Tektronix

Latest Portfolio Highlights

22 JULY 2019

Company Background

Tektronix ®

- Tektronix is a leading T&M company serving engineering and technical professionals

- Founded in 1946, acquired by Danaher in 2007, 2016 a Fortive company

- Headquartered in Beaverton, Oregon

- Leadership positions in key products and markets

- Highly-respected brand based on high quality innovative products, engineering excellence and global service and support

- Award winning:
    - Oscilloscopes
    - Signal Sources
    - Logic Analyzers
    - Spectrum Analyzers
    - Video Test

KEITHLEY
A Tektronix Company

- Keithley is a leader in precision electrical test

- Founded in 1946, acquired by Tektronix in 2010

- Headquartered in Solon, OH

- Offering instruments and systems to meet any measurement requirement from nanovolts to gigahertz

- 21 R&D 100 awards as well as honors from Semiconductor International, Solid State Technology, Electronic Products, Test & Measurement World magazines

Tektronix contact for GSI
NADJA LÄÄPERI – DIPL-ING. ELECTRICAL ENGINEERING

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The NEW Oscilloscope Standard
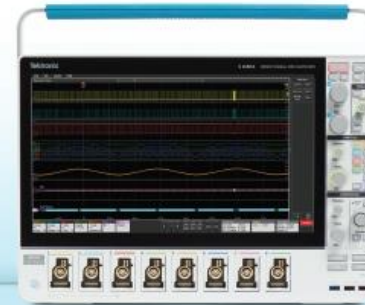
- Get more info: 3 series, 4 series, 5 series, 6 series

An Oscilloscope for Every Engineer

	3 SERIES MDO	4 SERIES MSO	5 SERIES MSO	6 SERIES MSO
Bandwidth	100 MHz, 200 MHz, 350 MHz, 500 MHz, 1 GHz	200 MHz, 350 MHz, 500 MHz, 1 GHz, 1.5 GHz	350 MHz, 500 MHz, 1 GHz, 2 GHz	1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8 GHz
Max channels, analog	4	6	8	4
Max channels, digital	16	48	64	32
Inputs	TekVPI inputs	FlexChannel inputs	FlexChannel inputs	FlexChannel inputs
Max sample rate	2.5 GS/s or 5 GS/s, all channels	6.25 GS/s, all channels	6.25 GS/s, all channels	25 GS/s, all channels
Record length	10 Mpoints	Up to 62.5 Mpoints	Up to 125 Mpoints	Up to 250 Mpoints
Vertical resolution	8 bits	12 bits	12 bits	12 bits
Advanced analysis (optional)	Serial bus Power	Serial bus Power	Serial bus Power Compliance Jitter	Serial bus Power Compliance Jitter DDR3
Spectrum analysis	Hardware Spectrum Analyzer (optional)	Spectrum View (optional)	Spectrum View (standard)	Spectrum View (standard)
Operating system	Embedded	Embedded	Embedded Windows (optional)	Embedded Windows (optional)

New – Tektronix 12 Bit Digitizer

HIGHEST PERFORMANCE ON ALL CHANNELS

- **5 Series and 6 Series Low Profile Digitizer**

Model	Bandwidth	Analog Channels	Digital Channels	Sample Rate	Record Length	Spectrum Analyzer
6 Series Low Profile Digitizer						
Highest Performance Digitizer. On ALL Channels! 4 channels with 25 GS/s, 12-bits, 8 GHz, and 250 Mpts in 2U	1 GHz - 8 GHz	4 (SMA)	-	25 GS/s	125 - 250 Mpts	Spectrum View
5 Series MSO Low Profile						
	1 GHz - 1 GHz	8	Up to 64 (optional)	6.25 GS/s	125 Mpoints	-

