories

Tektronix probes and accessories are perfectly matched to our industry-leading oscilloscopes. With over 100 choices available, you will find the probe you need.

Active Probes

- Bandwidth up to 4 GHz
- True signal reproduction and fidelity
- Low input capacitance: down to < 0.5 pF
- Small compact probe heads for probing small geometry circuit elements

Current Probes

- Easy to use and accurate AC/DC current measurements
- DC up to 2 GHz
- Amplitude measurements from 1 mA to 20,000 A
- Split core and solid core construction

Differential Probes

- Bandwidth up to 20 GHz
- Easily measure differential signals
- Low input capacitance: down to < 0.3 pF
- High common mode rejection ratio (CMRR)
- Wide range of probe tips for easier circuit access

Passive Probes

- DC to 1 GHz
- Wide range of performance to meet the demands of many applications
- Lightweight, ergonomic designs to fit your needs
- Wide range of probe tips for easier circuit access

High Voltage Probes

- Wide range of voltage measurements - up to 40 kV peak (100 ms pulse)
- Single-ended or differential

Carrying Cases and Accessories

- TekVPI Interface Adapter for TekProbe probes
- Probe holders and positioners
- Probe power supply
- Soft- and hard-sided cases

Interactive Probe Selector Tool

Need help finding the right probe for your application? The online Tektronix Probe Selector Tool will guide you through a few easy questions to match your need to the right probe. Visit us anytime, anywhere at: www.tektronix.com/probes

Select your requirements below. The list of matching products will update with each click.

Probe Recommendation Selector (Start by clicking the arrow to the left or clicking inside this box). Use this Selector to find out what are the most commonly used probes.

122 Matches [Compare](#) [Start Over](#)

Select the Instrument Series:

HSO/DPO2000E HSO/DPO3000 HSO/DPO4000E
 HSO/DPO8000 DPO7000C DPO/DSEA/HSD70000
 HD04000 HD04000 [RF] TDS2000B
 TDS2000C TDS3000C TDS3000
 TDS2000E TDS1200 HSA3000/9000

Choose the Desired Measurement:

If an option is grayed out a recommended solution is not available.

High Voltage Differential Low Voltage Differential
 High Voltage Single-ended Low Voltage Single-ended
 Current General Purpose

Probe Compatibility Selector (Start by clicking the arrow to the left or clicking inside this box). Use this Selector to determine if a probe or accessory is compatible with an instrument series.

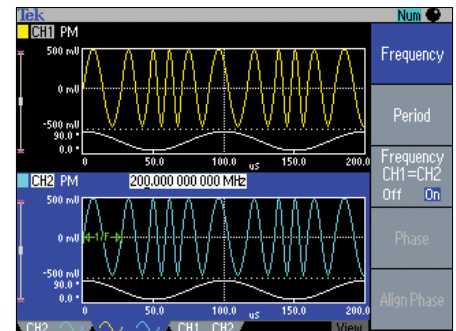
THP0200	THP0100	THP0150
TCP020	TCP020	TCP150
TR0020	ES100A	ES120
TAP150	TR0050	TR0100
TCP220	TCP200	TCP210
1100	2500	300000
2000	2500	2000000
2001	2000	200000

Images appear for the first 15 matches. The rest of the matches are listed below.



Fast, accurate and efficient. Just like the engineers who use them.

Debug today's complex designs faster than ever with the feature-packed Tektronix AFG3000 and AFG2000 Arbitrary/Function Generator Series. Best-in-class performance, up to 12 standard waveforms, arbitrary waveform capability and signal impairment options offer the flexibility to test a variety of applications with one instrument. Plus, all Tektronix Arbitrary/Function Generators are controllable from your PC, so you can analyze data across your Tektronix bench instruments. Put simply, we designed both the AFG3000 and AFG2000 Series to do more, so you don't have to.



- Dual-channel—Save cost and bench space by replacing two signal generators with one AFG3000 2 channel instrument

- 12 standard waveforms
- AM, FM, PM, FSK, PWM
- Arbitrary waveform capabilities and signal impairment options
- Up to 2 GS/s sample rate
- Shortcut keys for fast input
- USB, LAN, GPIB connectivity
- Connect and control from your PC with included National Instruments LabVIEW SignalExpress™ software
- Industry-leading, 3-year warranty

Tektronix® Arbitrary/Function Generators

Detailed specs, virtual demos and more at
www.tektronix.com/afg

Signal Generators

The definition of versatility, Tektronix signal generators create a virtually unlimited range of standard and custom signals, from sine or pulse to ideal or distorted and anything in between.



	AFG2000	AFG3000 Series
Bandwidth	20 MHz	240 MHz, 100 MHz, 25 MHz, 10 MHz
Channels	1	1 or 2 (independent or synchronized)
Memory Depth	4 x 128 k points	128 k points
Standard Waveforms	Sine, Sine(x)/x, Square, DC, Ramp, Gaussian, Exponential Decay, Pulse, Lorentz, Noise, Arbitrary, Haversine, Exponential Rise	Sine, Sine(x)/x, Square, DC, Ramp, Gaussian, Exponential Decay, Pulse, Lorentz, Noise, Arbitrary, Haversine, Exponential Rise
Modulation	AM, FM, PM, FSK, PWM, External	AM, FM, PM, FSK, PWM, External
Additional Modes	Sweep, Burst, Add Noise Impairment	Sweep, Burst, Add Noise Impairment
Starting Price	\$1,590	\$1,890

Choosing Your Signal Generator

In electronic test and measurement, more often than not, a signal source is required to generate signals that are not available unless externally provided. Below is a list of common features that you may want to consider when choosing a signal generator for your application.

1 Sample (Clock) Rate

Sample rate, usually specified in terms of megasamples or gigasamples per second, denotes the maximum clock or sample rate at which the instrument can operate. The sample rate affects the frequency of the main output signal. In general, you should choose an instrument where the sampling frequency is twice that of the highest spectral frequency component of the generated signal to ensure accurate signal reproduction. The maximum sample rate also determines the smallest time increment that can be used to create waveforms. Typically this figure is simply the result of the calculation; $T = 1/F$, where T is the timing resolution in seconds and F is the sample rate.

2 Memory Depth (Record Length)

Memory depth, or record length, plays an important role in signal fidelity because it determines how many points of data can be stored to define a waveform. Deeper memory enables you to store more waveform detail and/or more cycles of the desired waveform.

3 Vertical (Amplitude) Resolution

Vertical resolution pertains to the binary word size, in bits, of the instrument's DAC, with more bits equating to higher resolution. The vertical resolution of the DAC defines the amplitude accuracy and distortion of the re-produced waveform. While more is better there is a general trade-off for most arbitrary waveform instruments, the higher the resolution the lower the sample rate.

4 Features and Capabilities

Tektronix signal generators offer a range of features and output capabilities. When choosing your signal generator, you should also evaluate standard waveforms, modulation capabilities, output amplitude and waveform editing software to ensure that the instrument meets your needs.



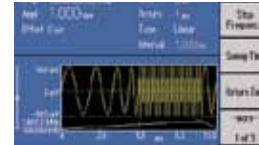
AFG2000

Usually, generating a range of signals requires investment in a high-end signal generator. Introducing the Tektronix AFG2000. With 20 MHz bandwidth, 14-bit resolution, and 250 MS/s sample rate, the AFG2021 Arbitrary Function Generator can create simple and complex signals. But perhaps its most impressive feature is its entry-level price.



Product Highlights

- 12 standard waveforms – Sine, Square, Pulse, Ramp, Noise, DC, Sine(x)/x, Gaussian, Lorentz, Exponential Rise, Exponential Decay and Haversine
- Arbitrary waveform capability
- AM, FM, PM, FSK, PWM, sweep and burst modes
- Front-panel USB host port and rear-panel USB device port, optional Ethernet and GPIB ports (Opt. GL)



Wide frequency range (1 μ Hz to 20 MHz) supports amplifier and filter testing applications.



Quickly modify, create and transfer waveforms using the included ArbExpress® software.

Models	Analog Channels	Output Bandwidth	Analog Sample Rate	Memory Depth	Amplitude (into 50 Ω)	Pricing (USD)
AFG2021	1	20 MHz	250 MS/s	128 k	10 mV _{p-p} to 10 V _{p-p}	\$1,590

Recommended Accessories

Cables

012-0482-00	BNC cable shielded, 3 ft.	\$217
012-1256-00	BNC cable shielded, 9 ft.	\$89
012-0991-00	GPIB cable, double shielded	\$515
011-0049-02	50 Ω BNC Terminator	\$143

Accessories

RMU2U	Rackmount kit	\$152
013-0345-00	Fuse adapter, BNC-P to BNC-R	\$329
159-0454-00	Fuse set, 3pcs, 0.125 A	\$22

Instrument Options

Opt. GL	GPIB/LAN Interface (configured at time of purchase)	\$100
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Recommended Service

SILV200	5-year Extended Warranty	\$260
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Ships with Product

- ArbExpress™ Software and NI LabVIEW SignalExpress™ TE (LE version) Software
- LabView & IVI drivers
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- USB Cable
- Power Cord
- 3-year Warranty

Learn more about the time-saving features of ArbExpress with the “Replicating Real World Signals with an Arbitrary/Function Generator” application note.





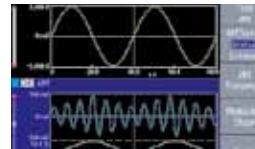
AFG3000C Series

Test complex designs faster with a fully loaded function generator. Featuring 12 standard waveforms, plus arbitrary capability and many modulation options, this generator supports a wide range of application needs. Add in best-in-class performance and 25 shortcut keys and you have a generator that's loaded with features and light on complexity.

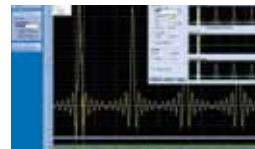


Product Highlights

- 12 standard waveforms - Sine, DC, Pulse, Exponential Decay, Sine(x)/x, Ramp, Lorentz, Haversine, Exponential Rise, Square, Gaussian, Noise
- Arbitrary waveform capability
- AM, FM, PM, FSK, PWM modulation
- Front-panel USB host port and rear-panel Ethernet and GPIB ports



Large color display shows your settings and waveforms at a single glance.



Create and modify waveforms with ease with the included ArbExpress® software.

Models	Analog Channels	Output Bandwidth	Analog Sample Rate	Memory Depth	Amplitude (into 50 Ω)	Pricing (USD)
AFG3011C	1	10 MHz	250 MS/s	128 k	20 mV _{p-p} to 20 V _{p-p}	\$4,220
AFG3021C	1	25 MHz	250 MS/s	128 k	10 mV _{p-p} to 10 V _{p-p}	\$1,890
AFG3022C	2	25 MHz	250 MS/s	128 k	10 mV _{p-p} to 10 V _{p-p}	\$2,790
AFG3051C	1	50 MHz	250 MS/s	128 k	10 mV _{p-p} to 10 V _{p-p}	\$2,470
AFG3052C	2	50 MHz	250 MS/s	128 k	10 mV _{p-p} to 10 V _{p-p}	\$3,650
AFG3101C	1	100 MHz	1 GS/s (≤16k), 250 MS/s (>16k)	128 k	20 mV _{p-p} to 10 V _{p-p}	\$4,290
AFG3102C	2	100 MHz	1 GS/s (≤16k), 250 MS/s (>16k)	128 k	20 mV _{p-p} to 10 V _{p-p}	\$6,090
AFG3251C	1	240 MHz	2 GS/s (≤16k), 250 MS/s (>16k)	128 k	50 mV _{p-p} to 5 V _{p-p}	\$8,660
AFG3252C	2	240 MHz	2 GS/s (≤16k), 250 MS/s (>16k)	128 k	50 mV _{p-p} to 5 V _{p-p}	\$11,900

Recommended Accessories

Cables

012-0482-xx	BNC cable shielded, 3 ft.	\$217
012-1256-xx	BNC cable shielded, 9 ft.	\$89
012-0991-xx	GPIB cable, double shielded	\$515

Accessories

RM3100	Rackmount kit	\$450
013-0345-xx	Fuse adapter, BNC-P to BNC-R	\$329
159-0454-xx	Fuse set, 3pcs, 0.125A	\$22

Recommended Service

SILV400	5-year Extended Warranty	\$415
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Ships with Product

- ArbExpress™ Software and NI LabVIEW SignalExpress™ TE (LE version) Software
- LabView & IVI drivers
- Calibration Certificate, Quick Reference Manual & Documentation on CD
- Power Cord
- 3-year Warranty

Learn more about the time-saving features of ArbExpress with the “Replicating Real World Signals with an Arbitrary/Function Generator” application note.



