



# Highlights

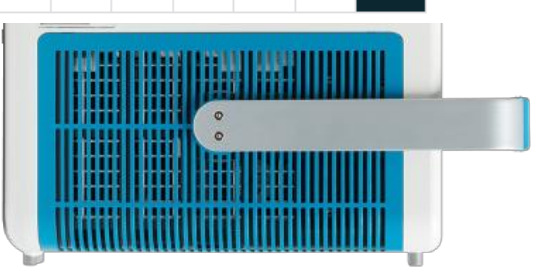
## Auszüge der Produktübersicht

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13 MARCH 2019

Bei Fragen wenden Sie sich an  
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# 12 Bit Oscilloscopes 5 & 6 Series MSO



	5 SERIES MSO	6 SERIES MSO
Bandwidth	350 MHz, 500 MHz, 1 GHz, 2 GHz	1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8 GHz
Analog Channels	4, 6 or 8	4
Digital Channels	Up to 64 <sup>1</sup>	Up to 32 <sup>1</sup>
Sample Rate (All Channels)	6.25 GS/s	25 GS/s
Display	15.6 inch HD (1920x1080) w/ Capacitive Touch	15.6 inch HD (1920x1080) w/ Capacitive Touch
Record Length	62.5 Mpoints 125 Mpoints <sup>1</sup>	62.5 Mpoints 125 Mpoints <sup>1</sup> 250 Mpoints <sup>1</sup>
Integrated Instruments	Oscilloscope; Logic Analyzer <sup>1</sup> ; Protocol Analyzer <sup>1</sup> ; Arbitrary/Function Generator <sup>1</sup> ; Digital Voltmeter <sup>2</sup> ; Frequency Counter <sup>2</sup>	
Optional Advanced Analysis <sup>1</sup>	Advanced Jitter and Eye Analysis; Aerospace (MIL-STD-1553, ARINC-429); Audio (FS, L1, RJ, TDM); Automotive (CAN, CAN FD, LIN, FlexRay); Automotive Ethernet Compliance; Automotive Sensors (SENT), Computer (RS-232/422/485/UART), Embedded (I <sup>2</sup> C, SPI); Ethernet (10BASE-T, 100BASE-TX); Power Analysis; Power Management (SPMI); USB2.0 (LS, FS, HS); USB2.0 Compliance	
Base Price Range	\$13,000 to \$41,800	\$23,500 - \$75,000
	TEK.COM/5SERIESMSO	TEK.COM/6SERIESMSO

<sup>1</sup> Optional and Upgradable.

<sup>2</sup> Free with product registration.



# 5 Series MSO Low Profile MSO58LP

## MORE SYSTEM VISIBILITY IN LESS RACK SPACE

5 Series MSO Low Profile	MSO58LP / MSO58LPGSA *
Bandwidth	1 GHz
Maximum Analog Channels / Digital Channels	8 Analog / 64 (opt. in blocks of 8)
Sample Rate (all Analog or Digital chs.)	6.25 GS/s
Standard Record Length (all A&D chs.)	125 Mpts
Waveform Capture Rate	> 500,000 wfms/s
ADC Resolution	12 bits
Effective Number of Bits (ENOB)	7.6 bits @ 1 GHz with High Res
Aux Trig Input	±5 Vrms, 50Ω SMA
Arbitrary/Function Generator	Up to 50 MHz (opt.)
DVM & Trigger Freq. Counter	Free w/ product registration
Operating System	Closed Linux
Standard Probes	None
Dimensions (Height)	3.44 inches, 87.3 mm (2U Rack)
Master Price	<\$5,000 per channel; \$39,900



