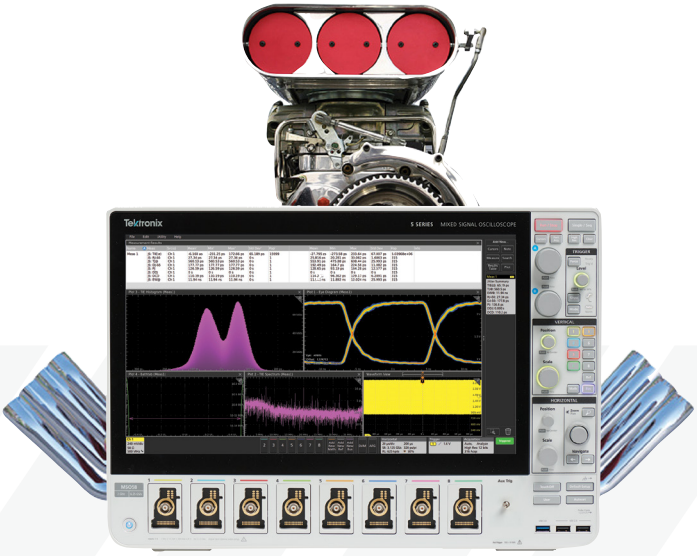
Tektronix®

Next Generation Oscilloscopes

3 Series MDO
Amazing Versatility

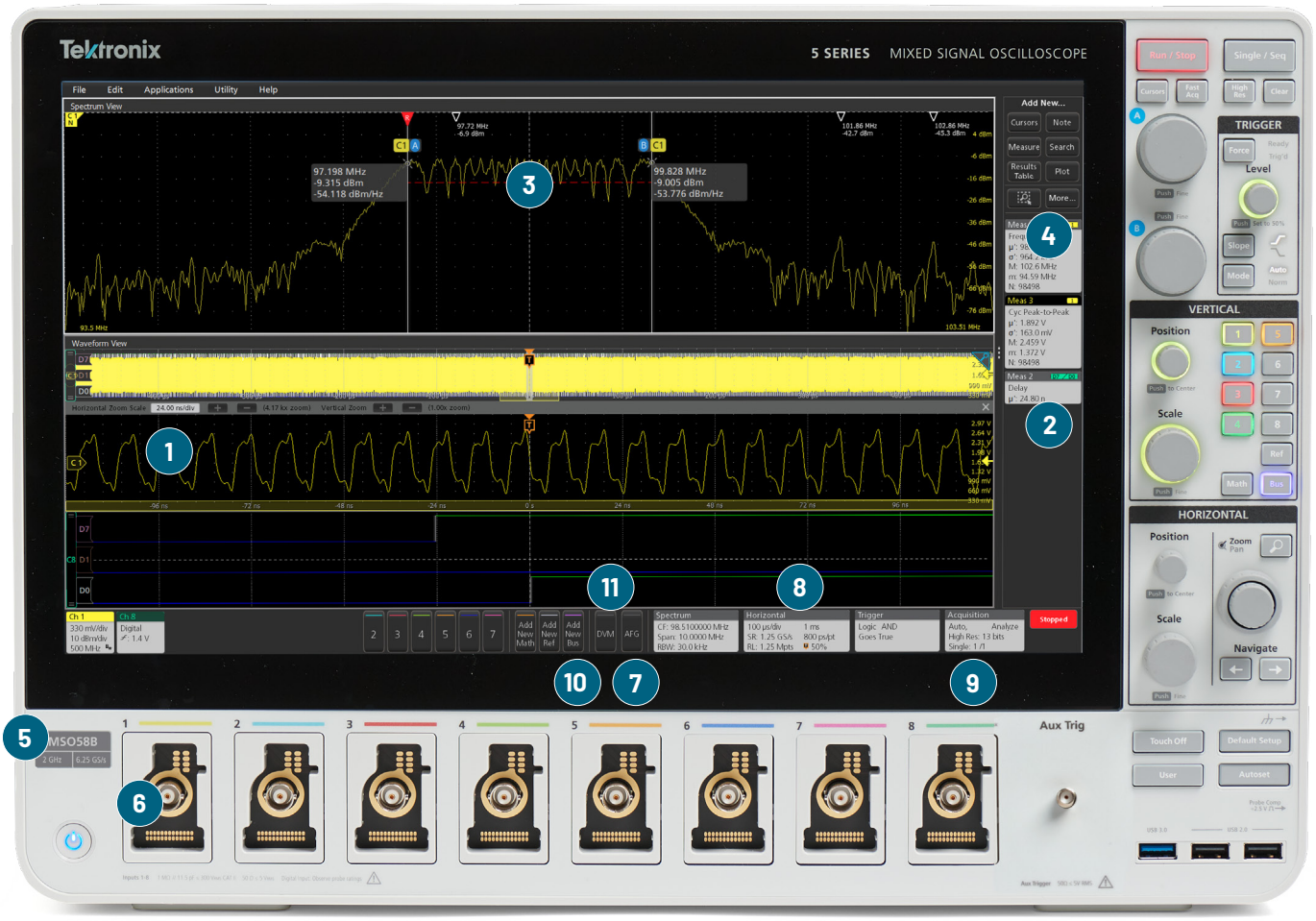
4 Series B MSO
Outstanding Insight

5 Series B MSO
Accelerated Debugging



6 Series B MSO
Lowest Noise

Next-Generation Oscilloscopes



1) **User interface** designed for both touch and mouse

2) **Large touchscreen HD displays (1,920 × 1,080)**

3) **Integrated spectrum analysis**

4) **Powerful analysis**
   - Automated measurements with trend, histogram, and spectrum plots
   - Advanced jitter analysis
   - Single-phase and 3-phase power measurement options
   - User-defined filter creation

5) **Bandwidth**
   - Models from 100 MHz to 10 GHz
   - All models offer upgradeable bandwidth

6) **Input channels**
   - 2 to 8 inputs depending on model
   - Low-loading probes included for each channel

7) **Built in Arbitrary/Function Generator option**

8) **Record length**
   - 10 Mpoints to 1 Gpoints depending on model

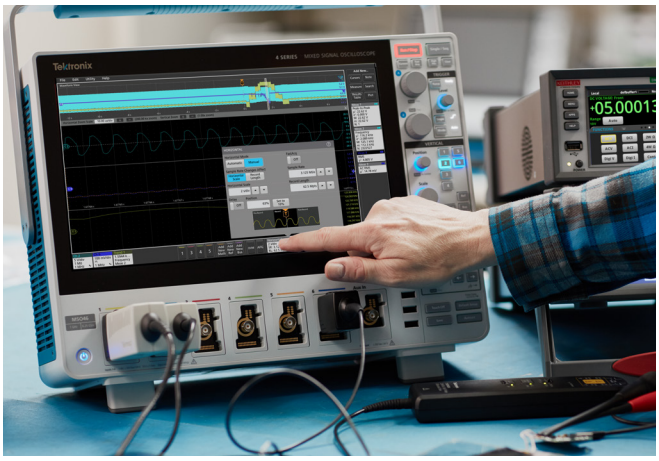
9) Up to 12-bit **vertical resolution** (up to 16 bits in High Res mode)

10) **Protocol options**
   - 1-Wire
   - 8b10b
   - Automotive Ethernet
   - CAN / CAN FD
   - CXPI
   - eSPI
   - Ethernet
   - EtherCAT
   - eUSB2
   - FlexRay
   - I²C / SPI