SourceMeter® SMU Instruments

Keithley Instruments SourceMeter® SMU instruments source current or voltage and simultaneously measure current, voltage and resistance with high speed and accuracy. SourceMeter® SMU instruments offer a smart alternative to separate power supplies and DMMs, saving money and limited test bench space.



	Series 2400 SourceMeter® SMU Instruments	Series 2600B System SourceMeter® SMU Instruments
Channels	1	1-2 (optional expansion to 64 via TSP-Link®)
Accuracy	6½-digit measurements	6½-digit measurements
Max. Readings / Second	2,000	20,000
Interface	GPIB, RS-232, Digital I/O	GPIB, LAN (LXI), USB and RS-232, Digital I/O
Application Features	Convenient DMM-like user interface; 2/4/6 wire resistance with force I or V source modes, V-Force from 1ΩV to 1.1KV, 10pA to 5A cont., 10A pulsed, 2W to 110W	True multi-channel parallel test via TSP-Link. Up to 0.1 fA resolution.
Test Sequencing / Scripting	Built-In ramp generator and list sweep modes, 100 point global machine state sequencer for fast test setup and execution	TSP® (Test Script Processing) technology embeds complete test programs inside the instrument for unmatched system-level speed
Included Software	LabTracer 2.0 I-V curve utility and IV and LabVIEW drivers included.	Built-in, web browser-based characterization software, IV and Labview drivers.
Starting Price	\$3,170	\$6,090

Choosing Your Source Measure Unit (SMU) Instrument

A SMU instrument integrates precision power supply and digital multimeter (DMM) capabilities in one instrument while covering a wide dynamic range. SMUs source and measure simultaneously, making them ideal for characterizing and testing semiconductors and other non-linear devices and materials.

1 System-Level Speed or Throughput

The true measure of speed is how quickly a final measurement or set of measurements (such as a suite of current vs. voltage parameters) is returned to the PC controller. This involves not only the number of readings/second, but also range and function change times.

2 Sourcing Resolution and Output Stability

An SMU's usable maximum resolution depends on its overall accuracy and the resolution of its analog-to-digital converter (ADC). In general, the higher the resolution is, the higher the bit count on the ADC and the higher the accuracy will be.

3 Measurement Settling Time, Offset Error, and Noise

When choosing between instruments, compare the time it takes a SMU to settle the specified offset error. This can be seen in the “bumpiness” of the resulting data curve which indicates measurement noise; the smoother the data curve the less measurement noise. SMUs having a fast, flat, and noise-free settling time achieve more consistent results during a series of measurements taken over time.

4 Cabling

Triaxial cables offer significant advantages over coaxial cables when making low current measurements. Triaxial cables have an extra shield that ensures lower leakage, better response, and greater noise immunity.

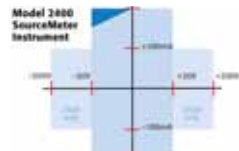


Series 2400 SourceMeter® SMU Instruments

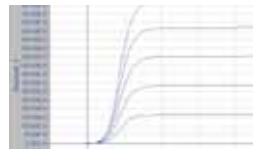
Series 2400 SourceMeter® SMU instruments are single-channel models with I-V capability from 1100V to 100nV and 10.5A pulse to 1pA. They offer a smart alternative to separate power supplies and digital multimeters (DMMs) and provide a convenient DMM-like user interface.

Product Highlights

- Wide I-V range from 1100V to 100nV and 10.5A pulse to 1pA
- 4-quadrant design simultaneously measures voltage, current, and resistance
- Remote sense on V-source and measure plus guarded ohms mode
- Built-In test sequencer
- Includes LabTracer 2.0 I-V curve utility and IVI and LabVIEW drivers
- Standard GPIB and RS-232 interfaces; Banana (front / rear) Connectors



Model 2400 four-quadrant operation characteristics, a feature of all SourceMeter SMU instruments.



Free LabTracer software for remote control and data sharing for applications ranging from the simple to complex.

Model	Current Max / Min	Voltage Max / Min	Power	Pricing (USD)
2400 / 2401	1.05A / 10pA	200V/1μV	22W	\$4,320 / \$3,170
2420 / 2425 / 2440	5.25A / 100pA	100V/1μV	110W	\$6,180 / \$7,360 / \$7,030
2410	1.05A / 10pA	1100V/1μV	22W	\$6,180
2430	10.5A pulse / 100pA	200V/1μV	1100W	\$10,700

Recommended Service

C/2400-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2400*	\$842
C/2401-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Model 2401*	\$842
C/2410-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2410*	\$924
C/2420-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2420*	\$924
C/2425-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2425*	\$985
C/2430-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2430*	\$1,010
C/2440-3Y-17025	(ISO-17025 accredited) calibrations within 3 years of purchase for Models 2440*	\$974

Recommended Service

R3	3-year Extended Warranty	Varies
R5	5-year Extended Warranty	Varies
C3	Calibration Service 3 Years	Varies
C5	Calibration Service 5 Years	Varies
R3DW	Repair Service Coverage 3 Years	Varies
R5DW	Repair Service Coverage 5 Years	Varies

Ships with Product

- Model 8605 Test Leads
- LabVIEW Software Driver (downloadable)
- LabTracer Software (downloadable)
- Calibration Certificate (Basic)
- Manual CD
- Power Cord
- Warranty

Read the white paper, "Choosing the Optimal Source Measurement Unit Instrument for Your Test and Measurement Application."



*Not available in all countries.



Series 2600B System SourceMeter® SMU Instruments

Series 2600B SourceMeter® SMU instruments are the industry's most powerful, fastest, and highest resolution SMU instruments. Now they're easier than ever to use with USB 2.0 connectivity, Model 2400 software emulation, and Java-based plug & play test software. Series 2600B models offer the industry's widest dynamic range: 10A pulse to 0.1fA and 200V to 100nV.



Product Highlights

- 4-quadrant design simultaneously measures voltage, current, and resistance
- TSP® (embedded Test Script Processor) architecture enables industry-best system-level speed
- Arbitrary waveform generation with 1% to 100% duty cycle
- Built-in software for quick and easy I-V test through web browser
- GPIB, LAN (LXI), USB and RS-232



Built-in, Java-based test software runs directly from any web browser to boost productivity.



TSP technology executes complete test programs from the 2600B's non-volatile memory.

Model	Current Max / Min	Voltage Max / Min	Max readings / sec	No. of Channels	Pricing (USD)
2601B	3A DC, 10A pulse/100 fA	40V/100nV	20,000	1	\$6,090
2602B	3A DC, 10A pulse/100 fA	40V/100nV	20,000	2	\$8,930
2604B	3A DC, 10A pulse/100 fA	40V/100nV	20,000	2	\$7,150
2611B	1.5A DC, 10A pulse/100 fA	200V/100nV	20,000	1	\$6,090
2612B	1.5A DC, 10A pulse/100 fA	200V/100nV	20,000	2	\$8,930
2614B	1.5A DC, 10A pulse/100 fA	200V/100nV	20,000	2	\$7,150
2634B	1.5A DC, 10A pulse/1fA	200V/100nV	20,000	2	\$11,200
2635B	1.5A DC, 10A pulse/0.1 fA	200V/100nV	20,000	1	\$9,060
2636B	1.5A DC, 10A pulse/0.1 fA	200V/100nV	20,000	2	\$13,900

Recommended Accessories

2600-BAN	Banana Test Leads Adapter	\$154
8606	Probe Kit for 2600-BAN	\$57
2600-Std-Res	Calibration Standard 1G ohm Resistor	\$1,920

Recommended Service

R3	3-year Extended Warranty	Varies
R5	5-year Extended Warranty	Varies
C3	Calibration Service 3 Years	Varies
C5	Calibration Service 5 Years	Varies
R3DW	Repair Service Coverage 3 Years	Varies
R5DW	Repair Service Coverage 5 Years	Varies

Ships with Product

- Operators and Programming Manuals
- 2600-ALG-2: Low Noise Triax Cable with Alligator Clips, 2m (6.6 ft.) (two supplied with 2634B and 2636B, one with 2635B)
- 2600-Kit: Mating Screw Terminal Connectors with strain relief and covers (2601B/2602B/2604B/2611B/2612B/2614B)
- CA-180-3A: TSP-Link/Ethernet Cable (two per unit)
- TSP Express Software Tool (embedded)
- Test Script Builder Software (supplied on CD)
- LabVIEW Driver
- ACS Basic Edition Software (optional)

Power Analyzers

Fully characterize your power-electronics design from input to output with Tektronix power analyzers. Designed for precision measurement of power-electronics circuits and devices, these analyzers give you what you need to measure conversion efficiency and perform compliance testing on single-phase or 3-phase devices.



	PA4000
Multi-Channel Power Analyzer	PA4000_1CH, PA4000_2CH, PA4000_3CH, PA4000_4CH
Power Input Modules	1 – 4 (factory configured)
Basic Accuracy (V & I)	0.04% of Reading (45-850 Hz)
Measurement Bandwidth	DC, 0.1 Hz - 1 MHz
Voltage Range	2V peak to 2000V peak
Current Range (internal shunts)	0.0025 A to 30 Arms
Starting Price	\$10,500

Choosing Your Power Analyzer

Power analyzers are used for testing a wide range of power-electronics devices, from cell-phone chargers to 1000kW grid-connected inverters. To help you choose the best analyzer for your application, consider the criteria below.

1 Number of Inputs

Power analyzers are available in both fixed configurations (typically single-channel) and modular configurations. If your application is limited to single-phase devices, a single-channel analyzer may meet your needs. But if you need to measure conversion efficiency on these devices, a two-channel analyzer is required.

Testing of 3-phase devices of course requires a multi-phase analyzer. In many cases, two channels will be all you need for a two-wattmeter measurement on 3-wire inputs or outputs. A four-channel analyzer can measure both input and output simultaneously, to determine conversion efficiency.

2 Measurement Bandwidth

How much bandwidth is enough? The measurement bandwidth you need is usually determined by the switching speed of the device-under-test, or the highest-order harmonic that your testing requires. Switching speeds of tens or hundreds of kHz are common in today's designs. But new semiconductor technologies promise to increase speeds up to 2x or more in the near future. Choose an analyzer that is capable of measuring your highest frequencies of interest, with some headroom for future-proofing.

3 Compliance Testing for Regulatory Standards

If your application requires you to know that your device is

compliant with regulatory standards such as IEC61000 for harmonics, or EnergySTAR for energy efficiency, you need an analyzer capable of meeting the test requirements specified by the standard. Even better, look for an analyzer supported by software applications that can automate instrument setup and reporting of test results in the exact format required for your application.

4 Current Shunts: Internal or External?

Will you be measuring milliamperes, or hundreds of amperes? Power analyzers vary in the features they offer for direct current inputs or connection to external current transducers. Ideally, the analyzer should have internal current shunts that allow you to connect your device directly, for best accuracy. If you will be testing a range of devices at different power levels, you may value both high and low-range shunts. Finally, if your application requires external current transducers (usually required for current >30Amps), make sure there are transducers available that are well-matched to the analyzer and offer the accuracy you need.

5 Remote Communication

Will you have a need to control the analyzer remotely, or transfer measurement data to your PC? If so, you will want to look for an instrument that features the communication ports you need. Depending on the analyzer model, some ports may be standard features or extra-cost options; be careful to choose the right instrument configuration that meets your requirements.



PA4000 Power Analyzers

Tektronix PA4000 Power Analyzers provide you with highly accurate power, energy and efficiency measurements. Precisely-matched inputs and advanced signal processing deliver high measurement accuracy, even when power is distorted or noisy. The PA4000 performs all power measurements – and harmonics analysis, application-specific measurements, PC interfaces, and dual current shunts per channel are all standard features.



Product Highlights

- 1 to 4 input modules with precision phase-matched V & I inputs, 1000 Vrms, 30 Arms direct input
- Measurement BW: DC to 1 MHz
- 0.04% basic accuracy
- Application specific test modes for Motor Drives, Ballasts, Standby Power and Energy Integration
- Harmonics measurement to 100th harmonic
- Full-color TFT display with waveform graphics, vector, bar chart, trend



Each input module features both high- and low-range current shunts.



USB, Ethernet and RS-232 ports are standard.