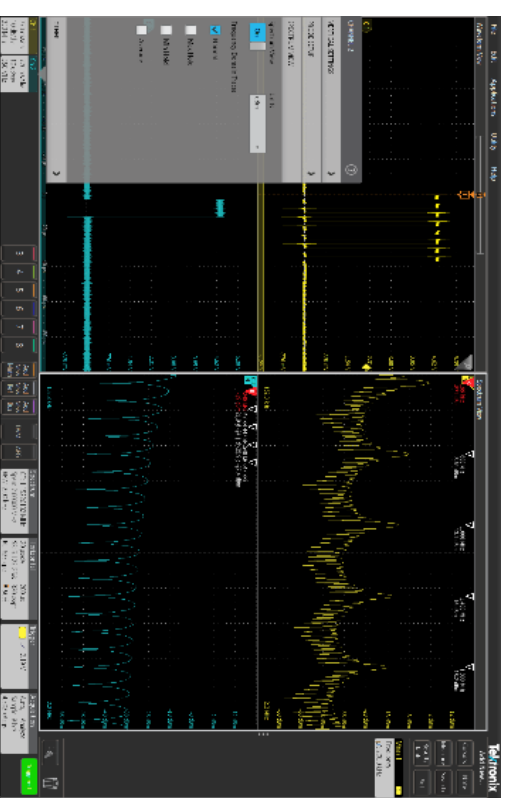
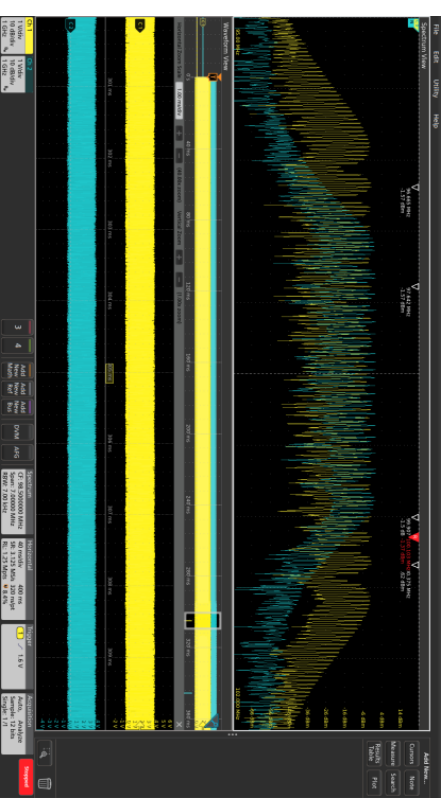
- Best combination of
- channel density
  - Performance
  - cost per channel
- providing deeper insights in less space

*\* MSO58LPGSA is a Trade Act Administration compliant version and carries an "Assembled in the USA" status*

