



# Responding to Our Customers' Needs

---

21 MARCH 2017



# Fortive Overview



## Professional Instrumentation

Revenue \$3.0B  
GM% >50%  
OP Margin >20%

Field Solutions\*



QUALITROL

Product  
Realization\*

Tektronix®

Invetech



Sensing  
Technologies



setra



## Industrial Technologies

Revenue \$3.2B  
GM% ~40%  
OP Margin High teens

Transportation  
Technologies



TELETRAC NAVMAN



Automation &  
Specialty



THOMSON

Portescap



Franchise  
Distribution



AMMCO GOATS

All financial metrics based on 2015.  
\*Advanced Instrumentation & Solutions

Strong brands, leading market positions in attractive industrial verticals

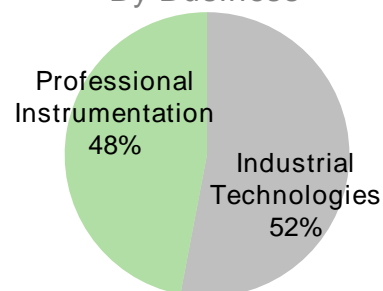
# Fortive Portfolio Overview



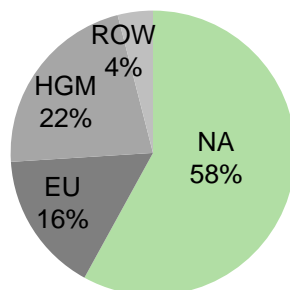
## 2015 Revenue

\$6.2B

By Business



By Geography<sup>1</sup>



## Gross Margin

High 40%s

## Operating Margin

High teens

~50 bps core OMX\*

## Free Cash Flow

FCF > NI\*

## Growth Drivers

- /// Changing environmental regulations
- /// Energy efficiency, safety and security requirements
- /// Growing industrial base in high growth markets
- /// Global trend toward connected devices, software and digital service

## Business Characteristics

- /// Anticipate core revenue growth GDP/GDP+
- /// Investment grade credit rating
- /// Strong capital allocation bias toward M&A
- /// Experienced leadership team and Board of Directors

<sup>1</sup> NA is North America (55% in the U.S.), EU is Europe, HGM is High Growth Markets, ROW is Rest of World.

All financial metrics based on 2015  
unless otherwise indicated.  
\* Anticipated annual performance.

Strong margin and FCF profiles. Secular growth drivers. M&A bias.

# About Tektronix



# Our Journey

## REFRESHED LOGO & NEW BRAND STRATEGY

PRODUCT-CENTRIC  
HARDWARE COMPANY



APPLICATION-FOCUSED  
TECHNOLOGY COMPANY

### VISION:

Every day we eliminate the barriers between inspiration and realization of world-changing technologies



Analog  
Digital Design  
and Debug



EM/EMC



High Speed  
Serial Communications



Materials  
Science



Optical  
Communications



Power and  
Energy Efficiency



RADAR and  
Electronic Warfare



Spectrum Management/  
Interference Hunting



Wireless and RF



Media Production  
and Delivery



21 MARCH 2017

# What You Can Expect

AS PART OF OUR JOURNEY, WE ARE INTEGRATING ESSENTIAL PRINCIPLES INTO EVERYTHING WE DO:

Our strategy involves creating a stronger customer experience and brand identity that reinforces an emphasis on collaboration, integration, insight, precision, simplicity and velocity.

- We'll make products, services, policies and solutions more simple (with respect to the great complexity of some technical challenges).
- We'll further our culture of customer engagement, working intimately as a partner to solve problems in better ways.
- You'll see further integration of devices, and innovation in test processes to solve problems in clever, helpful ways.
- We'll be distinguished by precision, both in the accuracy of instruments, and the tailoring of solutions, services and information.
- We'll further our expertise in applications and insights, demonstrating advanced ways to gather, synthesize and analyze data to make the right decision, faster.
- In a word: Velocity. We're going to advance faster, to help our customers stay ahead.