Model	Description	Basic Accuracy (V & I)	Voltage Input Range	Current Range (internal shunts)	Pricing (USD)
PA4000 1CH	PA4000 Power Analyzer with 1 input module	0.04% (45-850 Hz)	2V peak to 2000V peak	0.0025 A to 30 Arms	\$10,500
PA4000 2CH	PA4000 Power Analyzer with 2 input modules	0.04% (45-850 Hz)	2V peak to 2000V peak	0.0025 A to 30 Arms	\$13,400
PA4000 3CH	PA4000 Power Analyzer with 3 input modules	0.04% (45-850 Hz)	2V peak to 2000V peak	0.0025 A to 30 Arms	\$16,200
PA4000 4CH	PA4000 Power Analyzer with 4 input modules	0.04% (45-850 Hz)	2V peak to 2000V peak	0.0025 A to 30 Arms	\$18,900

Recommended Accessories

CT-60-S	Fixed-Core Current Transducer, High Accuracy, up to 60A
CT-200-S	Fixed-Core Current Transducer, High Accuracy, up to 200A
CT-400-S	Fixed-Core Current Transducer, High Accuracy, up to 400A
CT-1000-S	Fixed-Core Current Transducer, High Accuracy, up to 1000A (requires external power supply)
CT-100-M	Fixed-Core Current Transducer, Hall Effect, up to 100A
CT-200-M	Fixed-Core Current Transducer, Hall Effect, up to 200A
CT-500-M	Fixed-Core Current Transducer, Hall Effect, up to 500A
CT-1000-M	Fixed-Core Current Transducer, Hall Effect, up to 1000A

Recommended Accessories

CL200	Current Clamp, 0.5A - 200A, for Tektronix Power Analyzers
CL1200	Current Clamp, 0.1A - 1000A, for Tektronix Power Analyzers
BB1000	Breakout Box for Single-Phase Device Testing (includes switching for inrush test)
Ballast-CT	Connection Accessory for Fluorescent Lamp Ballast Test
PA-LEADSET	Replacement Lead Set for Tektronix Power Analyzers (One Channel Lead Set)

Recommended Service

R5	5-year Extended Warranty	Varies
C3	Calibration Service 3 Years	Varies
C5	Calibration Service 5 Years	Varies

Ships with Product

- Lead set (1 set per input module)
- User Manual
- AC Power Cord
- Certificate of Traceable Calibration
- 3-year Product Warranty

Learn more about power measurements, from switching loss to compliance testing at www.tektronix.com/power.

Digital Multimeters

Designed to save time and reduce headaches, Tektronix and Keithley Digital Multimeters are built to do more so you don't have to. Each one is loaded with time-saving features like automated measurements, built-in analysis modes and front-panel shortcut buttons. Keithley's highly regarded high performance digital multimeters (DMMs,) include 7½ or 8½-digit solutions as well as flexible broad-purpose DMMs.



	Tektronix Model DMM4020	Tektronix Models DMM4040/4050	Keithley Models 2001, 2010	Keithley Model 2002	Keithley Models 2000, 2100	Keithley Model 2110
Resolution	5½ digit	6½ digit	7½ digit	8½ digit	6½ digit	5½ digit
Basic Accuracy	0.015%	0.0035% (DMM4040) 0.0024% (DMM4050)	0.0018%	0.0006%	0.0038% (Model 2100) 0.0020% (Model 2000)	0.012%
Optional Switch Functions	Not Applicable	Not Applicable	10 Channel	10 Channel	10 Channel (Model 2000)	Not Applicable
Interface	RS-232, RS-232 to USB Device Adapter Included	USB host, RS-232, GPIB, Ethernet, RS-232 to USB Device Adapter Included	GPIB, RS-232 (Model 2010) GPIB (Model 2001)	GPIB	GPIB, RS-232 (Model 2000) USB-TMC (Model 2100)	USB-TMC GPIB Option
Starting Price	\$792	\$1,150	\$2,790	\$5,740	\$862	\$595

Choosing Your Digital Multimeter

To help you choose the right digital multimeter for your needs, the most common selection criteria are listed below, along with helpful tips for determining your requirements.

1 Resolution

Resolution refers to how fine a measurement a meter can make. By knowing the resolution of a meter, you can determine if it is possible to see a small change in your signal. The terms digits and counts are used to describe a meter's resolution. A 6.5-digit multimeter can display 6 full digits ranging from 0 to 9, and one "half" digit which displays only a 1 or is left blank. A 6.5-digit meter will display up to 1,999,999 counts of resolution.

2 Accuracy

Accuracy is the largest allowable error that will occur under specific operating conditions. In other words, it is an indication of how close the DMM's displayed measurement is to the actual value of the signal being measured. Accuracy is usually expressed as a percent of reading. An accuracy of one percent of reading means that for a displayed reading of 100 volts, the actual value of the voltage could be anywhere between 99 volts and 101 volts.

3 Measurements

Digital multimeters are capable of making a variety of different measurements. A basic DMM typically can measure voltage, current and resistance. Other measurements commonly supported are continuity and diode measurements. Continuity is a quick go/no-go resistance test that distinguishes between an open and a closed circuit. A diode test mode measures the actual voltage drop across a junction. Other possible measurement modes are frequency, period, temperature and capacitance.

4 Extra Channel Capacity

Most of Keithley's DMM's (excluding Models 2100 and 2110) include an option slot located in the rear, to accommodate a scanner card enabling automated multipoint measurements.



DMM4020

Make measurements, not compromises. Measure a variety of parameters—from volts, ohms and amps to frequency—with one instrument. Save time with front-panel shortcut keys and built-in limit testing. Performance. Reliability. Legendary ease-of-use. One instrument. Looks like you can have it all.



Product Highlights

- 5.5 digit resolution
- Basic V dc accuracy of up to 0.015%
- Volts, ohms, amps and frequency measurements
- Dedicated dc leakage current measurement
- CAT I 1000 V, CAT II 600 V



Make accurate 4-wire resistance measurements with only two test leads!



With the unique dual display, you can measure two different parameters of the same signal from one test connection.

Models	Display	Resolution (Digits)	Measurements	Basic V dc accuracy (% Reading + % Range)	Pricing (USD)
DMM4020	Dual; Numeric	5.5	V ac, V dc, I dc, I ac, Ω, Cont, Diode, Freq	0.015 + 0.004 (yr.)	\$792

Recommended Test Leads

Test Leads		
196-3520-xx	Premium Test Leads (TL710 replacement/spare)	\$34
TL705	2x4 Wire Ohm 1000V Test Lead	\$78
TL725	2x4 Wire Ohm SMD Test Tweezers	\$104

Recommended Accessories

Accessories		
ACD4000	Soft Carrying Case	\$249
HCTEK-4321	Hard Carrying Case	\$796
RMU2U	Rackmount Kit	\$152
013-0369-xx	Calibration Fixture 4-terminal short	\$45

Recommended Service

SILV100	5-year Extended Warranty	\$156
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Another Product for Consideration

If you need greater accuracy, the DMM4050 provides 6.5 digits of resolution and up to 0.0024% basic V dc accuracy.

Ships with Product

- One Set TL710 Test Leads
- RS-232 to USB Adapter Cable
- NI LabVIEW SignalExpress™ TE (LE version) Software
- Statement of Calibration Practices
- User Manual & Documentation on CD
- Power Cord
- 3-year Warranty

Learn more with the “Using the DMM Series to Make Simple and Accurate Resistance Measurements” application note.



Product Highlights

- 6.5 digit resolution
- Basic V dc accuracy of up to 0.0024%
- Volts, ohms, amps, frequency and period measurements
- Capacitance and temperature measurements (DMM4050)
- CAT I 1000 V, CAT II 600 V



DMM4040/4050

Meet the multimeter to rule them all. Make a wide range of measurements—from volts, ohms and amps to frequency, temperature and capacitance—with one instrument. Monitor and record measurements over time, or environmental changes with built-in histogram, TrendPlot™ and statistics analysis modes. Get unparalleled ease-of-use with a dual display and USB connectivity. Hello, efficiency. Goodbye, complexity.



Make accurate 4-wire resistance measurements with only two test leads!



See how your device is changing over time with built-in analysis modes – TrendPlot™, histograms and statistics.

Models	Display	Resolution (Digits)	Measurements	Basic V dc accuracy (% Reading + % Range)	Pricing (USD)
DMM4040	Dual; Numeric & Graphical	6.5	V ac, V dc, I dc, I ac, Ω, Continuity, Diode, Freq, Period	0.0035 + 0.0005	\$1,150
DMM4050	Dual; Numeric & Graphical	6.5	V ac, V dc, I dc, I ac, Ω, Continuity, Diode, Freq, Period, Temp., Capacitance	0.0024 + 0.0005	\$1,420

Recommended Test Leads

Temperature Probes		
TP750	100 Ohm RTD Temperature Probe (DMM4050 only)	\$528
Test Leads		
196-3520-xx	Premium Test Leads (TL710 replacement/spare)	\$34
TL705	2x4 Wire Ohm 1000V Test Lead	\$78
TL725	2x4 Wire Ohm SMD Test Tweezers	\$104

Recommended Accessories

Accessories		
ACD4000	Soft Carrying Case	\$249
HCTEK-4321	Hard Carrying Case	\$796
RMU2U	Rackmount Kit	\$152
013-0369-xx	Calibration Fixture 4-terminal short	\$45

Recommended Service

SILV100	5-year Extended Warranty	\$156
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Another Product for Consideration

The PWS DC Power Supply Series is designed to stack with the DMM Series, saving you bench space.

Ships with Product

- One Set TL710 Test Leads
- RS-232 to USB Adapter Cable
- NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate
- User Manual & Documentation on CD
- Power Cord
- 3-year Warranty

Learn more with the “Measurement Statistics and Histograms with the Tektronix DMM4050 and DMM4040 Multimeters” application note.





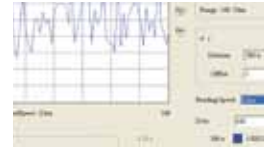
Models 2000, 2100, 2110

These cost effective, high precision instruments offer 5.5- and 6.5-digit accuracy and are ideal for a wide range of manual, semi-automatic, and production test applications. They can be used as stand-alone benchtop instruments and as components in test systems.



Product Highlights

- Exceptional 6 1/2-digit measurement integrity with high speed throughput (2000)
- Built-in slot for scanner card (2000)
- 12/13 built-in measurement functions including thermocouples (2110/2000)
- Full featured DMMs at a value price (2100/2110)
- USB Test and Measurement Class (USBTMC) interface (2100/2110)



The KI-Tool application for the Model 2100 provides charting and graphing capabilities without programming.



For multipoint measurement, plug a scanner card into the Model 2000.

Model	Resolution	Basic V DC Accuracy, 1 Year (% Reading + % Range)	Measurements	Interface	Pricing (USD)
2000	6½	0.0030 + 0.0005	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, dB, dBm, Cont., Diode	GPIB, RS-232	\$1,140
2100	6½	0.0038 + 0.0006	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, Cont., Diode	USB	\$862
2110	5½	0.012 + 0.004	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, dB, dBm, Cont., Diode, Cap., Therm.	USB (GPIB Option)	\$595

Recommended Accessories

2000-SCAN	10-channel Scanner Card (Model 2000)	\$580
2001-SCAN	10-channel Scanner Card with Two High-speed channels (Model 2000)	\$775
2001-TSCAN	9-channel Thermocouple Scanner Card (Model 2000)	\$1,040
5808	Low cost, Single Pin, Kelvin Probes	\$105
5805	Kelvin Probes, 0.9m (3ft)	\$217
5805-12	Kelvin Probes, 3.6m (12ft)	\$287
5809	Low Cost, Kelvin Clip Lead Set	\$159

Recommended Accessories

7007-1	Shielded GPIB Cable, 1m (3.3ft)	\$108
7007-2	Shielded GPIB Cable, 2m (6.6ft)	\$119
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB to GPIB Interface Adapter	\$502
4288-1	Single Fixed Rack Mount Kit (Model 2000, 2100)	\$87
4299-3	Single Rack Mount Kit (Model 2100 and 2110)	\$99
4299-4	Dual Rack Mount Kit (Model 2100 and 2110)	\$209

Ships with Product

- Safety Test Leads
- Product CD (Includes Users Manual, Drivers, Etc.)
- USB Cable (2100/2110)
- KI Tool and KI Link Software (2100/2110)
- Calibration Certificate
- Power Cord
- 1-year Warranty

Learn more with the “Using the Dual Measurement Functionality and Dual Measurement Display on the Keithley Model 2110 5½-Digit Dual-Display Digital Multimeter” Application Note.



Product Highlights

- Measurement functions include temperature, 4-wire resistance, peak detection, low ohms, and Agilent 3458A emulation (2002)
- Built-in slot for scanner card
- Multiple measurement display (2001/2002)
- Dry circuit measure function limits test voltage when testing contact or connector resistances (2010)



Add a plug-in scanner card to turn any of these DMMs into a complete scan and measure system.



Use the multiple display capability (Model 2001/2002) to simultaneously display different aspects of one signal.



Models 2001, 2002, 2010

Each Model 2001, 2002, and 2010 digital multimeter (DMM) offers superior measurement precision, sensitivity, and traceability. They also support plug-in scanner cards that allow you to quickly and economically create multi-channel measurement systems.