   - I2S Audio
   - I3C
   - LIN
   - Manchester
   - MDIO
   - MIL-STD-1533 / ARINC 429
   - MIPI CSI/DSI
   - NFC
   - NRZ
   - PSI5
   - RS-232 / UART
   - SDLC
   - SENT
   - SMBus
   - SpaceWire
   - SPMI
   - SVID
   - USB 2.0

11) **Integrated DVM and trigger frequency counter free** with product registration

Not all features shown are available on all oscilloscope models.

Usability and Display



Touch Interaction Done Right

These next-generation oscilloscopes feature the industry's first oscilloscope user interface truly designed for touch. The same intuitive gestures you use with your phone or tablet work on the big HD displays and the gestures are common among the 3, 4, 5 and 6 Series.

- Control inputs, triggers and acquisitions by tapping badges in the settings bar at the bottom of the display
- Drag waveforms to adjust position or to pan
- Pinch to change horizontal or vertical scale

3 4 5 6

Stunning HD Displays

The 15.6" displays on 5 and 6 Series MSOs have 1920 × 1080 HD resolution. You can see many signals at once, along with critical readouts and plots for an extensive view of your system.

Even with their bench-friendly footprints, the 3 and 4 Series offer the largest displays in their classes, with full 1920 × 1080 HD resolution.