# Details on the New Logo

- Our refreshed logo pays homage to our heritage with the angle incorporated within the logotype as an upwards gesture of progress.
- The sans-serif type is given character by subtly clipping the 'T' letterforms, echoing the blue angle. Simple, definitive lines reflect our promise of performance.
- We have also developed a secondary monogram logo playing off the TK.
- Our brand blue, similar to the original Tektronix bug logo color, has been refreshed to a brighter more vibrant signal color and complements the Tek Blue product color our customers know and respect.



# Company Background



- Tektronix is a leading T&M company serving engineering and technical professionals
- Founded in 1946, acquired by Danaher in 2007
- 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

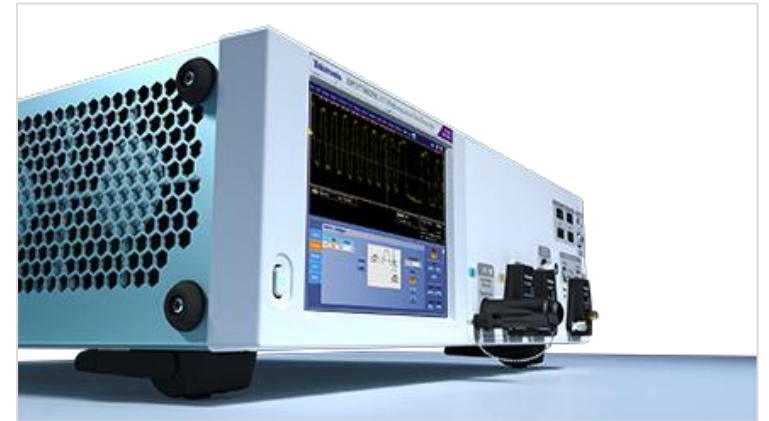


- Keithley is a leader in precision electrical test
- Founded in 1946, acquired by Tektronix in 2010
- Headquartered in Solon, OH
- Offering instruments and systems to meet any measurement requirement from nanovolts to gigahertz
- 21 R&D 100 awards as well as honors from Semiconductor International, Solid State Technology, Electronic Products, Test & Measurement World magazines



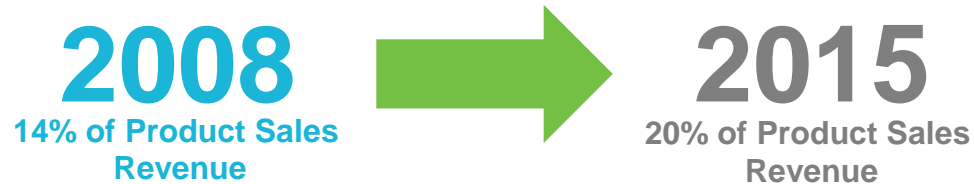
# Tektronix: 70-Years of Innovation

- 1946
  - Founded by Howard Vollum, Jack Murdock
  - Created “Vollumscope”
- 1940s – 50s
  - Enabled early TV and Radio development
  - First portable scope
- 1960s – 70s
  - Advances computer and space age and color TV
  - First digital T&M equipment
  - First computer graphics terminals
  - First Emmy received
  - Formed SONY/Tektronix (1965)
  - First 1GHz oscilloscope
- 1980s – 90s
  - Led market transition from analog to digital technologies
  - Digital oscilloscope transition
  - World’s first Windows-based test instruments
- Present
  - Transformational RF Test instruments
  - World’s first integrated oscilloscope and spectrum analyzer
  - World’s first 70GHz oscilloscope with patented Asynchronous Time Interleaving (ATI) technology



# Investing in Innovation & Growth to Support Our Customers

Continuing to grow our investment in R&D



Over  
**700**  
patents  
issued since 2000

Using Danaher Business Systems (DBS) tools

- Driving continual improvement in quality, cost, delivery, & innovation
- Customers talk, we listen.

**10**year  
technology  
roadmap

Broadening our product offerings

- Keithley
- Optametra
- BERTscopes
- Picosecond Pulse Labs

Long term  
co-innovation  
partnership  
with **IBM**

# 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
- Currently available exclusively on the MDO4000C

# Gold Care Service Plan

- 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

Maximize your uptime with Gold Care.