# 5 & 6 Series: Spectrum View Summary

## THE ULTIMATE IN FREQUENCY DOMAIN ANALYSIS ON A SCOPE

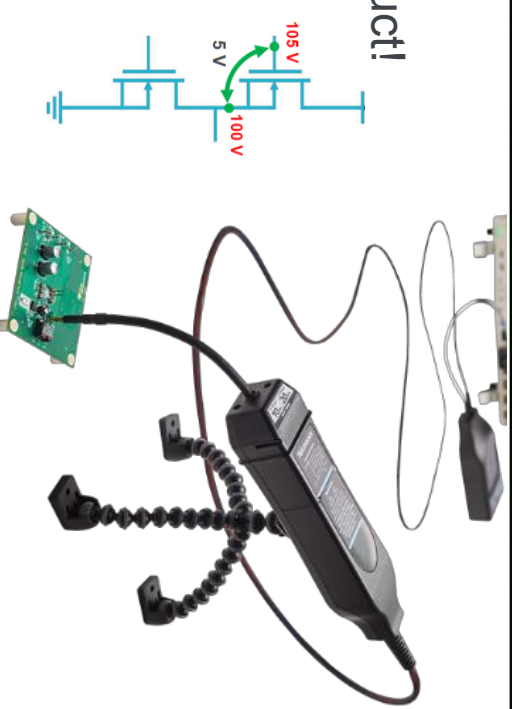
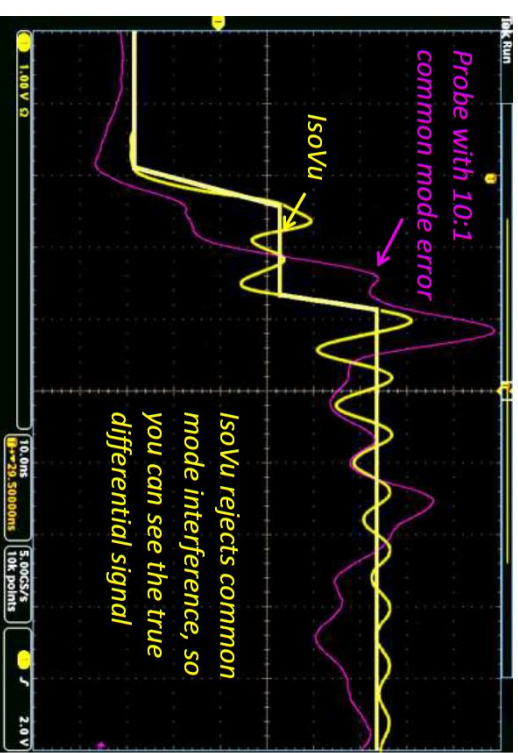
- Independent controls in each domain
  - Far easier frequency domain view setup than FFT
  - Enables to achieve desired view in each domain
  - Observe how frequency domain view changes over time
    - Correlate frequency domain events with time domain signals/events of interest
  - Standard feature on 5/6 Series scopes
- = Key functionality from MDO4000 Series



# IsoVu™ Probe

## SEE SIGNAL DETAIL THAT WAS PREVIOUSLY HIDDEN

- The only probing solution enabling accurate and **repeatable** results on modern power designs
- Up to **1 GHz** bandwidth
- World's best Common Mode Rejection
  - Up to **160 dB** (100 Million to 1)
  - **> 120 dB** or 1 Million to 1 **at 100 MHz**
    - More than 10,000 times better than any other product!
- **2500 V differential** voltage range
- **60 kV** common Mode voltage range
- Up to **40 MΩ** input resistance
- The benefits of a **power design can only be realized when switching circuit, gate drive circuit, and layout, are all properly designed and optimized**, inclusive the high side circuitry.





# Rogowski Current Probes

FOR USE ON SMALL FORM FACTOR COMPONENTS

- TRCP0xxx series
  - From 1 Hz to 30MHz
  - From 250mA up to 3000A peak
  - AC only
- Applications
  - Motor drives
  - Inverters
  - Power supplies
  - Industrial



# Mixed Domain Oscilloscopes, MDO-Series

TIME CORRELATED SPECTRUM ANALYZER, OSCILLOSCOPE AND LOGIC ANALYZER ENABLE NEW VALUABLE INSIGHTS IN YOUR DUT

- 6 instruments in 1 small, portable package
  - Up to **6 GHz hardware spectrum analyzer**
  - 50MHz arbitrary function generator
  - Up to **1GHz oscilloscope** bandwidth
  - 16ch logic analyzer
- Completely customizable and fully upgradeable
- **Advanced trigger** and analysis **capabilities**
- **Time correlated spectrum analyzer, logic analyzer and oscilloscope** for new insights into your DUT



1. Oscilloscope
2. Spectrum Analyzer
3. Arbitrary Function Generator
4. Logic Analyzer
5. Protocol Analyzer
6. DVM/Counter

6 Instruments, 1 Oscilloscope, Infinite Versatility



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# TBS2000 Series

## NEXT-GENERATION BASIC OSCILLOSCOPE

- **LONGEST** record length in its class, at 20M points
- **BIGGEST** 9 inch WVGA display with 15 horizontal divisions, for 50% more signal viewing
- Easily and confidently analyze signals with on-waveform cursor readouts and 32 automatic measurements
- **ONLY** basic oscilloscope with the TekVPI Probe Interface for better application coverage with a wide range of active and current probes
- Guaranteed reliability with a 5 year standard warranty
- Starting at \$1200