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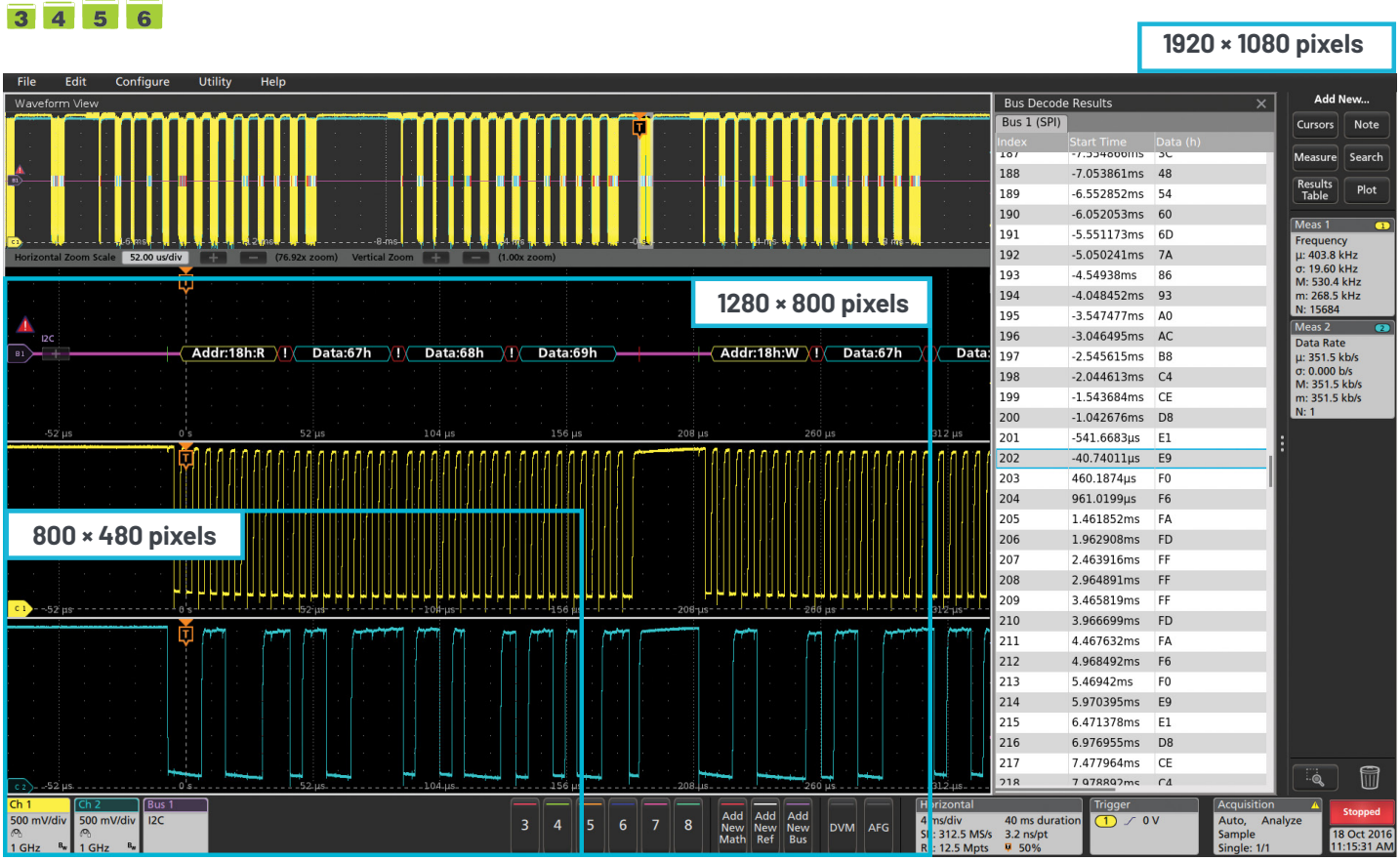

Display resolution on some competitors' products is as low as 800 × 480 pixels. That's less than 20% of the 1920 × 1080 pixel display resolution of the 3, 4, 5, and 6 Series products. Even larger 1280 × 800 pixel displays do not provide the same level of detail.

Performance and Measurements

More Inputs and Mixed Signal Analysis

The 4, 5 and 6 Series MSOs let you see more signals by going beyond the traditional 4-channel limit, offering up to 8 analog input channels.

FlexChannel™ inputs on the 4, 5, and 6 Series MSOs expand your visibility even further. Whenever you need to see more signals, just plug a TLP058 logic probe into any input. The single analog channel converts to 8 digital channels. FlexChannel inputs are compatible with TekVPI probes.

The 3 Series MDO offers 16 digital channels through a dedicated logic probe, included with the MSO option.

3 4 5 6

Industry-leading Vertical Resolution

See more signal detail. The 4, 5, and 6 Series MSOs feature 12-bit analog-to-digital converters (ADCs) that provide 16 times more vertical resolution than common 8-bit ADCs.

A new High Res mode further boosts vertical resolution and uses smart filtering to limit noise. High Res mode always provides at least 12 bits and extends all the way to 16 bits of vertical resolution.

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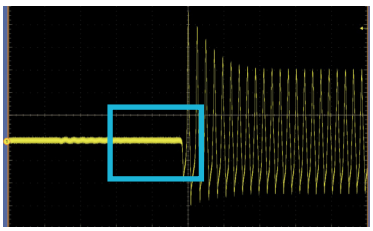
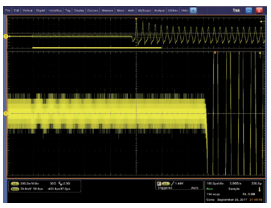
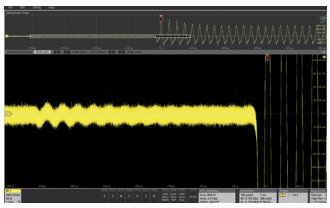
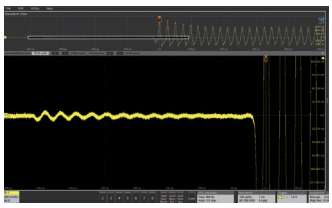