# Service and Repair Plans

TEKTRONIX OFFERS A NUMBER OF SERVICE PLANS DESIGNED TO PROTECT YOUR INVESTMENT AND KEEP YOUR BUSINESS MOVING

## Service Plan Summary

Extended Repair Plan (R3, R5)	Total Product Protection (T3, T5)	Gold Care (G3, G5)
<ul style="list-style-type: none"><li>• Extended Warranty</li><li>• 20% Discount on Scheduled Calibration</li><li>• Priority Bench Service</li></ul>	<ul style="list-style-type: none"><li>• Extended Warranty</li><li>• Accidental Damage</li><li>• Wear and Tear</li><li>• ESD and EOS</li><li>• Priority Bench Service</li></ul>	<ul style="list-style-type: none"><li>• Extended Warranty</li><li>• Loaner Unit</li><li>• ESD and EOS</li><li>• 30% Discount on Scheduled Calibration</li><li>• Priority Bench Service</li></ul>

# Global Repair and Calibration Services

Our calibration programs are designed to provide you with the confidence that your instruments are performing accurately. We offer several calibration options customized to meet your needs.



- Broad Range of Services
  - On demand calibration and repair services
  - Comprehensive Single Source Provider services
  - Asset management programs
- Extensive Capabilities and Experience
  - Ability to calibrate >140,000 items across 9,000 vendor
- Multiple delivery models
  - Permanent and temporary on-site
  - Regional depots
  - National centers of excellence
- Superior quality and broad based accreditation



**Enabled by  
Technology Innovation**

The background features a series of parallel diagonal stripes in various shades of blue and teal, running from the bottom-left towards the top-right. A prominent, lighter blue stripe is visible on the right side. In the lower-middle section, there is a rectangular area filled with a fine, light-blue halftone dot pattern, which is partially overlaid by the diagonal stripes.



# Digital Age Drivers Shaping Our Solutions



## Desire for Wireless Everywhere

- 50 Billion mobile devices connected to the internet by 2020
- Global market for wireless accessories:
  - \$34 billion in 2011
  - \$50.2 billion by 2015



## Continued Demand for Greater Bandwidth

- Global IP traffic to reach 1.3 zettabytes/year by 2016
- PCs % of consumer Internet traffic shrinking from 94% to 81% by 2016, replaced by mobile devices
- 1.5 billion Internet video users by 2016



## Increased Energy Efficiency

- "Green" power generation growing @25-35%
- LED & high-efficiency lighting is 5% of \$90B market
- 40% growth projected through 2017 for electric & hybrid vehicles



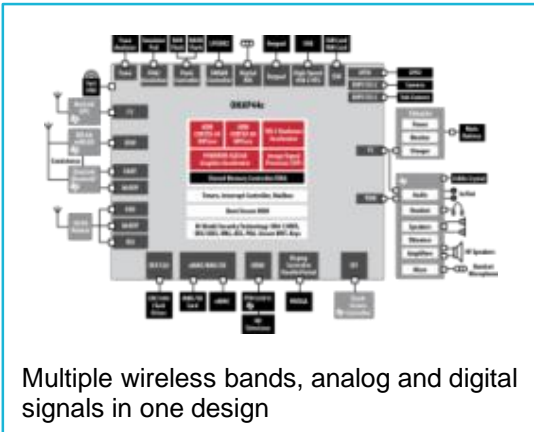
## Video Everywhere

- 1.5 billion Internet video users by 2016
- At the end of June 2013, there were 87.2m IPTV subscriptions across the globe.
  - In the 12 months since, the IPTV subscriber market grew by 24%, with 17m net additions