70 MHz or 100 MHz Bandwidth  
2 or 4 Channels

*See more. Measure more.  
Learn more.*





# 70GHz Real Time Oscilloscope

## DPO70000SX SERIES BANNER SPECIFICATIONS

- 23GHz to 70GHz Analog Bandwidth, 4.3ps rise time (20%-80%)
  - 200GS/s Sample Rate
  - <100fs jitter noise floor
  - $\geq 25$ GHz Edge trigger bandwidth
  - Compact 5 ¼" Oscilloscope package
- ✓ Low-noise ATI architecture
  - ✓ Best-in-class signal capture
  - ✓ Compact package with precise multi-unit sync



- 1 channel x 70GHz bandwidth
  - Single-ended, 100mV<sub>fsr</sub> to 300mV<sub>fsr</sub>
  - 200GS/s sample rate
  - Up to 1 Gsamples record length
- 2 channels x 33GHz bandwidth
  - Single-ended, 62.5mV<sub>fsr</sub> to 6V<sub>fsr</sub>
  - 100GS/s sample rate per channel
  - Up to 1 Gsamples record per channel



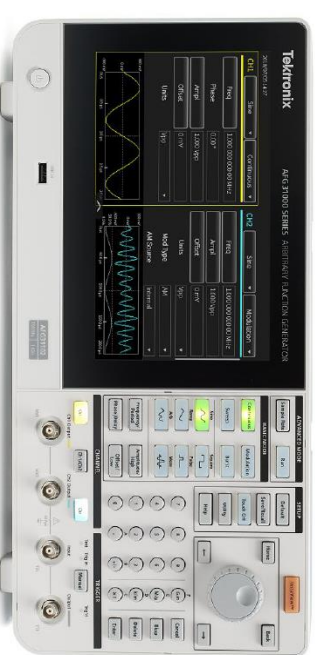
# AFG31000 Series

## SMART FUNCTION GENERATORS

- **Easy to use**
  - 9" Capacitive Touch Display with smart UI
  - Pinch, Zoom, and Scroll just like a Smart Device
  - Built-in Waveform Creation Capabilities
  - Integrated Waveform Sequencer
  - Multi-unit sync
- **Unique**
  - Realtime Waveform Monitoring at DUT (InstaView™)

- **Key features**

- 25MHz, 50MHz, 100MHz, 150MHz, 250MHz
- 14 Bit, 10Vpp, Sequencing mode
- 128Mpts waveform length,



# Tektronix AWG5200 Arbitrary Waveform Generator

## 8 CHANNELS -- FLEXIBILITY

- **Cleanest Signal**
  - Industry's best combination of sample rate and vertical resolution
    - 16 bits of resolution
    - 10 GS/s
  - Extremely low noise floor
  - Build reliable setups with pre-calibration and pre-compensation software
- **Massively Scalable**
  - Best in class! - Up to 8 independent Channels/unit at a low cost/channel
  - Multi-unit synchronization
- **Simplifying the Rack and Setup**
  - Direct generation of RF signals up to 8 GHz eliminates the need for more equipment
  - Matlab compatibility
  - Code compatible with previous Tektronix AWG products
- **Excellent Price / Performance**
  - Starting at a base of \$11,000 per channel
  - Digital interpolation, complex modulation and (NCO) improve waveform creation efficiency and extends play times



- 10 Gsamples/s sample rate
- 16 bit vertical resolution
- 2 GHz (-3 db) bandwidth, usable to 8 GHz
- 2 GSamples/channel memory
- -70 dBc SFDR (in-band, 10 GS/s, DC-1.25 GHz)
- 1.5 Vp-p Diff @ 2 GHz
- -85 to +10 dBm @ 10 MHz to 2 GHz