Model	Resolution	Basic V DC Accuracy, 1 Year (% Reading + % Range)	Measurements	Interface	Pricing (USD)
2001	7½	0.0024 + 0.0004	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, Crest, Peak	GPIB	\$4,290
2002	8½	0.0010 + 0.00012	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, Crest, Peak	GPIB	\$5,740
2010	7½	0.0024 + 0.0004	Vac, Vdc, Idc, Iac, 2WΩ, 4WΩ, Temp, Freq, Period, Cont., Diode, Therm., Dry Circ.Ω, Ratio	GPIB, RS-232	\$2,790

Recommended Accessories

2000-SCAN	10-channel Scanner Card	\$580
2001-SCAN	10-channel Scanner Card with Two Highspeed Channels	\$775
2001-TSCAN	9-channel Thermocouple Scanner Card	\$1,040
5805	Kelvin Probes, 0.9m (3ft)	\$217
5805-12	Kelvin Probes, 3.6m (12ft)	\$287
5808	Low Cost, Single Pin, Kelvin Probes	\$105
5809	Low Cost, Kelvin Clip Lead Set	\$159
7007-1	Shielded GPIB Cable, 1m (3.3ft)	\$108
7007-2	Shielded GPIB Cable, 2m (6.6ft)	\$119
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB to GPIB Interface Adapter	\$502
4288-1	Single Fixed Rack Mount Kit	\$87

Ships with Product

- Model 8605 High Performance Modular Test Leads (Models 2001, 2002)
- Model 1751 Safety Test Leads (Model 2010)
- Option Slot Cover (Models 2001, 2002)
- Calibration Data
- User Manual, Service Manual
- Power Cord
- 1-year Warranty

Learn more with the “Peak Detection with the Model 2001 DMM” Application Note.



Data Acquisition Systems

Keithley data acquisition systems combine precision measurement, switching, and control into a single, tightly integrated enclosure. They offer affordable alternatives to separate DMMs and switch systems, dataloggers/recorders, plug-in card data acquisition equipment, and VXI/PXI systems.



	Series 2700	Series 3700
DMM Resolution	6½ Digits	7½ Digits
Switching Density	Up to 80, 2-pole channels (2700/2701) Up to 200, 2-pole channels (2750)	Up to 576, 2-pole channels
Special Features	Front panel DMM jacks, Non-volatile memory buffer, Solid State temperature scanning	USB Flash Drive support, 1 Ohm measure range, Solid State temperature scanning
Switch Features	Up to 40, 2-pole Channels and 12 card options	Up to 96, 2-pole Channels and 10 card options
Interface	GPIB, RS-232 (Models 2700 and 2750) LAN, RS-232 (Model 2701)	GPIB, LAN (LXI), USB-TMC, TSP-Link® Channel Expansion Bus
Starting Price	\$1,550	\$1,950

Choosing Your Data Acquisition System

Designing the switching for an automated test system demands an understanding of the signals to be switched and the tests to be performed. The following is a cursory look at key decision points in the design of a switching system.

1 Switch Configuration

Multiplex switching can be used to connect one instrument to multiple devices or multiple instruments to a single device. Multiplex switching permits multiple simultaneous connections and sequential or non-sequential switch closures. A matrix switch configuration is the most versatile because it can connect multiple inputs to multiple outputs. The isolated, or independent, switch configuration consists of individual relays, often with multiple poles, with no connections between relays. For scanner (or multiplex) cards, the channel is used as a switched input in measuring circuits or as a switched output in sourcing circuits. For switch cards, each channel's signal paths are independent of other channels.

2 Relay Types

Three key relay types are used. Electromechanical offer the widest power range and a good life and speed at a relatively low cost. Reed relays cost more but offer less contact wear and bounce for a better life and speed than electromechanical. Solid state cost still more, but offer the best life and speed with no contact wear or bounce.

3 Systemization

Connection types found on switch cards include both screw terminals and mass-terminated connectors. At the instrument level, TSPLink master/slave connection offers easy system expansion between Series 3700A mainframes and to connect to Series 2600B SourceMeter instruments.



Series 2700

The Series 2700 System Switch/Multimeter combines precision measurement, switching, and control in a single, tightly integrated enclosure for either rack-mount or bench-top applications used by data loggers. The 2700 Series offers two- and five-slot models, as well as an Ethernet-based model for high speed and long distance communication.



Product Highlights

- 6½-digit measurement engine
- Front panel DMM jacks
- 300 volt isolation between channels and from any channel to ground to maintain signal integrity
- Mass terminated or screw terminal connector options
- Full per-channel card configurability
- Non-volatile memory buffer
- Choice of 12 switch/control plug-in modules



Install up to five switch/control modules in the 2750 mainframe or up to two in the 2700 and 2701 mainframes.



Screw terminals use oversize connectors for easier, mistake-free wiring. Removable terminals available for some models.

Model	Mainframe Size	Interfaces	Resolution (Digits), Accuracy	Advance Measure Functions	Pricing (USD)
2700	2U, ½ Rack	GPIB, RS232	6½ Digits, 0.003%	Temperature, 4-Wire Resistance	\$1,550
2701	2U, ½ Rack	Ethernet, RS232	6½ Digits, 0.003%	Temperature, 4-Wire Resistance	\$1,860
2750	2U, Full Rack	GPIB, RS232	6½ Digits, 0.003%	Temperature, 4-Wire Resistance, Low Ohms	\$2,430

Plug-in Cards

7700	Dual 1x10 / Electromechanical Relay	\$470
7701	Dual 1x16 / Electromechanical Relay	\$681
7702	Dual 1x20 / Electromechanical Relay	\$892
7703	Dual 1x16 / Reed Relay	\$1,060
7705	40 Independent Relay / Electromechanical Relay	\$787

Recommended Accessories

7007-1	Shielded IEEE-488 Cable, 1m (2700, 2750)	\$108
7007-2	Shielded IEEE-488 Cable, 2m (2700, 2750)	\$119
7788	50-Pin D-Shell Connector Kit (for 7703 & 7705 Mods.)	\$83
7789	50-Pin/25-Pin D-Shell Kit	\$83
7790	50-Pin Male/Female, 25-Pin Male IDC D-Shell Con. Kit	\$83

Plug-in Cards

7706	16 Digital I/O, 2 Analog Outputs, 1x20 Multiplexer	\$892
7707	32 Digital I/O, 1x10 Multiplexer	\$787
7708	Dual 1x20 / Electromechanical Relay	\$892
7709	6x8 / Electromechanical Relay	\$892
7710	Dual 1x10 / Solid State Relay	\$681
7711	Dual 1x4, 2GHz / RF Relay	\$576
7712	Dual 1x4, 3.5GHz / RF Relay	\$2,110

Ships with Product

- Product CD (Includes Users Manual, Drivers, Etc.)
- Ethernet Crossover Cable (Model 2701 Only)
- Calibration Certificate
- Quick Reference Manual
- ExcelLINX Software
- Power Cord
- 1-year Warranty

Learn more with the "Switching Handbook: A Guide to Signal Switching in Automated Test Systems".





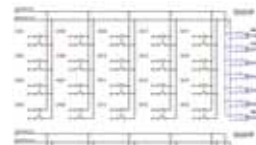
Series 3700A

The Series 3700A DMM/switch system offers a scalable, instrument grade switching and multi-channel measurement solution for automated testing of electronic devices. The system includes a high performance DMM with up to six switch/control cards and can support up to 576 two-wire multiplexer channels for unrivaled density and low per channel cost.



Product Highlights

- Mainframe variations (DMM and keypad/display optional)
- High performance (1 Ohm resistor, 10µA DCI range) 7.5 Digit multimeter
- High density switching (Up to 720 one-wire multiplexer channels, 2,688 one-wire matrix crosspoints)
- TSP control and TSP-Link for Intelligent distributed control
- Embedded startup/control software



Use the built-in web server interface to configure the system, build and run an automated scan list, and analyze data.



Model 3706A-NFP eliminates keypad and display for automated test rack applications.

Model (Mainframe)	DMM	Front Panel Keypad & Display	Resolution (Digits), Accuracy	Interface	Pricing (USD)
3706A	Yes	Yes	7½ Digits, 0.0025%	GPIB, LAN (LXI), USB-TMC, TSP-Link® Channel Expansion Bus	\$2,820
3706A-S	No	Yes	NA	GPIB, LAN (LXI), USB-TMC, TSP-Link® Channel Expansion Bus	\$2,170
3706A-NFP	Yes	No	7½ Digits, 0.0025%	GPIB, LAN (LXI), USB-TMC, TSP-Link® Channel Expansion Bus	\$2,610
3706A-SNFP	No	No	NA	GPIB, LAN (LXI), USB-TMC, TSP-Link® Channel Expansion Bus	\$1,950

Plug-in Cards

3720	Dual 1x30 Multiplexer: 300V, 2A, Auto-CJC with 3720-ST accessory	\$1,140
3721	Dual 1x20 Multiplexer: 300V, 3A, Auto-CJC with 3721-ST accessory	\$977
3722	Dual 1x48 Multiplexer: 300V, 2A	\$1,580
3723	Dual 1x30 Multiplexer: 200V, 1.25A, Reed Relay	\$1,330
3724	Dual 1x30 Multiplexer: 200V, 0.12A, Solid State Relay, Auto-CJC with 3724-ST accessory	\$1,650

Plug-in Cards

3730	6x16 Matrix: 300V, 2A	\$1,580
3731	6x16 Matrix: 200V, 2A, Reed Relay	\$2,070
3732	Quad 4x28 Matrix: 200V, 1.2A, Reed Relay	\$5,590
3740	Independent Relay: 28 Form C: 300V, 3A; 4 Form A: 250VAC, 7A	\$977
3750	Control: 40 Digital I/O 2 Analog Outputs, 4 Counter	\$1,330
KUSB-488B	IEEE-488 USB to GPIB Interface Adapter	\$502
4288-1	Single Fixed Rack Mount Kit	\$87

Recommended Accessories

3706-BAN	DMM Adapter Cable	\$203
3706-TLK	Test Lead Kit	\$308

Ships with Product

- Test Script Builder Software Suite CD
- Series 3700A Product CD (Includes LabVIEW, IMI C, and IMI.COM Drivers)
- Ethernet Crossover Cable
- Calibration Certificate
- Quick Reference Manual
- Power Cord
- 1-year Warranty

Learn more with the "Optimizing Switched Measurements with the Series 3700 System Switch/Multimeter and Series 2600 System SourceMeter® Instruments Through the Use of TSP" application note.



Low-Level Instruments

Scientists and researchers worldwide rely on Keithley Electrometers, Picoammeters, and Nanovoltmeters for making low-level measurements beyond the capabilities of a typical digital multimeter. Keithley Electrometers and Picoammeters provide low current and high resistance measurements and Keithley Nanovoltmeters measure low voltages.



	2182A Nanovoltmeter	6220 / 6221 Current Sources	6485, 6487 / 6482 Picoammeters / Picoammeter & Voltage Source	6514 / 6517B / 6430 Electrometers
Current Min/Max	--	100fA / 100mA	1fA / 20mA	10aA / 100mA
Voltage Min/Max	1nV / 100V	--	--	1mV / 200V
Resistance Min/Max	10nΩ / 1G Ω (with Model 6220 or 6221)	10nΩ/1GΩ (with Model 2182A)	10Ω/1PΩ (with Model 6487)	10mΩ / 10PΩ
Resolution	7½ Digits	4½ Digits	5½ Digits (6485, 6487) 6½ Digits (6482)	5½ Digits (6514, 6517B) 6½ Digits (6430)
Input Connection / Interface	Low Thermal / GPIB, RS-232	3 Slot Triax / GPIB, RS-232 (LAN on 6221)	BNC (6485) 3 Slot Triax (6482, 6487) / GPIB, RS-232	3 Slot Triax / GPIB, RS-232
Starting Price	\$2,980	\$3,360	\$1,640	\$4,440

Choosing Your Specialized Low Level Instrument

To help you choose the appropriate specialized low level instrument for your application, the most common selection criteria are listed below, including helpful tips for determining the correct specialized low level instrument for your requirements.

1 Resolution

Resolution means how fine a meter's measurement is and lets you determine if it's possible to see a small change in the signal. Resolution is described by digits and counts. A 6.5-digit instrument can display six full digits ranging from 0 to 9, and one "half" digit that displays either a 1 or is left blank. A 6.5-digit instrument can display up to 1,999,999 counts of resolution.

2 Accuracy

Accuracy is the largest allowable error that will occur under specific operating conditions and is an indication of how close the instrument's displayed measurement is to the actual value of the signal measured. Accuracy is typically expressed as a percent of reading. For example, an accuracy of 1% of reading means that, for a displayed reading of 100 volts, the actual value of the voltage is between 99 volts and 101 volts.