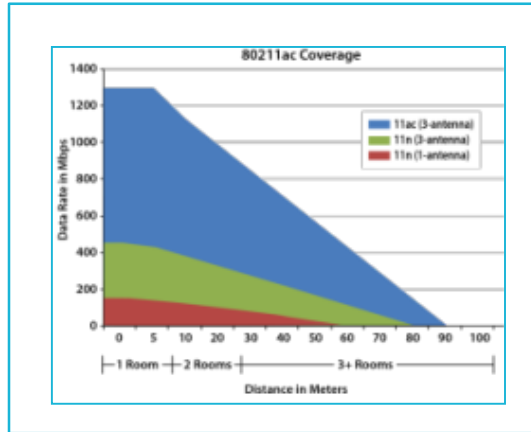
# Digital Age Trends & Challenges

## True mixed domain applications



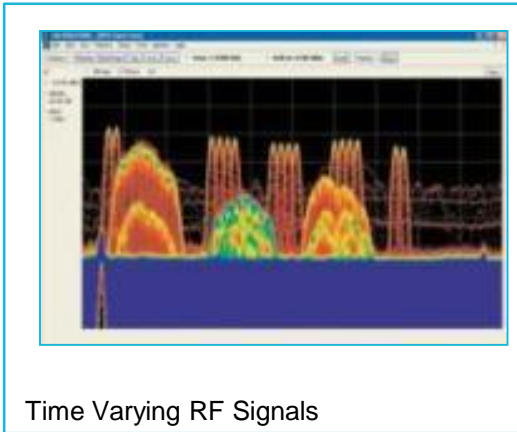
Simultaneously design debug and validate - analog, digital and RF.

## Higher bandwidths and increasing signal complexity



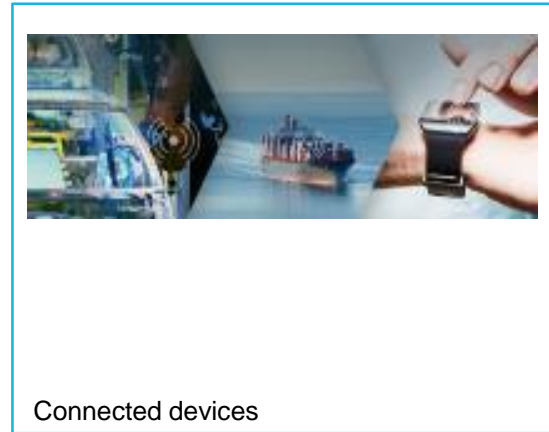
Systems with wider channel bandwidth, higher order modulation and support for multiple wireless streams (MIMO) create new design and test challenges.

## Proliferation of smarter wireless devices



Multiple wireless technologies and bands in a single device require more focus on interference, noise and emissions of time varying RF signals.