# AWG70000B Series Arbitrary Waveform Generator

## HIGHEST PERFORMANCE FOR ADVANCED SIGNAL GENERATION

- Variable Sample Rates up to **1.5kS/s - 50GS/s**
- Industry-best **32 GSample** Waveform memory **NEW!**
- **Streaming** Waveform ID Capability **NEW!**
- **Windows 10 O/S** **NEW!**
- **Sequencing** Capability
- **10 bit** Resolution
- 80dBc Spurious Free Dynamic Range



“The sampling rate of 50 GS/s combined with the ability to synchronize two AWGs enabled us to generate 30-GBaud signals per optical carrier, with a data rate of 233 Gb/s, more than twice the previous record. The performance and signal purity of the AWG70000 more than met our requirements for this demanding experiment.”

-- S. Chandrasekhar, Bell Labs

# Tektronix USB Real-Time Spectrum Analyzer

## ONE UNIVERSAL SOFTWARE WITH ENHANCED ANALYSIS



### **RSA600A series**

- 9 KHz - 3 or 7.5 GHz, 40 MHz acquisition bandwidth
- Optional tracking generator, Built-in GNSS receiver, AC line powered



### **RSA500A series**

- 9 KHz – 18 GHz, 40 MHz acquisition bandwidth
- Field ruggedized, Optional tracking generator, Built-in GNSS/GPS/GLONASS receiver
- 70 GHz/sec sweep speed (RBW=1MHz), Battery operated or AC line powered



### **RSA306B**

- 9 KHz - 6.2 GHz, 40 MHz acquisition bandwidth
- Field ruggedized, USB3.0 powered



# Low Level Instruments

## MOST PRECISE MEASUREMENT EQUIPMENT

### Keithley Electrometers

- High Resistance
- Low DC Current
- DC Voltage
- Charge



6514



6517B  
+ V Source



6430  
Most Sensitive

### Keithley

### Picoammeters

- Low DC Current



6485  
1 channel



6487  
+ V source



6482  
2 channel

### Keithley Nanovoltmeter

### And Current Sources

- Low DC Voltage
  - Low Resistance
- (w/ 622xSource)



2182A  
nV



6220, 6221



Current Sources

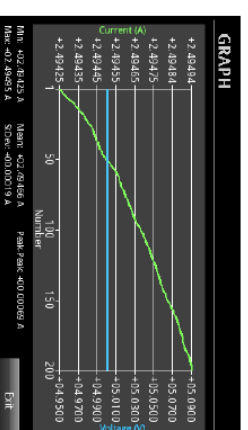
Atto – Femto – Pico – Nano – Micro – Milli 1 Kilo – Mega – Giga – Tera – Peta

10<sup>-18</sup> 10<sup>-15</sup> 10<sup>-12</sup> 10<sup>-9</sup> 10<sup>-6</sup> 10<sup>-3</sup> 10<sup>0</sup> 10<sup>3</sup> 10<sup>6</sup> 10<sup>9</sup> 10<sup>12</sup> 10<sup>15</sup>

# Power Supplies & Electronic Loads

## FROM PRECISION, VIA HIGH-POWER TO MULTI-CHANNEL SUPPLIES

- Power Supply Overview
  - 15W to 1080 W, 1.2A to 108A, 5V to 800V
  - 1ch to 3ch units
  - USB, GPIB, LAN, RS-232 interfaces
  - Programmable
- Electronic loads up to 750W
  - Constant Current (CC), Constant Voltage (CV), Constant Resistance (CR), and Constant Power (CP) operating functions
  - LED simulated load test function
  - Battery test function
  - Dynamic mode with cycle rate up to 25 KHz



# TouchScreen Multimeters and DAQs

KEITHLEY, A TEKTRONIX COMPANY

## Multimeters DMM7500/6500

- 6½ / 7 ½ digits
- 16-bit / **18-bit**, 1 MS/s digitizer
- 10-channel **scan option**
- **touchscreen display with pinch and zoom**
- High current sensitivity to 1pA resolution
- **High resistance sensitivity**
- **Built-in programming** and control