3 Low Current/High Resistance Measurements

Low current/high resistance measurements evaluate the insulation qualities of materials or components. Typically, a voltage up to 500 or 1000 volts is applied and the resulting current is measured, which can be in the range of picoamperes (10E-12A) or lower. A digital multimeter may seem like the right instrument for these measurements. But if the current is below 1μA or the resistance is above 10MΩ, the correct solution is an Electrometer or Picoammeter.

4 Low Voltage/Low Resistance Measurements

Low resistance/low voltage measurements evaluate the conduction or contact qualities of materials or components. Typically, a current under 100mA but as low as 1μA is applied and the resulting voltage is measured, which can be in the range of microvolts and even nanovolts. For low voltage, choose a Nanovoltmeter or low noise multimeter. For low resistance, a Nanovoltmeter/current source combination or switch/multimeter is the correct solution.



2182A Nanovoltmeter

The two-channel Model 2182A Nanovoltmeter is optimized for making stable, low noise voltage measurements and for characterizing low resistance materials and devices reliably and repeatably. It provides higher measurement speed and significantly better noise performance for voltage meters than alternative low voltage measurement solutions.

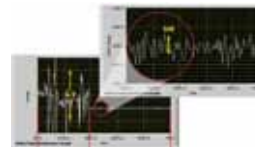


Product Highlights

- Low noise voltage measurements at high speeds
- Delta mode coordinates measurements with a reversing current source at up to 24Hz with 30nV p-p noise (typical) for one reading. Averages multiple readings for greater noise reduction
- Built-in thermocouple linearization and cold junction compensation
- Dual channels



Comparison of the Model 2182A's DC noise performance with a nanovolt/micro-ohmmeter's.



Results from a Model 2182A and Model 6220 using the delta mode to measure a 10mΩ resistor with a 20μA test current.

Model	Voltage	Temperature	Resistance	Channels	Buffer Size	Pricing (USD)
2182A	1nV – 100V	-200°C – 1820°C	10nΩ to 200MΩ (requires 6220 or 6221)	2	1,024 rdgs	\$2,980

Recommended Accessories

6220	DC Precision Current Source (used with 2182A for low current/voltage measurement)	\$3,360
6221	AC and DC Current Source (used with 2182A for low current/voltage measurement)	\$4,480
4288-1	Single Fixed Rack Mounting Kit	\$87
4288-2	Dual Fixed Rack Mounting Kit	\$121
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502
2107-30	Low Thermal Input Cable with spade lugs, 9.1m (30 ft)	\$306
2182-KIT	Low Thermal Connector with strain relief	\$173
2187-4	Input Cable with safety banana plugs	\$363

Recommended Accessories

2188	Low Thermal Calibration Shorting Plug	\$204
7007-1	Shielded GPIB Cable, 1m (3.2 ft)	\$108
7007-2	Shielded GPIB Cable, 2m (6.5 ft)	\$119
7009-5	Shielded RS-232 Cable, 1.5m (5 ft)	\$54
8501-1	Trigger Link Cable, 1m (3.2 ft)	\$62
8501-2	Trigger Link Cable, 2m (6.5 ft)	\$68
8503	Trigger Link Cable to 2 male BNC connectors	\$85

Ships with Product

- 2107-4 Low Thermal Input Cable with Spade Lugs, 1.2m (4 ft)
- User Manual
- Service Manual
- Contact Cleaner
- Power Cord
- Alligator Clips

Learn more with the “Low-Level Pulsed Electrical Characterization with the Model 6221/2182A Combination” application note.



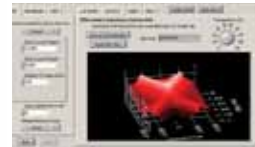
Product Highlights

- $10E+14$ Ohms output impedance ensures stable current sourcing into variable loads
- 64k-point source memory for comprehensive test current sweeps
- (Model 6221) Source AC currents from 4pA to 210mA peak to peak for AC characterization of components and materials. The 10MHz output update rate generates smooth sine waves up to 100kHz

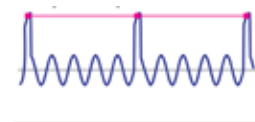


6220 / 6221 Current Sources

Keithley precision current sources include both broad-purpose Model 6220 and high-performance Model 6221. Their high sourcing accuracy and built-in control functions make them ideal for Hall Effect, resistance (using delta mode), pulsed, and differential conductance measurements. Programmable pulse widths limit power dissipation.



Perform, analyze, and display differential conductance measurements.



Measurements are line synchronized to minimize 50/60Hz interference.

Model	Current	Resistance	Sweep Points	PC Interface	Pricing (USD)
6220	100fA – 100mA	10nΩ to 200MΩ (requires 2182A)	65,536 (64k)	GPIB, RS-232	\$3,360
6221	100fA – 100mA	10nΩ to 200MΩ (requires 2182A)	65,536 (64k)	GPIB, RS-232, Ethernet	\$4,480

Recommended Accessories

2182A	Nanovoltmeter (used with 6220/6221 for low current/voltage measurement)	\$2,980
237-ALG-2	Low Noise Triax Cable, 3-slot triax to alligator clips	\$214
7007-1	Shielded GPIB Cable, 1m (3.2 ft)	\$108
7007-2	Shielded GPIB Cable, 2m (6.5 ft)	\$119
7007-4	Shielded IEEE-488 Cable, 4m (13.1 ft)	\$135
7009-5	Shielded RS-232 Cable, 1.5m (5 ft)	\$54
7078-TRX-3	Low Noise Triax Cable, 3-Slot Triax Connectors, 0.9m (3 ft)	\$150
7078-TRX-5	Low Noise Triax Cable, 3-Slot Triax Connectors, 1.5m (5 ft)	\$161
7078-TRX-10	Low Noise Triax Cable, 3-Slot Triax Connectors, 3m (10 ft)	\$174
7078-TRX-20	Low Noise Triax Cable, 3-Slot Triax Connectors, 6m (20 ft)	\$195

Recommended Accessories

8501-1	Trigger Link Cable with male Micro-DIN connectors at each end, 1m (3.3 ft)	\$62
4288-1	Single Fixed Rack Mounting Kit	\$87
4288-2	Dual Fixed Rack Mounting Kit	\$121
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502

Ships with Product

- 6.6 ft (2m), Low Noise, Input Cable with Triax-to-Alligator Clips
- 6.6 ft (2m) Trigger Link Cable to connect 622x to 2182A
- Ethernet Crossover Cable (6221 only)
- Communication Cable between 2182A and 622x
- Safety Interlock Connector
- Instruction manual on CD
- Getting Started manual (hardcopy)
- Software (downloadable)

Learn more with the “Determining Resistivity and Conductivity Type using a Four-Point Collinear Probe and the Model 6221 Current Source” application note.





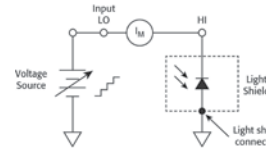
6485, 6487 Picoammeters, 6482 Picoammeter & Voltage Source

Keithley Picoammeters combine sensitive current measurement with high speed. The Model 6485 Picoammeter offers fast, sensitive current measurement. The Model 6487 offers improved measurement capability, and adds a high resolution 500V source. The Model 6482 offers two independent Picoammeter/voltage source channels.

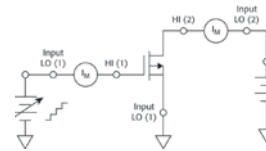


Product Highlights

- Measure currents down to 1fA
- Voltage and resistance measurement options
- Voltage burden <200µV (most models)
- 5-1/2 to 6-1/2 digit resolution (most models)
- Feedback ammeter design for higher accuracy



Dark current characterization of a photodiode using Picoammeter and voltage source (such as the Model 6482).



MOSFET sub-threshold voltage test using Picoammeters and voltage sources (such as the Model 6482).

Model	Current	Resistance	Reading Rate	Input Connections	Pricing (USD)
6482	1fA – 20mA	N/A	900 rdgs/s	3-slot triax, BNC (via included adapter)	\$3,650
6487	10fA – 20mA	10E+16 Ohms	1000 rdgs/s	3-slot triax	\$3,580
6485	10fA – 20mA	N/A	1000 rdgs/s	BNC	\$1,640

Recommended Accessories

4802-10	Low noise BNC Input Cable, 3m (10ft) (for 6485)	\$78
4803	Low Noise Cable Kit (for 6485)	\$140
6517-ILC-3	Interlock Cable for 8009 Resistivity Test Fixture (6487 Only)	\$86
7007-1	Shielded IEEE-488 Cable, 1m (3.3 ft)	\$108
7007-2	Shielded IEEE-488 Cable, 2m (6.6 ft)	\$119
7007-4	Shielded IEEE-488 Cable, 4m (13.1 ft)	\$135
7009-5	RS-232 Cable	\$54
7078-TRX-10	Low Noise Triax Cable, 3.0m (10 ft) (6487 Only)	\$174
7078-TRX-20	Low Noise Triax Cable, 6.0m (20 ft) (6487 Only)	\$195
7754-3	BNC to Alligator Cable (for 6485)	\$43
8501-1	Trigger Link Cable with male Micro-DIN connectors at each end, 1m (3.3 ft)	\$62

Recommended Accessories

CS-565	BNC Barrel (for 6485)	\$16
237-TRX-BAR	Triax Barrel (for 6487)	\$105
7078-TRX-BNC	Triax-to-BNC Adapter	\$73
8009	Resistivity Test Fixture (for 6487)	\$2,210
4288-1	Single Fixed Rack Mounting Kit	\$87
4288-2	Dual Fixed Rack Mounting Kit	\$121
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502

Ships with Product

- 7078-TRX-BNC Triax-to-BNC Connector (2x) (Model 6482)
- CA-186-1B Ground Connection Cable, Banana to Screw-Lug (Model 6487)
- CAP-31 Protective Shield/Cap (3-lug) (Model 6487)
- CS-459 Safety Interlock Plug (Model 6487)
- 7078-TRX-3 Low Noise Triax Input Cable, 1m (3 ft) (Model 6487)
- 8607 High Voltage Banana Cable Set for Voltage Source Output (Model 6487)
- CAP-18 Protective Shield/Cap (2-lug) (Model 6485)
- 4801 Low Noise BNC Input (Model 6485)

Learn more with the “Low Current Measurements” application note.





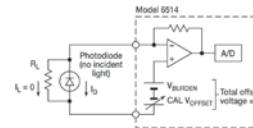
6514 / 6517B / 6430 Electrometers

Our high resistance Electrometers provide voltage source and high resistivity measurements for sensitive measurement. They combine flexible interfacing capabilities with current sensitivity, charge measurement capabilities, resolution, and speed. The Model 6430 offers unmatched low current sensitivity.

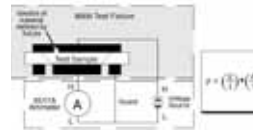


Product Highlights

- Measure low current & high voltage, resistance, and charge
- Resistance measurements to 10PΩ ohm
- Current sensitivity as low as 10aA (6430)
- Voltage burden as low as 200μV
- Superior accuracy and sensitivity



This illustrates how the Model 6514's measurement can be adjusted to reflect the true dark current of the photodiode.



A Model 6517B is well suited for application where the volume resistivity needs to be measured.

Model	Current	Voltage	Resistance	Charge	Input Connections	Pricing (USD)
6517B	100aA – 20mA	10mV – 200V	10E+16	10fC to 2mC	3-slot triax	\$7,460
6514	100aA – 20mA	10mV – 200V	10mΩ to 200GΩ	10fC to 20mC	3-slot triax	\$4,440
6430	10aA – 100mA	1mV – 200V	1mΩ to >20TΩ	--	3-slot triax	\$12,800

Recommended Accessories

237-ALG-2	Low Noise Triax Cable, 3-slot triax to alligator clips	\$214
6517B-ILC-3	Interlock Cable (For 6517B only)	\$100
7078-TRX-3	Low Noise Triax Cable, 3-Slot Triax Connectors, 0.9m (3 ft)	\$150
7007-1	Shielded IEEE-488 Cable, 1m (3.2 ft)	\$108
8501-1	Trigger Link Cable, 1m (3.3 ft)	\$62
8503	Trigger Link Cable to 2 male BNCs, 1m (3.3 ft)	\$85
8607	1kV Source Banana Cables (for 6517B only)	\$57
6517-RH	Humidity Probe with Extension Cable (6517B only)	\$505
6517-TP	Temperature Bead Probe (included with 6517B) (6517B only)	\$51
8009	Resistivity Test Fixture (for 6517B)	\$2,210

Recommended Accessories

237-BNC-TRX	Male BNC to 3-Lug Female Triax Adapter (for 6517B)	\$105
237-TRX-NG	Triax Male-Female Adapter with Guard Disconnected	\$138
7078-TRX-BNC	3-Slot Male Triax to BNC Adapter	\$44
7078-TRX-GND	3-Slot Male Triax to BNC Adapter with guard removed (for 6517B)	\$62
4288-1	Single Fixed Rack Mounting Kit	\$87
4288-2	Dual Fixed Rack Mounting Kit	\$121
6521	Low Current Scanner Card (for 6517B)	\$2,030
6522	Voltage/Low Current Scanner Card (for 6517B)	\$2,730
KPCI-488LPA	IEEE-488 Interface/Controller for the PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502

Ships with Product

- Low Noise Triax Cable, 3-slot triax to alligator clips (6514, 6517B)
- 6430-322-1B Low noise Triax Cable, 3-slot triax to alligator clips (20cm)
- Dual Test Leads (6430)
- 6517-TP Thermocouple Bead Probe (6517B)
- CS-1305 Interlock Connector (6517B)
- PreAmp Cable 2m (6.6ft)

Learn more with the "Volume and Surface Resistivity Measurements of Insulating Materials Using the Model 6517A Electrometer/High Resistance Meter" application note.