## The Internet of Things (IoT)

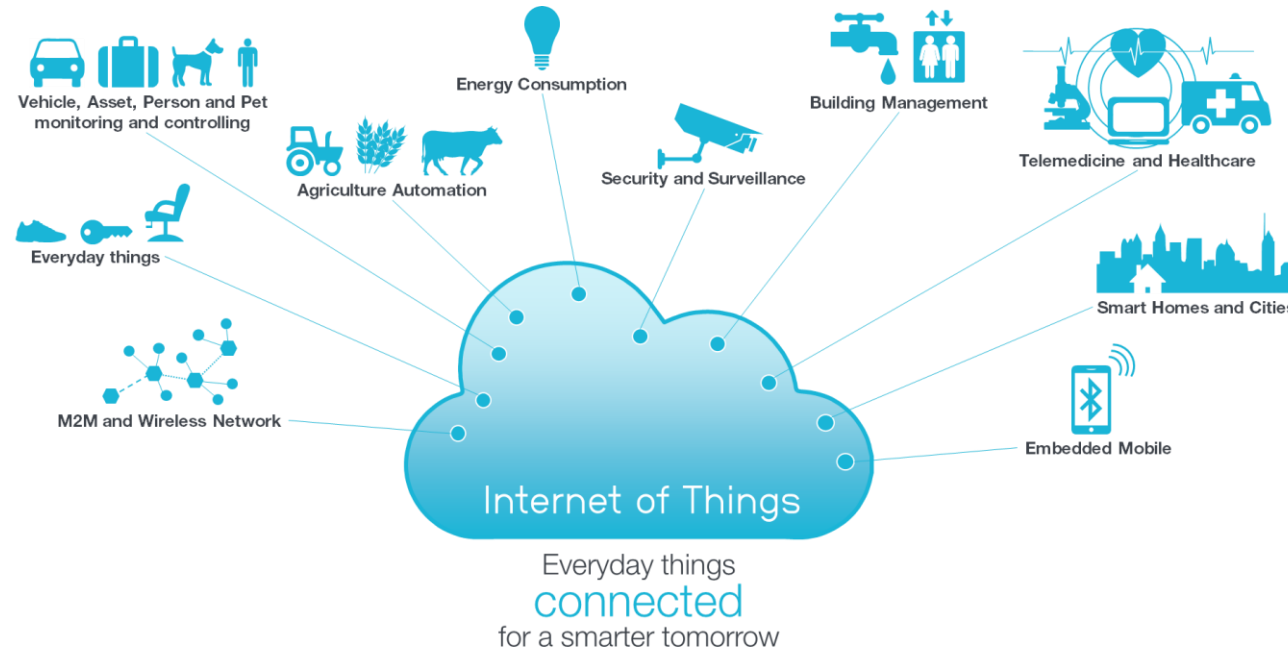


IoT promises to change the world by connecting devices in larger, more interoperable systems controlled by software and analytics. The proliferation of device, software, and analytics will drive significant changes in most industries, from shipping and transportation to construction and manufacturing.

# The Internet of Things

## NETWORKS OF NETWORKS OF CONNECTED DEVICES

Many uses  
across almost  
every industry

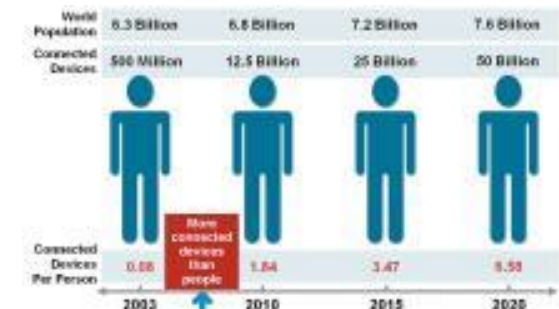


... and  
many more


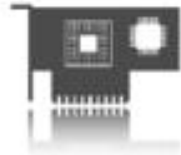


20+ wireless standards +  
proprietary protocols



Exponentially increasing devices and thousands of manufacturers



# You're Building the Internet of Things. Together, We Can Build it Better.

The Device Food Chain				
What are you building?	Chip 	Module 	Device 	System 
Key Challenges:	<ul style="list-style-type: none"><li>&gt; RF Design and Debug</li><li>&gt; EMI/EMC Pre Compliance</li></ul>	<ul style="list-style-type: none"><li>&gt; RF Design and Debug</li><li>&gt; EMI/EMC Pre Compliance</li><li>&gt; Speeding Through Wireless Standards</li></ul>	<ul style="list-style-type: none"><li>&gt; Selecting a Wireless Module</li><li>&gt; RF Design and Debug</li><li>&gt; EMI/EMC Pre Compliance</li><li>&gt; Maximizing Battery Life in IoT Devices</li><li>&gt; Speeding Through Wireless Standards</li></ul>	<ul style="list-style-type: none"><li>&gt; The Interference of Things</li></ul>

# Tektronix Solutions

DELIVERING TRANSFORMATIONAL RF PRODUCTS FOR ANALYSIS OF TIME-VARYING AND ULTRA-WIDE BANDWIDTH RF/UW SIGNALS -- CONFIDENCE TO CONFRONT THE MOST CHALLENGING DESIGNS

**Real-Time  
Spectrum Analyzer**



Discovery & capture of elusive problems with unique DPX™ Live RF spectrum display.