8-bit ADCs



12-bit ADCs



12-bit ADCs with High Res turned on

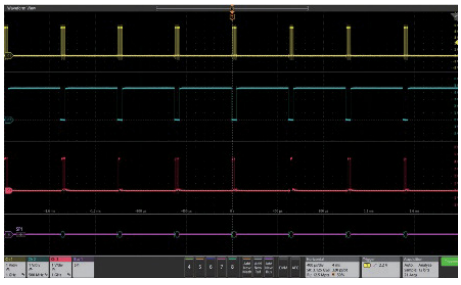
Stacked Display Mode

Most scopes display all waveforms in the same graticule and rely on vertical scale controls to fit signals on the display. Each waveform uses a fraction of the available ADC range, leading to less accurate measurements.

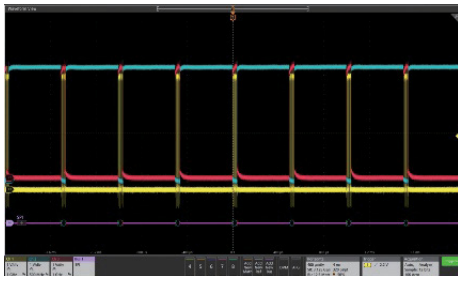
New stacked display mode lets you view each waveform in its own "slice" of the display. Each slice represents the full ADC range for the waveform for more accurate measurements.

The more traditional overlay display mode is also available, for easy direct comparison of waveforms.

4 5 6



New stacked display mode



Traditional overlay display mode

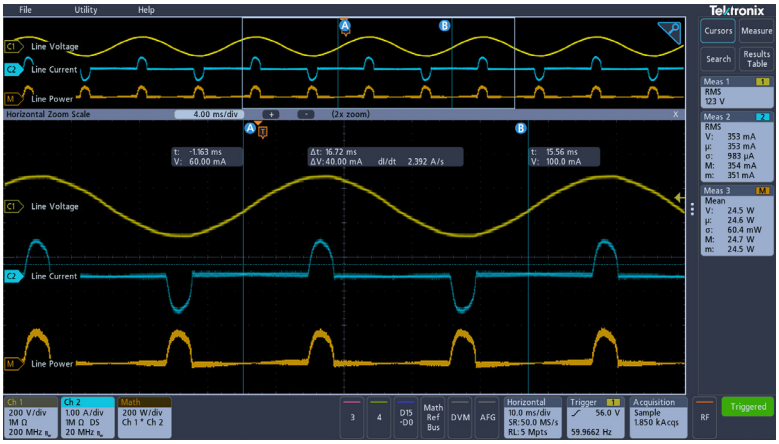
Powerful Measurements

The Results Bar on the right side of the display includes immediate, one-tap access to the most common analytical tools such as:

- Cursors
- Automated measurements
- Measurement statistics
- Searches
- Bus decode tables

Gain rich insights with easy access to measurement statistics. Turn on statistics in the Results Bar to get a quick overview.

3 4 5 6



Advanced Measurements and Analysis

Dive into measurements with Results Tables. Results Tables show statistics for the current acquisition and for all acquisitions. Get insight into one measurement, a hundred measurements, or millions of measurements at a glance.

Plots, such as measurement trends and histograms, provide quick visualizations.

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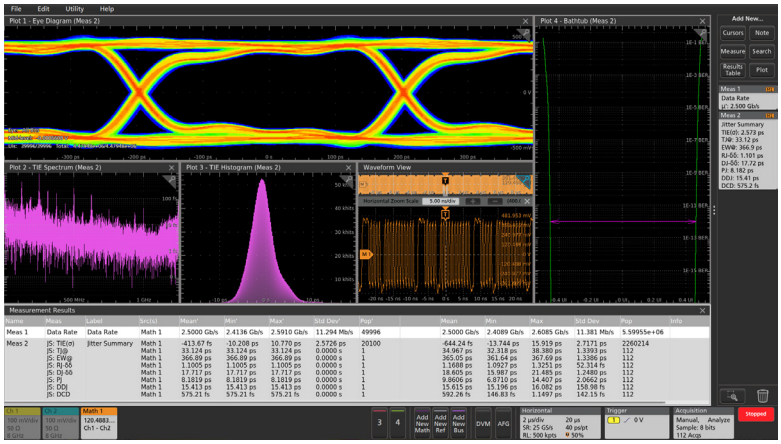

FastAcq™ High Speed Waveform Capture

FastAcq captures at high speed to increase the probability of seeing infrequent problems such as runt pulses, glitches, timing issues, and more.