Best in class

ENOB @ 1GHz: 8.2 Bit

ENOB @ 1GHz: 7.6 Bit

4, 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**
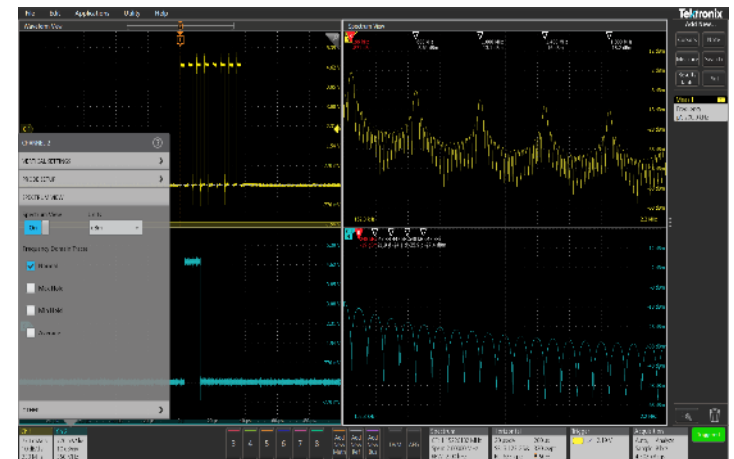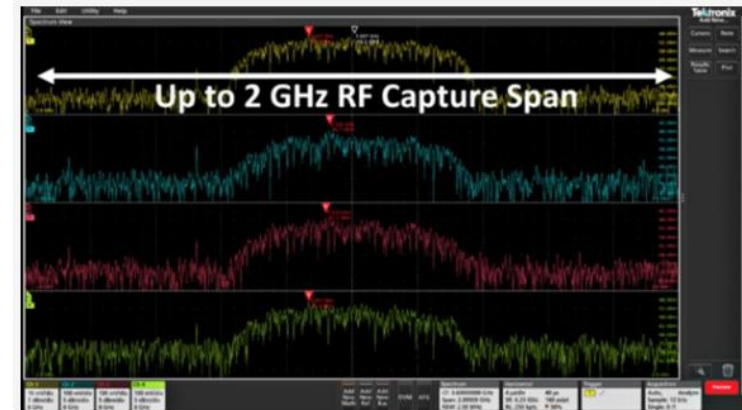
70GHz Real Time Oscilloscope Series

DPO70000SX SERIES BANNER SPECIFICATIONS

FROM 13GHZ UP TO 70GHZ

- 70GHz Analog Bandwidth, 4.3ps rise time (20%-80%)
- 200GS/s Sample Rate
- <100fs jitter noise floor
- ≥25GHz 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, $100mV_{fsr}$ to $300mV_{fsr}$
- ▪ 200GS/s sample rate
- ▪ Up to 1 Gsamples record length

- ▪ 2 channels x 33GHz bandwidth
- ▪ Single-ended, $62.5mV_{fsr}$ to $6V_{fsr}$
- ▪ 100GS/s sample rate per channel
- ▪ Up to 1 Gsamples record per channel

Probing and Accessoires Selection

WE ARE HAPPY TO ASSIST FINDING YOUR UNIQUE SELECTING

Isolated Probes

- High-resolution measurements in the presence of common mode signals or noise
- Up to 1 GHz bandwidth
- Complete galvanic isolation
- 1 Million to 1 (120 dB) of common mode rejection at 100 MHz

Power Rail Probes

- Bandwidth up to 4 GHz
- Offset range up to +/-60 V
- Lowest noise
- Flexible connectivity

High Voltage Differential Probes

- Dynamic range to ± 6000 V
- Bandwidth up to 200 MHz
- Most extensive set of probe accessories

Current Probes

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

Passive Probes

- Best-in-class bandwidth up to 1 GHz
- Best-in-class input capacitance as low as 3.9 pF, which minimizes probe loading effects
- Rugged and reliable
- High voltage versions with dynamic range up to 2500 V

Low Voltage Differential Probes

- Bandwidth up to 33 GHz

Low Voltage Single-ended Probes

- Bandwidth up to 4 GHz

Optical

- Broad Wavelength Response: 500 to 950 nm or 1100 to 1700 nm

Tektronix Arbitrary Waveform Generators

COMPLEX INSTRUMENTS THAT GENERATE ALMOST ANY TYPE OF SIGNAL

Top Performance – New AWG70000B Series

- 10 bit resolution, scalable sample rate 1.5kS/s - 50GS/s
- 1ch and 2ch models
- 500mV pp diff, 1ch up to 5V,
- Sequencing & Streaming
- 32GS waveform memory – *industry-best*

Multi-Channel– AWG5200 Series

- 16 bit resolution
- 4ch, 6ch and 8ch models
- 8Vp-p, >3.0GHz analog BW
- Compact form factor

"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

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
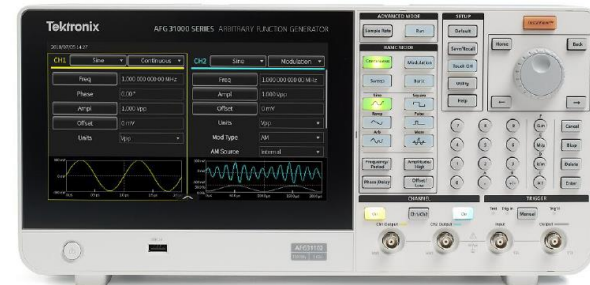
  - Multi-unit sync

- **Unique**

  - Realtime Waveform Monitoring at DUT (InstaView™)

- **Key features**

  - 25MHz, 50MHz, 100MHz, 150MHz, 250MHz

  - 14 Bit, 10Vpp, Sequencing mode

  - 128Mpts waveform length,

Tektronix Performance Real-Time Spectrum Analyzer RTSA
ONE UNIVERSAL SOFTWARE WITH ENHANCED ANALYSIS

Same Software everywhere

RSA5100B series

- 1 Hz - 26.5 GHz, **165 MHz** acquisition bandwidth
- >80dB SFDR, acquires up to 3,125,000 spectrums/s
- Rich feature set: World's most **advanced Real Time capabilities**
- **Advanced Triggering** to trigger on complex system interactions and brief transients
- Vector Signal Analyzer, Pulse Measurement Suite