**Mixed Domain  
Oscilloscopes**



World's only oscilloscope with an integrated spectrum analyzer.  
Capture time-correlated analog, digital and RF signals for a complete system view of your device.

**Real Time Oscilloscopes**



Industry's most powerful oscilloscope for characterizing wideband and microwave spectral events.

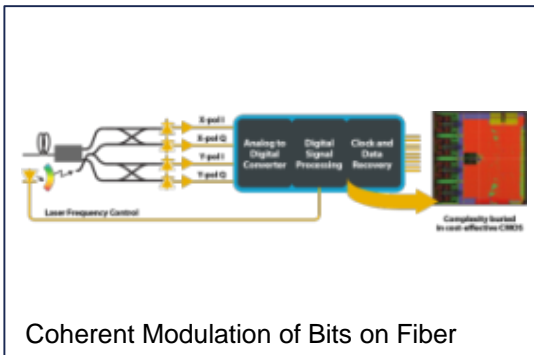
**Arbitrary Waveform  
Generator**



Industry's best signal stimulus solution to generate virtually any waveform used in today's wireless designs.

# Digital Age Trends & Challenges

## Efficient high speed data and video networks



New modulation techniques to increase fiber channel capacity.

Need to accurately capture and decode/debug high speed complex signals from the optical through the electrical domain.

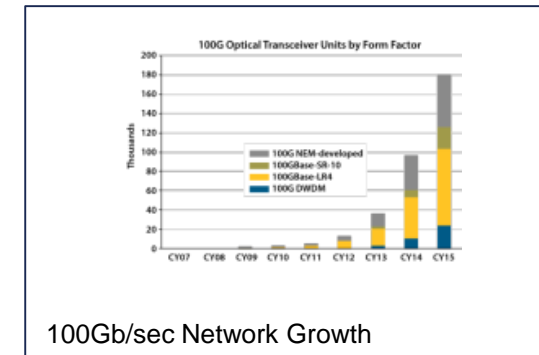
## Faster, more capable consumer devices



Dealing with evolving and rapidly proliferating standards on mobile, PC devices.

Need to comply with high speed serial standards, connectivity standards, and prepare for new standards that are still evolving.

## Speeding up network server access



Need to measure faster signals, measure signals with poorer SNR.

Undefined test practices require deeper understanding of test & measurement techniques.

# Tektronix Solutions

TEKTRONIX SIMPLIFIES SERIAL STANDARDS TESTING COMPLEXITY WITH MEASUREMENT EXPERTISE AND TOOLS THAT PROVIDE ACCURATE TEST RESULTS FOR HIGH-SPEED COMPUTER AND COMMUNICATIONS SYSTEM DESIGNS

## DSA8300 Series Oscilloscopes



Characterizes the electrical and optical signal performance of components, boards & systems.

## DPO70000SX ATI Performance Oscilloscopes



Performs pass/fail compliance test and debugging of high speed electrical components, boards & systems.

## OM4000 Lightwave Signal Analyzers



Analyzes optical modulation formats used in next generation long-haul networks.

## BERTScope Bit Error Rate Testers



Stress tests communication system receivers to ensure error-free operation in real-world environments.

## TLA Series Logic Analyzers



Provides the speed and flexibility you need to capture logic detail on today's fastest microprocessors and memory.

## AWG Arbitrary Waveform Generators

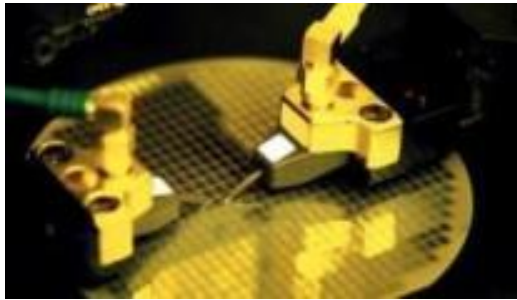


Aids research efforts by generating complex signal patterns that help evaluate communications system designs.



# Digital Age Trends & Challenges

## Higher power, lower leakage, and faster semiconductors



Cost-effective commercialization of next generation power semiconductors (e.g. GaN, SiC) requires deeper understanding of device physics, higher yields, and lower cost of test.