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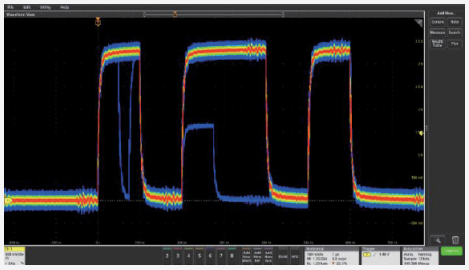

FastFrame™ Segmented Memory and History Mode

Make the most efficient use of acquisition memory by not storing deadtime between serial packets or bursts. Capture many triggered frames in a single record.

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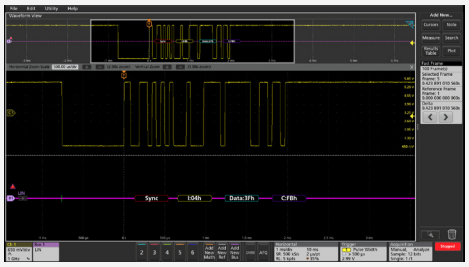


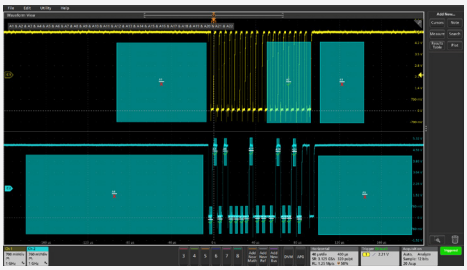
Triggering and Search

A complete set of basic and advanced triggers and search criteria.

- Runt
- Logic
- Pulse width
- Timeout
- Rise/Fall time
- Setup and hold violations
- Serial and parallel bus activity
- Sequence
- Video
- Visual triggers*
- RF vs Time*
- Window*

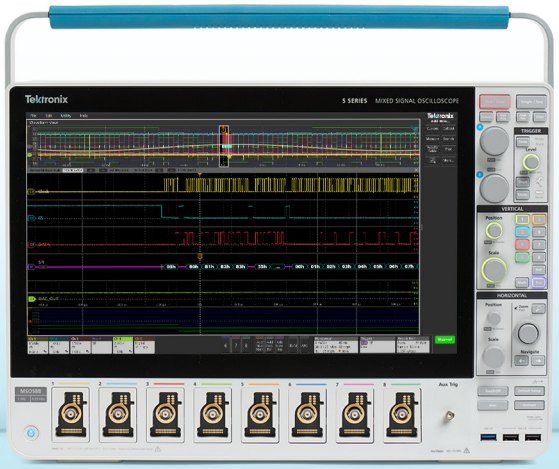
*4, 5, 6 Series only

3 4 5 6



An Oscilloscope for Every Engineer

	3 SERIES MDO	4 SERIES B MSO
Bandwidth	100 MHz, 200 MHz, 350 MHz, 500 MHz, 1 GHz	200 MHz, 350 MHz, 500 MHz, 1 GHz, 1.5 GHz
Max channels, analog	4	6
Max channels, digital	16	48
Inputs (see page 4)	TekVPI inputs	FlexChannel inputs
Max sample rate	2.5 GS/s or 5 GS/s, all channels	6.25 GS/s, all channels
Record length	10 Mpoints	Up to 62.5 Mpoints
Vertical resolution (see page 4)	8 bits	12 bits
Advanced analysis (optional) (see page 9)	Serial bus Power	Serial bus Power 3-Phase Power
Spectrum analysis (see page 8)	Hardware Spectrum Analyzer	Spectrum View
Operating system (see page 8)	Embedded	Embedded
Display (see page 3)	11.6" HD, capacitive touch 1920 × 1080	13.3" HD, capacitive touch 1920 × 1080
Starting price	$4,510	$9,000



5 SERIES B MSO	6 SERIES B MSO	
350 MHz, 500 MHz, 1 GHz, 2 GHz	1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8 GHz, 10 GHz	**Bandwidth**
8	8	**Max channels, analog**
64	64	**Max channels, digital**
FlexChannel inputs	FlexChannel inputs	**Inputs** (see page 4)
6.25 GS/s, all channels	50 GS/s, 2 channels	**Max sample rate**
Up to 500 Mpoints	Up to 1 Gpoints	**Record length**
12 bits	12 bits	**Vertical resolution** (see page 4)
Serial bus Power Compliance Jitter Inverters, Motors and Drives	Serial bus Power Compliance Jitter Inverters, Motors and Drives DDR3 LVDS	**Advanced analysis** (optional) (see page 9)
Spectrum View	Spectrum View	**Spectrum analysis** (see page 8)
Embedded Windows (optional)	Embedded Windows (optional)	**Operating system** (see page 8)
15.6" HD, capacitive touch 1920 × 1080	15.6" HD, capacitive touch 1920 × 1080	**Display** (see page 3)
$19,100	$34,700	**Starting price**

Integrated Spectrum Analysis

Spectrum View

Because traditional scope FFTs are driven by the same acquisition system that delivers the analog time-domain view, it is virtually impossible to get optimized views in both domains at once.