Power Supplies

Tektronix and Keithley power supplies offer a wide range of performance. Get single channel models with superior accuracy and 0.1mA current measurement resolution. For multiple source needs, select a dual channel or triple channel supply. All channels are isolated and fully programmable. For testing battery-operated devices, consider a battery simulator.



	Tektronix PWS2000 Series (4 models)	Tektronix PWS4000 Series (5 models)	Keithley Models 2200 (5 models)	Keithley Models 2220-30-1 & 2230-30-1	Keithley Models 2302, 2306, 2308	Keithley Models 2303, 2304A
Description	Manual	USB Programmable Single Channel	USB and GPIB Programmable Single Channel	USB Multi-Channel	Battery Simulator	Fast Transient Response
Channels	1	1	1	2 (2220-30-1) 3 (2230-30-1)	1 (2302) 2 (2306, 2308)	Single Output
Max Voltage / Max Current	18V-72V / 1.5A-6A	20V-72V / 1.2A-5A	20V-72V / 1.2A-5A	2-30V / 1.5A (2220-30-1) 2-30V / 1.5A, 1-6V / 5A (2230-30-1)	15V / 5A	15V / 5A (2303) 20V / 5A (2304A)
Resolution	10mV, 10mA	1mV, 0.1mA	1mV, 0.1mA	1mV, 1mA	1mV, 100nA	1mV, 100nA
Voltage Accuracy	0.05%	0.03%	0.03%	0.03%	0.05%	0.05%
Current Accuracy	0.2%	0.05%	0.05%	0.1%	0.2%	0.2%
Interface	Not Applicable	USB	GPIB, USB	USB	GPIB	GPIB
Starting Price	\$407	\$904	\$939	\$964	\$2,610	\$1,980

Choosing Your Programmable Power Supply

To help you choose the appropriate power supply for your application, the most common selection criteria are listed below.

1 Output Voltage, Current, and Power

Ensure that the power supply has sufficient voltage output and current output to meet your needs. Also ensure that the supply can deliver the required power. Some power supply V-I output characteristics offer a trade-off between maximum voltage and maximum current (hyperbolic V-I output).

2 Setting Resolution and Accuracy

Voltage and current settings (sometimes called limits or programmed values) each have resolution and accuracy specifications associated with them. The resolution of these settings determines the minimum increment in which the output may be adjusted. The accuracy describes the extent to which the value of the output matches international standards and is typically expressed as \pm (% of reading + offset).

3 Ripple and Noise

Spurious AC components on the output of a DC supply are called ripple and noise. The term "ripple" refers to periodic AC on the output. When viewed in the frequency domain, ripple shows up as spurious responses. Unlike ripple, which is periodic, noise is random. A power supply's ripple and noise is specified within a bandwidth, and should be specified for both current and voltage.

4 Features and Programmability

When selecting your power supply, select the supply that has the functionality you need. Consider a multiple-channel supply as a cost-effective solution for applications requiring multiple power sources. For maximum accuracy, consider supplies that have remote sensing. When developing and testing battery-operated devices, consider a special purpose battery-simulating supply.



PWS2000 Series

More power. More features. More value. Support many different applications with wide output voltage and current ranges, and down to 10 mV/10 mA resolution. Save time with a numeric keypad for fast and accurate voltage/current selection. Strain less with a bright, large readout digital display. All backed by Tektronix reliability.



Product Highlights

- Linear regulation
- 0.05% basic DC voltage accuracy
- 0.2% basic DC current accuracy
- Less than 3 mVp-p ripple and noise
- 20 user-defined setup memories



The numeric keypad makes it easy to specify a precise current limit before you start your test.



PWS Series power supplies are designed to be stacked with other Tektronix bench instruments to save you valuable bench space.

Models	Output Voltage	Output Current	Programmable	Pricing (USD)
PWS2185	18 V	5 A	No	\$407
PWS2323	32 V	3 A	No	\$407
PWS2326	32 V	6 A	No	\$470
PWS2721	72 V	1.5 A	No	\$407

Recommended Accessories

RMU2U	Rackmount Shelf Kit for 1 or 2 Units	\$152
386-7598-xx	Rackmount Cosmetic Filler Panel	\$34

Recommended Service

SILV100	5-year Extended Warranty	\$156
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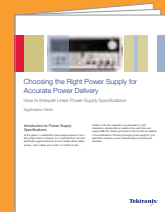
Another Product for Consideration

The PWS4000 Series offers greater accuracy, additional features and programmability.

Ships with Product

- Calibration Certificate
- Technical Reference Manual & Documentation on CD
- Power Cord
- 3-year Warranty

Learn more with the "Choosing the Right Power Supply for Accurate Power Delivery" application note.





PWS4000 Series

Precision. Now available at the touch of a button. Generate the power you need with down to 1 mV/0.1 mA resolution and a basic voltage accuracy of 0.03%. Accelerate complex tests with list mode and a USB port for remote programming. Save time with a numeric keypad for fast and accurate voltage/current selection. Performance. Accuracy. Affordability. Meet your new power supply.



Product Highlights

- Linear regulation
- 0.03% basic DC voltage accuracy; 0.05% basic DC current accuracy
- USB interface for remote programming
- Less than 5 mVp-p ripple and noise
- Remote sense, list mode and 40 user-defined setup memories



The numeric keypad makes it easy to specify a precise current limit before you start your test.



PWS Series power supplies are designed to be stacked with other Tektronix bench instruments to save you valuable bench space.

Models	Output Voltage	Output Current	Programmable	Pricing (USD)
PWS4205	20 V	5 A	Yes	\$904
PWS4305	30 V	5 A	Yes	\$1,070
PWS4323	32 V	3 A	Yes	\$904
PWS4602	60 V	2.5 A	Yes	\$1,070
PWS4721	72 V	1.2 A	Yes	\$904

Recommended Accessories

RMU2U	Rackmount Shelf Kit for 1 or 2 Units	\$152
386-7598-xx	Rackmount Cosmetic Filler Panel	\$34

Recommended Service

SILV100	5-year Extended Warranty	\$156
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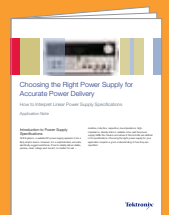
Another Product for Consideration

The DMM Series offers accurate voltage, current and resistance measurements for AC and DC signals.

Ships with Product

- NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate
- Technical Reference Manual & Documentation on CD
- Power Cord
- 3-year Warranty

Learn more with the “Choosing the Right Power Supply for Accurate Power Delivery” application note.





Programmable Single Channel DC Power Supplies with Remote Sensing

Keithley programmable single-channel DC power supplies offer an excellent combination of performance, versatility, and ease of use including 0.03% basic accuracy, 0.1mA measurement resolution, and keypad data entry. Select from a variety of DC power supplies with voltages from 20V to 72V.

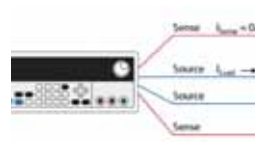


Product Highlights

- Low noise, linear regulation
- 0.03% basic voltage output
- 0.05% basic current accuracy
- 1mV and 0.1mA output and measurement resolution
- Seven programmable output lists with up to 80 steps/list
- GPIB and USB interfaces



Series 2200 rear panel.



Remote sensing compensates for voltage drops in the test leads by extending the power supply feedback loop to the input of the load.

Model	Max Output Voltage	Max Output Current	Power	Ripple and Noise	Pricing (USD)
2200-20-5	20V	5A	100W	<1mVRMS, <3mVP-P	\$939
2200-30-5	30V	5A	150W	<1mVRMS, <4mVP-P	\$1,110
2200-32-3	32V	3A	96W	<1mVRMS, <4mVP-P	\$939
2200-60-2	60V	2.5A	150W	<1mVRMS, <5mVP-P	\$1,110
2200-72-1	72V	1.2A	86W	<1mVRMS, <3mVP-P	\$939

Recommended Accessories

CS-1638-12	Rear Panel Mating Connector, Single Channel	\$14
USB-B-1	USB Cable	\$14
4299-7	Fixed Rack Mount Kit	\$425
KPCI-488LPA	IEEE-488 Interface Board for PCI Bus	\$431
7007-05	Double Shielded IEEE-488 Cable, 0.5m (1.6ft)	\$103
7007-1	Double Shielded IEEE-488 Cable, 1m (3.2 ft)	\$108
7007-2	Double Shielded IEEE-488 Cable, 2m (6.5 ft)	\$119
7007-3	Double Shielded IEEE-488 Cable, 3m (10 ft)	\$129
7007-4	Double Shielded IEEE-488 Cable, 4m (13 ft)	\$135

Ships with Product

- User Documentation and Driver CD
- Rear Panel Mating Connector
- Calibration Certificate
- Power Cord
- 3-year Warranty

Learn more with the "Understanding Linear Power Supply Specifications" application note.





Programmable Multiple Channel DC Power Supplies with Remote Sensing

Keithley programmable multi-channel DC power supplies offer an excellent combination of performance, versatility, and ease of use including fully isolated channels, fully programmable channels, and all channel measurements displayed simultaneously. Choose either the dual channel DC power supply or the triple channel DC power supply.

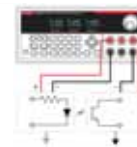


Product Highlights

- Dual and triple channel models
- Two 30V/1.5A channels
- One 6V/5A channel (on triple channel model)
- All channels are isolated
- All channels are programmable
- USB interface



Model 2230-30-1 rear panel.



Power two isolated circuits with isolated output channels.

Model	Max Output Voltage	Max Output Current	Power	Ripple and Noise	Pricing (USD)
2220-30-1	Ch 1 : 30V, Ch 2:30V	Ch1: 1.5A, Ch 2: 1.5A	45W/channel; 90W total	<1mVRMS, <3mV P-P	\$964
2230-30-1	Ch1: 30V, Ch 2: 30V, Ch 3: 6V	Ch1: 1.5A, Ch 2: 1.5A, Ch 3: 5A	Ch 1 and Ch 2: 45W each Ch 3: 30W, 120W total	<1mVRMS, <3mV P-P	\$1,170

Recommended Accessories

CS-1638-12	Rear Panel Mating Connector, Multi-Channel	\$14
USB-B-1	USB Cable	\$14
4299-7	Fixed Rack Mount Kit	\$425

Ships with Product

- User Documentation and Driver CD
- Rear Panel Mating Connector
- Calibration Certificate
- Power Cord
- 3-year Warranty

Learn more with the “Ensuring that Power Supply Performance Meets Your Requirements” application note.





Portable Device Battery/Charger Simulator

Keithley's battery simulating power supplies can simulate a battery's output characteristics and its discharged state. These supplies can measure low, sleep mode load current and pulsed output load current. Dual channel models facilitate testing portable device, charge control circuitry with a battery channel and a charger simulator channel.

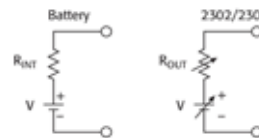


Product Highlights

- Optimized for battery-powered device testing
- 100nA current measurement sensitivity
- Load pulse current measurement: 33 μ s - 833 μ s
- Variable output resistance: 0 - 1 Ω with 10m Ω resolution
- Measure sleep, currents, standby currents, and full load currents to determine power consumption
- Sink current to simulate a discharged battery



Model 2306 Rear Panel.



Simplified schematic of a battery and the 2302/2306.