## Higher conversion efficiency and smarter control



Power conversion systems with higher signal ranges, frequencies, and resolutions are exceeding the capabilities of traditional test solutions.

## Increasing government regulations and environmental sustainability



Compliance and certification with new regulatory standards requires more focus on system-level efficiency, which drives need for more precise measurements.

# Tektronix Solutions

## MEASUREMENT SOLUTIONS FROM COMPONENT CHARACTERIZATION TO POWER SYSTEM VALIDATION

### Parametric Curve Tracers



Combines the capabilities of traditional Curve Tracers and Semiconductor Characterization Systems to boost productivity in R&D.

### High Power SourceMeters



Industry-best combination of power, speed, and low current performance enables higher yields and lower cost of test.

### Oscilloscopes and Power Apps



Scope-based solutions include complete test applications for power conversion measurement and characterization.

### Power Analyzers



Industry's first Spiral Shunt™ technology for uncompromised accurate measurements on the complex real-world waveforms of power supplies and inverters

### Probes for Power Measurement



Industry-leading HV differential probes and current probes. Intelligent communication between probe & scope for autozero, etc.



# Key Product News

# The Disruptive USB Spectrum Analyzer Family

- Expanding USB Spectrum Analyzer offering
  - RSA306B for General Purpose Applications
  - RSA500A Series for Field RF
  - RSA600A Series for Wireless Lab Applications
- **Unmatched** PC controlled spectrum analyzer
- **State of the art** specifications
- **Industry leading** price/performance



# RSA306B USB Spectrum Analyzer

- **UNMATCHED** Price/Performance at \$3890
- **UNMATCHED** form factor:
  - USB powered and controlled, highly portable
  - Ruggedized and meets Mil-Std 28800 Class 2 specifications
- **UNMATCHED** HW features in its class:
  - 6.2 GHz Signal Analyzer with 40 MHz Real-Time Bandwidth
- **UNMATCHED** SW features:
  - Benchtop features with a low cost analyzer
    - Runs with SignalVu-PC software
    - Optional capabilities, such as Wi-Fi, P25, and Audio Analysis
    - Long duration signal recording
- **BEST-IN-CLASS** 3 year warranty



# The Perfect Tool for Spectrum Management

## RSA500 DISRUPTING FIELD ANALYZER MARKET

- **Spectrum Management, Regulatory Monitoring**
  - See signal compliance at a glance using industry's best open signal database
- **Interference Hunting**
  - Quickly discover co-channel interference and transients with DPX, direction finding, GPS mapping
- **Installation and Maintenance**
  - Complete cable & antenna testing easily with DTF, VSWR
- **Field Ready**
  - Take the weight out of your hands – carry a tablet, keep the instrument in your bag



### ***RSA500 State of the Art Specifications***

- Broad frequency range: 9 kHz to 7.5 GHz spectrum analyzer
- Tracking Generator: VSWR and DTF
- Measurement range: +30 dBm to -161 dBm\*
- Wide analysis bandwidth: 40 MHz VSA and RTSA

# Cutting Edge RF Analysis for the Lab

## RSA600 DISRUPTING WIRELESS TEST IN LAB ENVIRONMENTS

- **R&D**

- Powerful debug tools like DPX and Domain correlation
- Address today & tomorrow's most popular wideband signals with 40 MHz bandwidth