Spectrum View is different. It lets you independently adjust time- and frequency-domain views, by using patented technology behind each FlexChannel input. You can turn on a spectrum view for any analog channel, enabling multi-channel mixed domain analysis.

Intuitive spectrum analyzer controls like center frequency, span and resolution bandwidth (RBW) make setups easy, and RF vs time triggers make capturing anomalies straightforward.

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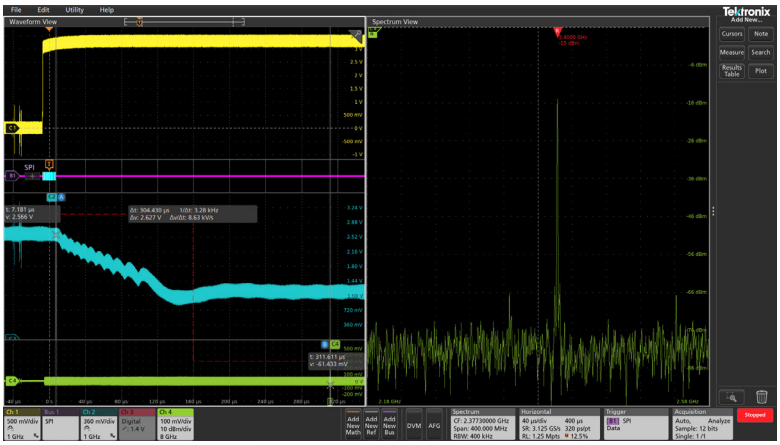

Built-in Spectrum Analyzer

The Tektronix 3 Series MDO offers an integrated, hardware-based spectrum analyzer ranging from 9 kHz to 1 GHz (standard) or 3 GHz enabling spectral analysis on IoT and most consumer wireless standards.

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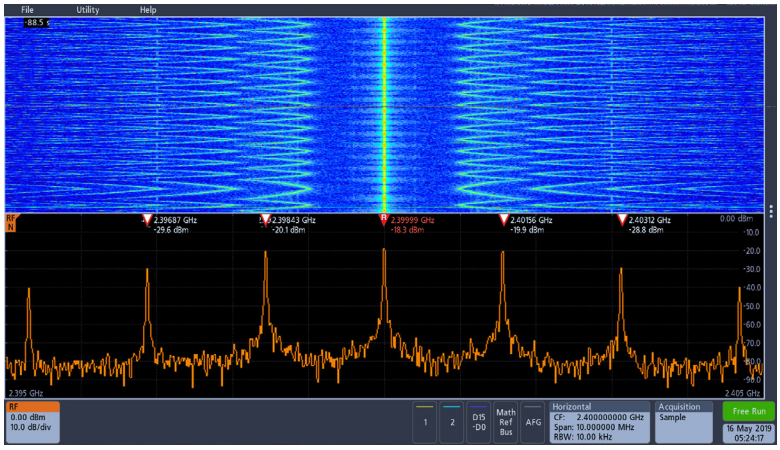


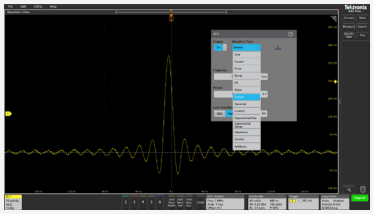
The Spectrogram display illustrates slowly moving RF phenomena. As the peaks change in both frequency and amplitude the changes are easy to see.

Built-in Arbitrary/Function Generator (AFG)

An integrated function generator is perfect for testing frequency response, simulating sensor signals, and adding noise to signals for stress testing.

- 13 standard waveform functions
- 50 MHz Sine / 25 MHz Square and Pulse (100 MHz Sine / 50 MHz Square and Pulse on 5 Series B MSO)
- 128k, 250 MS/s arbitrary waveforms

3 4 5 6



Connectivity

Every instrument includes a USB device port and LXI-compliant Ethernet port for remote control. A thoroughly documented programming interface supports custom programming.

With e*Scope built-in, you can control the oscilloscope over a network using only a standard web browser.

3 4 5 6

Optional Windows OS

The 5 and 6 Series MSOs offer the option of including a Microsoft Windows™ operating system. The option provides a Windows desktop where you can install and run additional applications on the oscilloscope.

Upgrading to Windows is as simple as plugging in a pre-configured SSD.