RSA7100A series

- 16 kHz - 26.5 GHz, **800 MHz** acquisition bandwidth
- Simultaneous analysis and **streaming** of data to hard disc drive **at full 800MHz BW over hours**
- Advanced Trigger modes:
  - **Frequency Mask trigger**
  - **signal density trigger (unique)**

Tektronix USB Real-Time Spectrum Analyzer RTSA

ONE UNIVERSAL SOFTWARE WITH ENHANCED ANALYSIS

Same Software everywhere

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
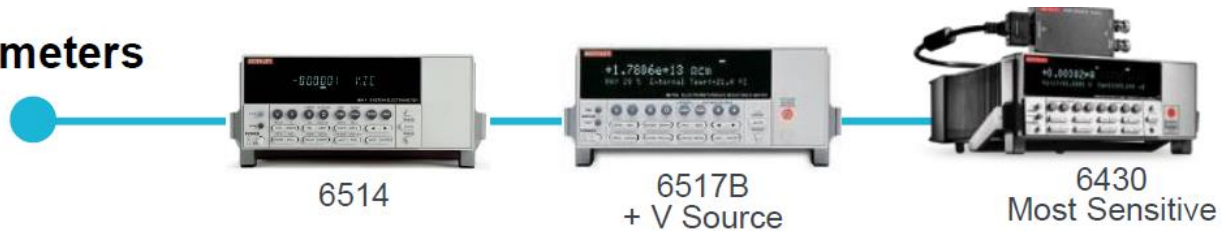- 70 GHz/sec sweep speed (RBW=1MHz),Battery operated or AC line powered

RSA306B

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

Low Level Instruments
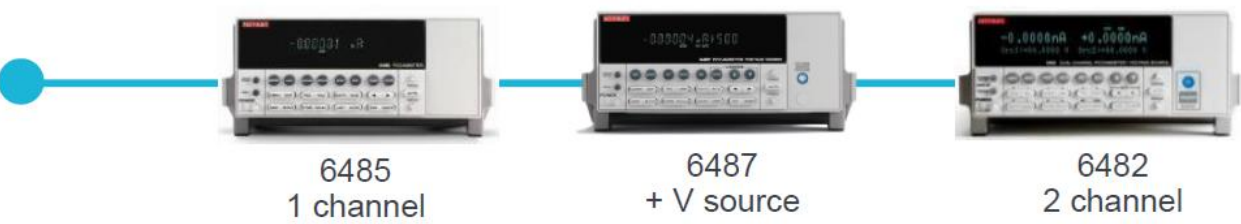
MOST PRECISE MEASUREMENT EQUIPMENT

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^{-18}		10^{-15}		10^{-12}		10^{-9}		10^{-6}		10^{-3}		10^{0}		10^{3}		10^{6}		10^{9}		10^{12}		10^{15}

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
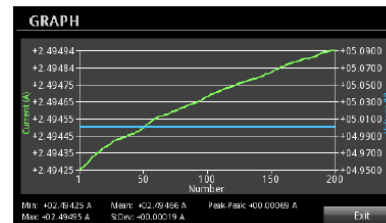
- Electronic loads up to 750W

  - 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 DMM75xx/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

- **Source Measure Units (SMUs)**

  ◦ **Source I or V, Measure I or V, Easy Voltage sweeps**

  ◦ **Tight Source/Measure integration**

  ◦ **And… it's an DMM, Power Supply, and more….**

  ◦ **Integrated capabilities of I-V systems, curve tracers, and analyzers at a fraction of their cost**

  ◦ **Up to 1.1kV**

2650 Serie SMUs für Hochleistung
- Quelle bis zu 50 A Puls, 3000 V, 2000 W
- Messungen bis zu 1 fA, 1 µV
- Kombination für eine 100A-Stromquelle
- 1 µs, 18-bit Abtastrate

Modell 2520 SMU für Laserdioden–Tests
- Integriertes gepulstes LIV-System
- Zweikanaliges Laserdioden-Mounting
- Optionale Fotometer-Integrationskugel

Serie 2400 SMU: Neue Touchscreen Benutzeroberfläche
- Quelle bis zu 10 pA Pulse, 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

System Switch/Multimeter and Plug-In Cards

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- **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

Tektronix On-Site or Tek-Lab Calibration

Prove we provide quality services to meet your needs.

- **Verified by unbiased accrediting bodies**
- **Validation of technical competencies**
- **Accredited and certified**
  - RvA, Dakks, UKAS, CNAS, SAMM, NABL, Accredited
  - ISO17025
  - ISO13485
  - ISO 9001

- **Automated calibration procedures & programs**
  - Reducing process time
  - Reducing costs
  - Reducing "human errors"
  - Consistent processes
  - Continuous growth of unit and procedures in database