- **Design Validation**

- Complete support for popular IoT wireless standards

- **Manufacturing Test**

- Measurement speed, performance in the lab and automated testing

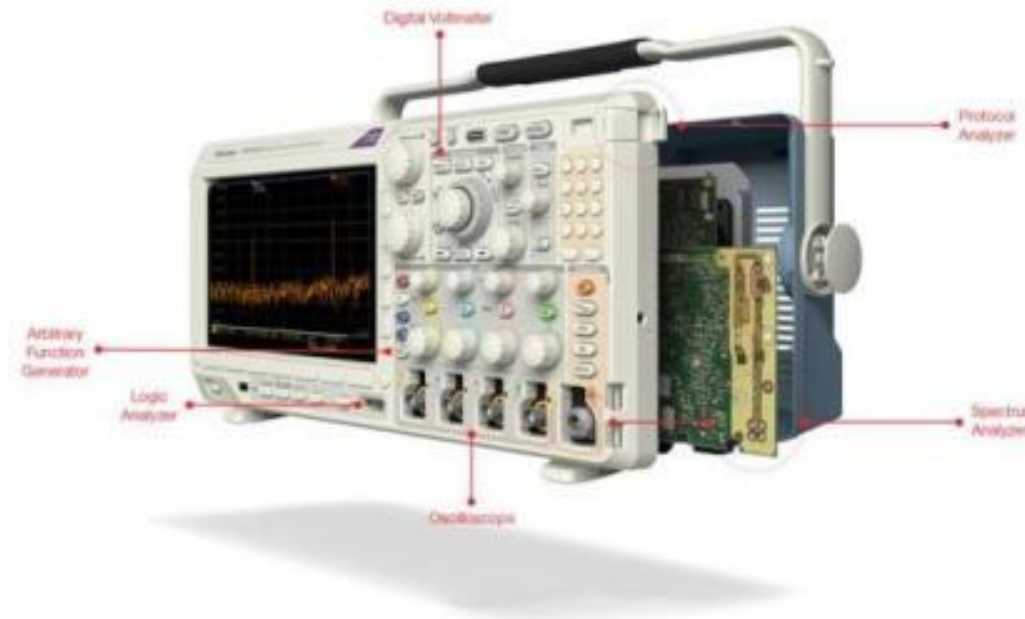


### ***RSA600 State of the Art Specifications***

- Broad frequency range: 9 kHz to 7.5 GHz spectrum analyzer
- Tracking Generator: VSWR and DTF
- Measurement range: +30 dBm to -161 dBm\*
- Wide analysis bandwidth: 40 MHz VSA and RTSA

# MDO3000 Series Mixed Domain Oscilloscopes

- 6 instruments in 1 small, portable package
- Completely customizable and fully upgradeable
- Provides insight in both time domain and frequency domain



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

6 Instruments, 1 Oscilloscope, Infinite Versatility

# Tektronix MDO4000 – Innovation Leader

World's  
**first** mixed  
domain  
Oscilloscope



- ✓ **Industry first** oscilloscope with integrated spectrum analyzer
- ✓ **Industry first** integrated analog, digital and RF acquisition system
- ✓ **Industry first** Spectrum Time
- ✓ **Industry first** 1 GHz capture bandwidth
- ✓ **Industry first** comprehensive RF triggers
- ✓ **Industry first** automated RF markers
- ✓ **Industry first** RF probing
- ✓ **Tektronix first** to address wireless megatrend with breakthrough innovation



Overwhelmingly positive  
market reception

Achieved **2X** return-on-investment  
in **first year alone**





# Tektronix Component Solutions

- Turnkey services for IC packages & complex assemblies
  - Design, manufacturing, test & supply-chain management
  - Broad range of package types and process technologies
- RF/Microwave Modules
  - Precision placement, interconnect & mechanical assembly
  - Full RF/microwave performance testing
- High-speed Data Converter Modules
  - Designed for embedded, real-time streaming applications
  - Available as reference designs or custom modules
- Certifications
  - ISO9001:2008
  - ISO14001:2004
  - ITAR-registered
  - Secure Facility
  - Accredited Trusted Supplier
  - Validated as Ready For IBM Technology (Foundry) partner



Flip-chip BGA



Frequency Converter & LPF Module



15 GHz 50 GS/s  
Track & Hold



DAC Module



Digitizer Module

Module	Bandwidth	Sample Rate	Resolution
Digitizer	6.25 GHz	12.5 GS/s	8 bits
DAC	9 GHz	12 GS/s	10 bits

**40** years  
of custom  
microelectronics  
experience



**Telxtronic®**