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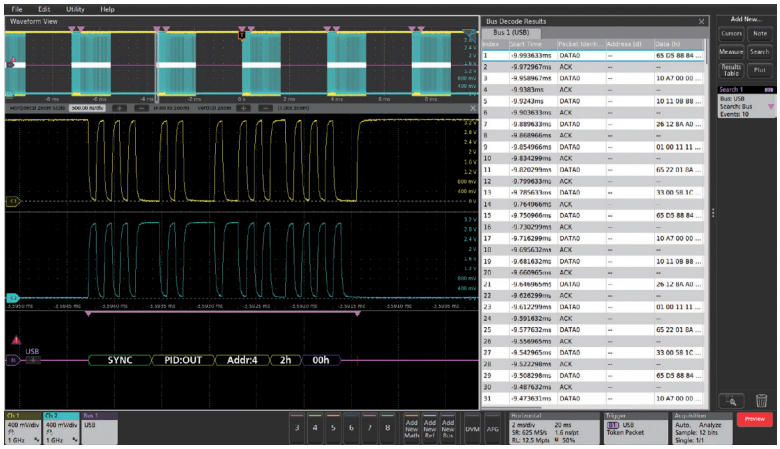
Applications and Advanced Analysis. Emphasis on Analysis.

Built-in features, available probes, and optional analysis packages support a wide range of applications.

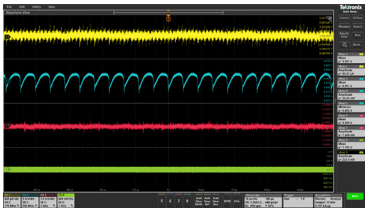
3 4 5 6



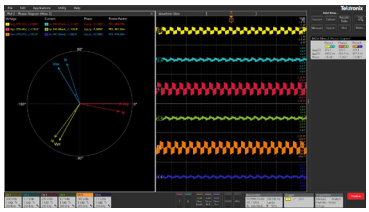
Serial protocol trigger / analysis (optional). Support is available for most common serial bus standards.

Power analysis packages enable automatic measurement of harmonics, switching loss and other key parameters.

EMI Troubleshooting. Spectrum analysis tools help find sources of unwanted emissions.



Power Integrity. Power rail probes and high channel count assist with power rail validation.



Debug motor drive designs by viewing the drive input/output voltage and current signals with waveforms and phasor diagrams.

SignalVu-PC Vector Signal Analysis

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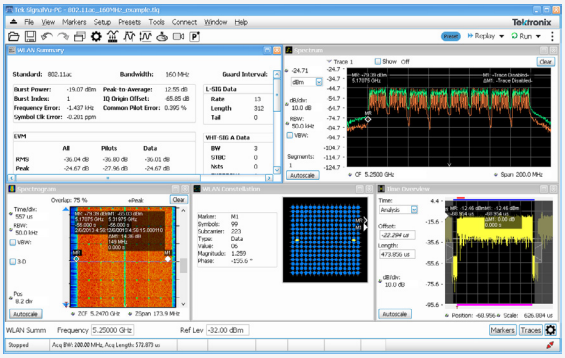

SignalVu-PC turns your Windows-equipped 5 or 6 Series MSO into a wideband vector signal analyzer. It can be customized to suit your appplication.

- Perform multi-channel RF measurements
- Demodulate and analyze RF signals
- Validate radar or pulsed RF
- Measure 5G NR signals

Advanced Analysis

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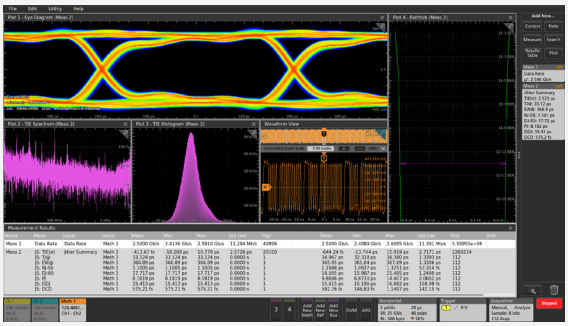
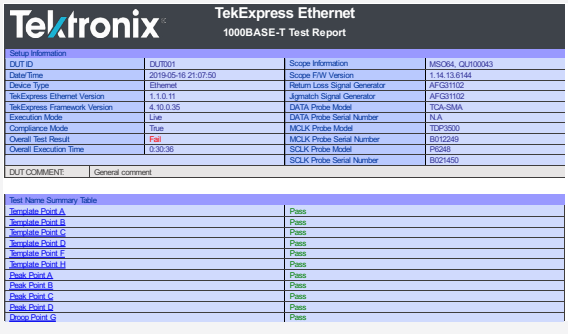


Basic jitter measurements are standard. Additional measurements and decomposition come with the Advanced Jitter option.



Automatic compliance test and debugging for popular serial standards.

Software

TekScope PC Analysis Software

3 4 5 6

TekScope emulates the operation of a 4, 5 or 6 Series on your PC. The starter license enables you to view and analyze waveforms, make measurements, remotely access your oscilloscope, and decode I²C, SPI and RS-232.

Advanced licenses add:

- Multi-scope waveform processing (4/5/6 Series)
- Serial bus decoding
- Power analysis
- Automotive Measurements
- Aerospace Measurements

TekDrive

4 5 6

An oscilloscope-to-cloud software solution that facilitates data management and collaboration across oscilloscopes, PCs, smart phones, and tablets. On 4, 5 and 6 Series MSOs, TekDrive is accessible right from the Save/Recall controls. TekDrive also includes a well-documented API that enables integration with any software application for automation or analysis.