Model	Channels	Max Output Voltage / Current	Power	Transient Response to a 10X Load Current Change	Current Sink Capacity	Pricing (USD)
2302	1	15 V / 5 A	60W	<40 μ s recovery time and <75mV voltage drop	3A	\$2,610
2306	2	15 V / 5 A	50W	<40 μ s recovery time and <75 mV voltage drop	3A	\$3,240
2308	2	15 V / 5 A	50W	<35 μ s recovery time and <90 mV voltage drop	3A	\$2,890

Recommended Accessories

2306-DISP	Remote Display (2302, 2306, 2308)	\$335
CS-846	Mating Output Connector	\$18
SC-182	Low Inductance Coaxial Cable	\$1
4288-1	Single Fixed Rack Mount Kit	\$87
4288-2	Dual Fixed Rack Mount Kit	\$121
KPCI-488LPA	IEEE-488 Interface Board for PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502

Recommended Accessories

7007-05	Double Shielded IEEE-488 Cable, 0.5m (1.6ft)	\$103
7007-1	Double Shielded IEEE-488 Cable, 1m (3.2 ft)	\$108
7007-2	Double Shielded IEEE-488 Cable, 2m (6.5 ft)	\$119
7007-3	Double Shielded IEEE-488 Cable, 3m (10 ft)	\$129
7007-4	Double Shielded IEEE-488 Cable, 4m (13 ft)	\$135

Ships with Product

- User Documentation
- Rear Panel Mating Connector
- Calibration Certificate
- Power Cord
- 1-year Warranty

Learn more with the "Simulating Battery Impedance with the Models 2302 and 2306 Battery Simulators/Chargers" application note.





High Speed Power Supplies

The Model 2303/2304A Power Supplies provide both voltage control and power consumption monitoring for automated testing of portable, battery-operated devices. They are optimized for testing battery-operated, wireless communication devices such as cellular phones that undergo substantial load changes for very short time intervals.

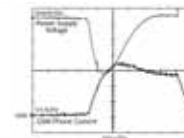


Product Highlights

- Ultra-fast response times to load changes
- Optimized for battery-powered device testing
- 100nA current measurement sensitivity
- Load pulse current measurement: 33 μ s - 833 μ s
- Measure sleep, standby currents, and full load currents to determine power consumption
- Sink current to simulate a discharged battery



Model 2303 or 2304A rear panel.



Typical power supply transient response vs. Keithley's high speed power supply transient response.

Model	Channels	Max Output Voltage / Current	Power	Transient Response to a 10X Load Current Change	Current Sink Capacity	Pricing (USD)
2303	Single Output	15V/3A or 9V/5A	45W	<40 μ s recovery time and <100mV voltage drop	2A	\$1,980
2304A	Single Output	20V/5A	100W	<40 μ s recovery time and <100mV voltage drop	3A	\$2,660

Recommended Accessories

2304-DISP	Remote Display (2303, 2304A)	\$209
CS-846	Mating Output Connector	\$18
SC-182	Low Inductance Coaxial Cable	\$1
4288-1	Single Fixed Rack Mount Kit	\$87
4288-2	Dual Fixed Rack Mount Kit	\$121
KPCI-488LPA	IEEE-488 Interface Board for PCI Bus	\$431
KUSB-488B	IEEE-488 USB-to-GPIB Interface Adapter	\$502

Recommended Accessories

7007-05	Double Shielded IEEE-488 Cable, 0.5m (1.6ft)	\$103
7007-1	Double Shielded IEEE-488 Cable, 1m (3.2 ft)	\$108
7007-2	Double Shielded IEEE-488 Cable, 2m (6.5 ft)	\$119
7007-3	Double Shielded IEEE-488 Cable, 3m (10 ft)	\$129
7007-4	Double Shielded IEEE-488 Cable, 4m (13 ft)	\$135

Ships with Product

- User Documentation
- Rear Panel Mating Connector
- Calibration Certificate
- Power Cord
- 1-year Warranty

Learn more with the "Stabilizing Fast Transient Response Power Supply/Load Circuits" application note.



Frequency Counter/Timers

Featuring the precision and intuitive operation you've come to expect from our oscilloscopes, Tektronix Timer/Counters are built with performance and convenience in mind. Featuring industry-leading resolution, built-in measurement and analysis modes.



	FCA3000	FCA3100	MCA3000
Frequency Range	400 MHz, 3 GHz, 20 GHz	400 MHz, 3 GHz, 20 GHz	27 GHz, 40 GHz
Resolution	<ul style="list-style-type: none"> 100 ps (time) 12 digits/s (freq) 	<ul style="list-style-type: none"> 50 ps (time) 12 digits/s (freq) 	<ul style="list-style-type: none"> 100 ps (time) 12 digits/s (freq)
Data Transfer	<ul style="list-style-type: none"> 250 k Samples/sec (internal) 5 k Samples/sec (block) 	<ul style="list-style-type: none"> 250 k Samples/sec (internal) 15 k Samples/sec (block) 	<ul style="list-style-type: none"> 250 k Samples/sec (internal) 5 k Samples/sec (block)
Measurements	13 Automated Measurements Frequency, Period, Ratio, Time Interval, Time Interval Error, Pulse Width, Rise/Fall Time, Phase Angle, Duty Cycle, Vmax, Vmin, Vp-p	14 Automated Measurements Frequency, Period, Ratio, Time Interval, Time Interval Error, Pulse Width, Rise/Fall Time, Phase Angle, Duty Cycle, Vmax, Vmin, Vp-p, Totalize	13 Automated Measurements Frequency, Period, Ratio, Time Interval, Time Interval Error, Pulse Width, Rise/Fall Time, Phase Angle, Duty Cycle, Vmax, Vmin, Vp-p + An Integrated Power Meter
Analysis Modes	TrendPlot™, Measurement Statistics, Allan Deviation, Histogram	TrendPlot™, Measurement Statistics, Allan Deviation, Histogram	TrendPlot™, Measurement Statistics, Allan Deviation, Histogram
Connectivity	Rear panel: USB device port, GPIB PC communications software: NI LabVIEW SignalExpress™ Tektronix Edition (LE Version)	Rear panel: USB device port, GPIB PC communications software: NI LabVIEW SignalExpress™ Tektronix Edition (LE Version)	Rear panel: USB device port, GPIB PC communications software: NI LabVIEW SignalExpress™ Tektronix Edition (LE Version)
Starting Price	\$2,270	\$3,550	\$8,860

Choosing Your Timer/Counter

To help you choose the right timer/counter for your needs, the most common selection criteria are listed below, along with helpful tips for determining your requirements.

1 Frequency Resolution

The frequency resolution is the smallest change the timer/counter can detect in closely spaced frequencies. The resolution is influenced by the time setting on the instrument, i.e., longer time settings (averaged) will display more digits. In general this feature is expressed as the number of digits per second shown on the instrument's display (e.g. 12 digits/s). More digits indicate a higher frequency resolution.

2 Time Resolution

For timing measurements this feature represents the smallest "time" change that the instrument can detect. Time resolution is sometimes described as "single shot" resolution and is generally measured in pico seconds, e.g. 50 ps. The lower the number the better the time resolution feature.

3 Time Base Stability

The internal time base establishes the reference against which input signals are measured. The better the time base, the more accurate your measurements can be. Most counters employ a quartz crystal as the internal time base element which comes in 3 basic types; Room Temperature (RTXO), Temperature Compensated (TCXO) and Oven Control (OCXO). TCXO and OCXO devices are more stable and when used as the internal time base the instrument will consistently yield accurate and reliable results.

4 Analysis Capability

When choosing your timer/counter, you should review available analysis modes, such as trend plotting, measurement statistics, histograms and modulation domain analysis to ensure your needs are met.



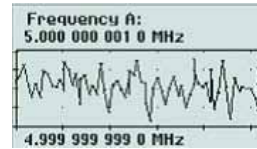
FCA3000/3100 Series

Looking to capture small frequency and time changes? Look no further than this Timer/Counter/Analyzer. Capture small changes in your signal with industry-leading frequency and time resolution. Quickly and accurately analyze signals with 13 automated measurements and comprehensive built-in analysis modes, including measurement statistics, histograms and TrendPlots. Get unparalleled ease-of-use with intuitive operation and USB connectivity. It's everything you need in a Timer/Counter/Analyzer. And more.



Product Highlights

- 12 digit/sec frequency resolution
- 50 ps (FCA3100) or 100 ps (FCA3000) single-shot time resolution
- 0.001° phase resolution
- 250 k readings/sec data transfer rate to internal memory
- 13 automated frequency, time, phase and voltage measurements



See how your device is changing over time with built-in analysis modes – TrendPlot™, histograms and statistics.



Easily connect to a PC with the USB and GPIB ports.

Models	Max. Frequency	Channels	Time Resolution	Frequency Resolution	Pricing (USD)
FCA3000	400 MHz	2	100 ps	12 digit/s	\$2,270
FCA3003	3 GHz	2 – 400 MHz 1 – 3 GHz	100 ps	12 digit/s	\$3,320
FCA3020	20 GHz	2 – 400 MHz 1 – 20 GHz	100 ps	12 digit/s	\$6,580
FCA3100	400 MHz	2	50 ps	12 digit/s	\$3,550
FCA3103	3 GHz	2 – 400 MHz 1 – 3 GHz	50 ps	12 digit/s	\$4,610
FCA3120	20 GHz	2 – 400 MHz 1 – 20 GHz	50 ps	12 digit/s	\$7,840

Recommended Accessories

174-4401-xx	USB Host to Device Cable, 3 Feet	\$10
012-0991-xx	GPIB Cable, Double Shielded	\$515
012-1256-xx	BNC Male to BNC Male, 9 Feet	\$89
ACD4000	Soft Carrying Case	\$249
HCTEK-4321	Hard Carrying Case	\$796
RMU2U	Rackmount Shelf Kit for 2 Units	\$152
TVA3000	TimeView™ Modulation Domain Analysis Software	\$811
SIGEXPTE	NI LabVIEW SignalExpress™ Tektronix Edition Software – Full Version	\$779

Instrument Options

MS	Medium Stability OCO Timebase, 2 X 10 ⁻⁷	\$704
HS	High Stability OCO Timebase, 5 X 10 ⁻⁸	\$1,110
RP	Rear-panel Connectors	\$163

Recommended Service

SILV200	5-year Extended Warranty (FCA3000, FCA3003, FCA3100, FCA3103)	\$260
SILV400	5-year Extended Warranty (FCA3020, FCA3120)	\$415

Ships with Product

- Trial Version of TimeView™ Software and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate
- User Manual on CD
- Programmers Guide & Technical Specifications
- Power Cord
- 3-year Warranty

Learn more with the “Time and Frequency Measurements for Oscillator Manufacturers” application note.





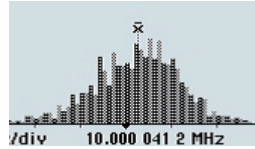
MCA3000 Series

Feature-rich. Fully loaded. No matter how you say it, this microwave timer/counter is packed with functionality. Measure up to 40 GHz signals. And, get two extra 300 MHz timer/counter ports for added versatility. Quickly and accurately analyze signals with 13 automated measurements and comprehensive analysis modes, including statistics, histograms and TrendPlots. Get unparalleled ease-of-use with intuitive operation and USB connectivity. Finally, fully-loaded comes standard.



Product Highlights

- 12 digit/sec frequency resolution
- 100 ps single-shot time resolution
- 250 k readings/sec data transfer rate to internal memory
- 13 automated frequency, time, phase and voltage measurements
- Integrated power meter



See how your device is changing over time with built-in analysis modes – TrendPlot™, histograms and statistics.



Easily connect to a PC with the USB and GPIB ports.

Models	Max. Frequency	Channels	Time Resolution	Frequency Resolution	Pricing (USD)
MCA3027	27 GHz	2 – 300 MHz 1 – 27 GHz	100 ps	12 digit/s	\$8,860
MCA3040	40 GHz	2 – 300 MHz 1 – 40 GHz	100 ps	12 digit/s	\$13,000

Recommended Accessories

174-4401-xx	USB Host to Device Cable, 3 Feet	\$10
012-0991-xx	GPIB Cable, Double Shielded	\$515
012-1256-xx	BNC Male to BNC Male, 9 Feet	\$89
AC4000	Soft Carrying Case	\$249
HCTEK-4321	Hard Carrying Case	\$796
RMU2U	Rackmount Shelf Kit for 2 Units	\$152
TVA3000	TimeView™ Modulation Domain Analysis Software	\$811
SIGEXPTE	NI LabVIEW SignalExpress™ Tektronix Edition Software – Full Version	\$779

Instrument Options

HS	High Stability OCXO Timebase, 5 X 10 ⁻⁸	\$1,110
US	Ultra High Stability OCXO Timebase, 1.5 X 10 ⁻⁸	\$2,230

Recommended Service

SILV600	5-year Extended Warranty	\$620
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Ships with Product

- Trial Version of TimeView™ Software and NI LabVIEW SignalExpress™ TE (LE version) Software
- Calibration Certificate
- User Manual on CD
- Programmers Guide & Technical Specifications
- Power Cord
- 3-year Warranty

Learn more with the “Measurement Statistics, Histograms and TrendPlot™ Analysis Modes” application note.