## Data Acquisition Systems DAQ6510

- 6½ digits
- **80-channel, 2-pole capacity** for thermocouple, RTD, or thermistor temperature
- **16-bit, 1 MS/s digitizer**
- 12 different switch, RF, and control modules
- Scanning speeds **800 channels/second**
- Front panel jacks for **stand-alone DMM** operation





# SourceMeter®: Source & Measure in 1 Unit

TOUCH TEST INVENT® CLASS OF KEITHLEY'S NEXT GENERATION INSTRUMENTS

- **Source Measure Units (SMUs)**

- Source I or V, Measure I or V, Easy Voltage sweeps

- **Tight Source/Measure integration**

- And... it's an DMM, PS, and more....

- **Integrated capabilities of I-V systems, curve trace**

- **and analyzers at a fraction of their cost**



- **2650 Serie SMUs für Hochleistung**

- Quelle bis zu 50 A Puls, 3000 V, 2000 W
- Messungen bis zu 1 fA, 1 pV
- Kombination für eine 100A-Stromquelle
- 1 µs, 18-bit Abtastrate



- **Serie 2400 SMU: Neue Touchscreen Benutzeroberfläche**

- Quelle bis zu 10 pA Puls, 200 V, 1000 W
- Messungen bis zu 10 fA, 100 nV
- Niedrigpreis-Option (ohne Touchscreen)



- **Serie 2600B SMU: Ideal für die Produktion**

- High Speed Embedded Programming
- Ein- oder Zweikanal-Option
- Quelle bis zu 10 pA Puls, 200 V, 200 W
- Messungen bis zu 0,1 fA, 100 nV



- **Modell 2520 SMU für Laserdioden-Tests**

- **Laserdioden-Tests**

- Integriertes gepulstes LV-System
- Zweikanaliges Laserdioden-Mounting
- Optionale Fotometer-Integrationskugel



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# SourceMeter®: New High Current SMU 2460

TOUCH TEST INVENT® CLASS OF KEITHLEY'S NEXT GENERATION INSTRUMENTS

- **First Touchscreen SMU 2460 with**
  - **7A DC, 7A Pulse, 100 Watt Source/Sink**
  - Icon menu
  - **built-in graphing** to help learn faster and get results faster
- High Current DC Version of the highly successful Model **2450 SourceMeter**



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# System Switch/Multimeter and Plug-In Cards

KEITHLEY, A TEKTRONIX COMPANY

- **Six-slot system switch** mainframe 3706A with optional **high performance multimeter**
- optimized for high throughput scanning
- Remote PC control via Ethernet, USB, and GPIB
- Up to **576 two-wire** or 720 one-wire multiplexer **channels**
- Up to **2,688 one-pole matrix crosspoints**
- Embedded Test Script Processor
- Capable of over **14,000 readings per second**
- **LXI** interface with embedded Web browser interface



# Services



# Total Product Protection

## YOU BREAK IT. WE FIX IT. SIMPLE

- **FIRST** repair plan in the industry to cover **accidental damage**
- Protection from wear and tear
- Coverage for electrostatic discharge and electrical overstress
- Factory-certified calibration and cleaning with each repair event



- 3 or 5-year plan options
- 5-day turnaround time



# Gold Care Service Plan

## MAXIMIZE YOUR UPTIME WITH GOLD CARE.

- Extends warranty period to 3 or 5 years
- Reduced downtime with the availability of a **loaner unit** during repair period
- Coverage for electrostatic discharge and electrical overstress
- Discounts on scheduled and on-demand calibration



- 3 or 5-year plan options
- Loaner unit of equal or higher performance than instrument being repaired
- Includes email notifications of calibration due dates



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# Telxtronix

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# Thank you!

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