RF Power Meters

Tektronix PSM Power Meter Series delivers the precision accuracy you need and the features you want, including exceptional temperature stability and throughput. Plus, with 13 models to choose from, it also delivers exceptional versatility.



	PSM3000	PSM4000	PSM5000
Description	Power Meter Average Power	Power Meter Average / Peak / Pulse	Power Meter Average / Peak / Pulse + Profiling
Frequency Range	10 MHz - 8 / 18 / 26.5 GHz	10 MHz - 8 / 18.6 / 20 GHz	50 MHz - 8 / 18.6 / 20 GHz
Dynamic Range	-55 to +20 dBm	-60 to +20 dBm	-60 to +20 dBm
Data Transfer Rate	2000 Reads/sec	2000 Reads/sec	2000 Reads/sec
Measurements	True Average Power; Duty Cycle Corrected Pulse Power; Measurement Logging	Average Power (CW); Duty Cycle Corrected Pulse Power; Peak Power, Duty Cycle; Peak and Average Burst Power; Measurement Logging	Average Power (CW); Duty Cycle Corrected Pulse Power; Peak Power, Pulse Power, Duty Cycle; Peak and Average Burst Power; Measurement Logging; Pulse Width, Rise/Fall, Overshoot, Droop, Time Gated Measurements, Pulse Waveform Display with Markers
Starting Price	\$2,630	\$2,830	\$3,750

Choosing Your RF Power Meter

Power measurements are fundamental to the development cycle of any RF or microwave product, from radios to radars. To help you choose the right Power Sensor/Meter combination, the most common selection criteria are listed below, along with helpful tips for determining your requirements.

1 Measurement Integrity

Measurement integrity is a combination of the cumulative measurement uncertainty and instrument stability. While the measurement uncertainty is usually specified, the instrument stability includes several factors. By providing calibration over the entire temperature operating ranges and not requiring zeroing prior to measurement, the improved stability of the power sensor/meter reduces possible human errors and assures the integrity of measured results.

2 Performance and Functionality

Basic power measurements of continuous wave (CW) signals are fundamental to power sensor/meters. However, today's modern signals include modulation, pulses, or other time-varying attributes. Being able to correct for duty cycle, measure peak power, signal statistics, and triggering inputs and outputs increase the utility of the power sensor/meter combination.

3 Speed and Connectivity

Power measurements tend to dominate the test process of wireless device test. The speed of measurement should remain constant over the entire dynamic range of the sensor. USB connectivity and power enable high speed measurement throughput and help reduce system rack space.

4 Analysis

When integrating power measurements into a full system measurement process, you should review the available analysis software and hardware capabilities to determine if equipment redundancies can be eliminated. Advanced measurement analysis, like trend graphing, statistical measurements, measurement logging, and pulse profiling can replace more complex and expensive equipment needs and simplify device test.



Product Highlights

- 8 GHz, 18 GHz, 20 GHz, and 26.5 GHz Models
- Models Available with N and 3.5 mm Connectors
- Dynamic Range as Low as -60 dBm and as High as +20 dBm
- Uncertainty as Low as 2.6%
- Reading Rates up to 2000 Readings/sr



Control the power meter and perform measurements using intuitive Windows® based software.

PSM3000, 4000 and 5000 Series

The PSM3000, PSM4000, and PSM5000 Series are compact power sensors/meters that deliver fast, accurate RF and microwave power measurements. A broad range of CW and pulse modulation measurements are available, depending on the series you choose.



In addition to the USB power & Connectivity port the meters include TTL trigger inputs and outputs for synchronization.

Models	Description	Frequency Range	Dynamic Range	Connector Style	Pricing (USD)
PSM3110	True RMS Average	10 MHz - 8 GHz	-55 to +20 dBm	3.5mm male	\$2,630
PSM3120	True RMS Average	10 MHz - 8 GHz	-55 to +20 dBm	N-Male	\$2,630
PSM3310	True RMS Average	10 MHz - 18 GHz	-55 to +20 dBm	3.5mm male	\$3,500
PSM3320	True RMS Average	10 MHz - 18 GHz	-55 to +20 dBm	N-Male	\$3,500
PSM3510	True RMS Average	10 MHz - 26.5 GHz	-55 to +20 dBm	3.5mm male	\$4,460
PSM4110	Power Meter (Avg / Peak / Pulse)	10 MHz - 8 GHz	-60 to +20 dBm	3.5mm male	\$2,830
PSM4120	Power Meter (Avg / Peak / Pulse)	10 MHz - 8 GHz	-60 to +20 dBm	N-Male	\$2,830
PSM4320	Power Meter (Avg / Peak / Pulse)	50 MHz - 18.6 GHz	-40 to +20 dBm	N-Male	\$5,370
PSM4410	Power Meter (Avg / Peak / Pulse)	50 MHz - 20 GHz	-40 to +20 dBm	3.5mm male	\$5,370
PSM5110	Power Meter (Avg / Peak / Pulse + Profiling)	100 MHz - 8 GHz	-60 to +20 dBm	3.5mm male	\$3,750
PSM5120	Power Meter (Avg / Peak / Pulse + Profiling)	100 MHz - 8 GHz	-60 to +20 dBm	N-Male	\$3,750
PSM5320	Power Meter (Avg / Peak / Pulse + Profiling)	50 MHz - 18.6 GHz	-40 to +20 dBm	N-Male	\$6,380
PSM5410	Power Meter (Avg / Peak / Pulse + Profiling)	50 MHz - 20 GHz	-40 to +20 dBm	3.5mm male	\$6,380

Recommended Accessories

174-6150-xx	USB Cable, 2 m, 20 AWG	\$45
174-6164-xx	SMB Female to BNC Male, 1 m Trigger Cable	\$69
348-2013-xx	Replacement Rubber Boot	\$22

Recommended Service

SILV200	5-year Extended Warranty (PSM3110, PSM3120)	\$260
SILV400	5-year Extended Warranty (PSM3310, PSM3320)	\$415
SILV600	5-year Extended Warranty (PSM3510)	\$620

Ships with Product

- 2-meter USB Cable
- Calibration Certificate, USB flash drive with User and Safety Manual, Technical Reference Manual and the Programmer Manual
- 3-year Warranty






The Tektronix Service Advantage

Tektronix offers unequalled expertise, global reach and a customer-centric approach with every service option. From our full suite of service plans for Tektronix equipment to our Multi-Vendor Service (MVS) calibration, we can ensure optimal performance for your entire inventory of test and measurement instruments.

Tektronix Service Highlights

- **Tektronix Factory Experts**
Access to the engineering expertise that designed and built your products to ensure they are in peak performance. Our support engineers hold an average of 20 years of training and experience.
- **Comprehensive and Thorough Treatment**
Software updates, safety and reliability modifications, and cosmetic enhancements are included if applicable. Products are returned to you in “like-new” condition. The Tektronix network of service centers offers worldwide support.
- **Efficiency and Convenience**
Our team of professionals focus on getting your instruments back to you as soon as possible, minimizing your downtime and increasing your operating efficiency.
- **Flexible Repair and Calibration Service**
Tektronix offers you the choice of a cost effective, flexible service package to meet your specific business needs.

Tektronix Factory-Certified Service Plans

Silver Care 	Silver Care Packages 	Gold Care 
<ul style="list-style-type: none"> ▪ Choose between a 3 or 5 year extended warranty plan ▪ No purchase orders, quotes, or approval delays – one phone call away starts the repair process ▪ Covers equipment, parts, labor and transportation ▪ Includes applicable software, safety and reliability updates ▪ Faster repair time than without coverage (average is 5 days faster) 	<ul style="list-style-type: none"> ▪ All the benefits of our popular Silver Care Plan in a convenient take-home package. ▪ Each package includes a unique activation code to effortlessly initiate and manage your service coverage online. ▪ May be purchased any time during the original warranty period 	<ul style="list-style-type: none"> ▪ Choose between a 3 or 5 year extended warranty plan ▪ Loaner product of equal or higher performance shipped within 24 hours ▪ Priority access to Global Tektronix Customer Call Center for technical support ▪ 30% discount on scheduled Factory-certified calibration ▪ Coverage of user-caused EOS and ESD damage ▪ Typical downtime of 48 hours or less
Platinum Care 	Calibration 	
<ul style="list-style-type: none"> ▪ Custom-tailored plan with a typical downtime of less than 1 hour. ▪ Identically configured spare products dedicated to your facility ▪ On-site calibration event and repair coverage ▪ Priority access to technical support, and flexible contract duration and payment terms, 	<ul style="list-style-type: none"> ▪ Choose from multi-year contracts and single event calibrations ▪ Accredited and traceable calibration ▪ Adjustments included to restore performance ▪ Applicable software, safety, and reliability updates ▪ Calibration records retention 	



Multi-Vendor Service

Comprehensive Calibration and Repair for All Your Test, Measurement and Control Equipment

- Service for more than 140,000 instruments from over 9,000 manufacturers
- Broadest scope of accreditation; manage 100% of repairs and calibration
- 100+ global points of service
- 1 million calibrations annually

Performance

Calibration is the cornerstone of measurement confidence. Now Tektronix can manage 100% of your calibration and repairs, irrespective of product brand or origin. Our multi-vendor service tools simplify your calibration management program, minimizing downtime and improving operational efficiency.

Optimize Asset Availability & Utilization

Tektronix provides industry-leading calibration and repair turnaround time on more than 140,000 products from over 9,000 manufacturers. The CalWeb® Asset Management System allows you to actively manage any downtime required for regular equipment maintenance and provides you with online, enterprise-wide instrument visibility.

Global Reach with Local Presence

Tektronix has the most extensive global network of resources. With more than 100 points of service and 1,000 highly trained experts, our unmatched suite of capabilities and services are available locally to most of the world's research and manufacturing centers.

Quality & Accuracy

Our comprehensive quality system is unmatched. Choose from multiple NIST traceable certificate options, including ANSI Z540.1, ISO/IEC 17025 and ISO 9001:2008. Our customers have direct access to the quality they expect from Tektronix' 65 years as an industry leader in test, measurement and monitoring solutions.

Industry Leader

Tektronix is the industry leading provider of calibration services for the life science, aerospace, and defense industries. With consistent high quality and comprehensive service, customers have turned to Tektronix, making us their first choice for outsourced calibration needs.

For more information on Tektronix multi-vendor service, visit service-solutions.tektronix.com

Or call us at 1-800-438-8165

Contact Tektronix:

- ASEAN / Australia** (65) 6356 3900
- Austria*** 00800 2255 4835
- Balkans, Israel, South Africa and other ISE Countries** +41 52 675 3777
- Belgium*** 00800 2255 4835
- Brazil** +55 (11) 3759 7627
- Canada** 1 (800) 833-9200
- Central East Europe and the Baltics** +41 52 675 3777
- Central Europe & Greece** +41 52 675 3777
- Denmark** +45 80 88 1401
- Finland** +41 52 675 3777
- France*** 00800 2255 4835
- Germany*** 00800 2255 4835
- Hong Kong** 400-820-5835
- Ireland*** 00800 2255 4835
- India** +91-80-30792600
- Italy*** 00800 2255 4835
- Japan** 0120-441-046
- Luxembourg** +41 52 675 3777
- Macau** 400-820-5835
- Mongolia** 400-820-5835
- Mexico, Central/South America & Caribbean** 52 (55) 56 04 50 90
- Middle East, Asia and North Africa** +41 52 675 3777
- The Netherlands*** 00800 2255 4835
- Norway** 800 16098
- People's Republic of China** 400-820-5835
- Poland** +41 52 675 3777
- Portugal** 80 08 12370
- Puerto Rico** 1 (800) 833-9200
- Republic of Korea** +822-6917-5000
- Russia** +7 (495) 7484900
- Singapore** +65 6356-3900
- South Africa** +27 11 206 8360
- Spain*** 00800 2255 4835
- Sweden*** 00800 2255 4835
- Switzerland*** 00800 2255 4835
- Taiwan** 886-2-2656-6688
- United Kingdom*** 00800 2255 4835
- USA** 1 (800) 833-9200

* If the European phone number above is not accessible,
please call **+41 52 675 3777**

Contact List Updated March 2013

For Further Information

Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



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03/13 EA/FCA

48A-25025-11 Standard