Probes

IsoVu™ Isolated Probes

IsoVu™ optical isolation technology virtually eliminates common mode interference for accurate differential measurements even with reference voltages slewing ±60 kV at 100 V/ns. Perfect for high-side V_{GS} measurements on GaN and SiC power converters.

4 5 6

TIVP Series Specifications	
Bandwidth	200 MHz, 500 MHz, 1 GHz
Differential Voltage	±2500 V
Common Mode Voltage	±60 kV
Common Mode Rejection	100 dB @ 200 MHz

TLP058 Logic Probes

Have the right number of digital channels when you need them. Simply connect a TLP058 logic probe to any FlexChannel input and get 8 digital channels. Connect as many TLP058 probes you want.

4 5 6

TLP058 Specifications	
Number Of Input Channels	8 digital
Input Resistance	100 kΩ±1.0%
Input Capacitance	3.0pF
Min. Detectable Pulse Width	1ns
Max. Input Toggle Rate	500 MHz
Cable Length	1.0m

Power Rail Probes

Probes designed especially for making accurate ripple measurements on power rails, with ± 60 V DC offset range, low noise contribution and bandwidth up to 4 GHz.

4 5 6

TPR1000/TPR4000 Specifications	
Bandwidth	TPR1000: 1 GHz TPR4000: 4 GHz
Attenuation	1.25X
Input impedance	50 kΩ DC - 10 kHz, 50 Ω AC > 100 kHz
Dynamic range	±1 V
Offset range	±60 V

For complete list of available probes visit tek.com/probes

TPP1000/TPP500B

Passive Probes

Model	Bandwidth	Attenuation	Input Impedance	Maximum Voltage
TPP1000	1 GHz	10X	10 MΩ ‖ 3.9 pF	300 V_{rms} (CAT II)
TPP0500B	500 MHz	10X	10 MΩ ‖ 3.9 pF	300 V_{rms} (CAT II)
TPP0502	500 MHz	2X	2 MΩ ‖ 12.7 pF	300 V_{rms} (CAT II)

TAP1500

Active Probes

Model	Bandwidth	Attenuation	Input Impedance	Dynamic Range	Offset Range	Maximum Non-Destruct Voltage
TAP1500	1.5 GHz	10X	1 MΩ ‖ ≤ 1 pF	±8 V	±10 V	±15 V
TAP2500	2.5 GHz	10X	40 kΩ ‖ ≤ 0.8 pF	±4 V	±10 V	±30 V

TDP1500

Differential Probes

Model	Bandwidth	Rise Time	Attenuation	Differential Operating Voltage	Ground Operating Voltage	Input resistance/ Input capacitance
TDP0500	500 MHz	≤700ps	5X / 50X	±4.25 V (5X) ±42 V (50X)	±35 V	1MΩ/1pF differential
TDP1000	1 GHz	≤350ps	5X / 50X	±4.25 V (5X) ±42 V (50X)	±35 V	1MΩ/1pF differential
TDP1500	1.5 GHz	≤265ps	1X / 10X	±0.85 V (1X) ±8.5 V (10X)	±7.0 V	200KΩ/1pF differential
TDP3500	3.5 GHz	≤140ps	5X	±2 V	+ 5 to -4 V	100KΩ/0.3pF differential
TDP4000	4.0 GHz	≤126ps	5X	±2 V	+ 5 to -4 V	100KΩ/0.3pF differential

TPP0850

High Voltage Probes

Model	Bandwidth	Max Voltage	Attenuation	Input Impedance	Compensation Range
P6015A	75 MHz	20 kV_{rms} 40 kV peak	1000X	100 MΩ ‖ ≤ 3 pF	7 pF – 49 pF
TPP0850	800 MHz	1000 V_{rms} (CAT II) 2.5 kV peak	50X	40 MΩ ‖ 1.8 pF	Auto compensated by scope

THDP0200

High Voltage Differential Probes

Model	Bandwidth	Rise Time	Attenuation	Maximum Differential Voltage	Maximum Voltage to Earth Ground	Differential Input Capacitance	Differential Input Resistance
TMDP0200	200 MHz	1.8 ns	25X / 250X	±750 V	550 V_{rms} (CAT I)	2 pF	5 MΩ
THDP0200	200 MHz	1.8 ns	50X / 500X	±1500 V	1000 V_{rms} (CAT II)	2 pF	10 MΩ
THDP0100	100 MHz	3.5 ns	100X / 1000X	±6000 V	2300 V_{rms} (CAT I)	2.5 pF	40 MΩ

TCP0030A

Current Probes

Model	Maximum Current	Minimum Current	Bandwidth	Rise Time
TCP0030A	30 A DC; 30 A_{rms}; 50 A peak	1 mA	DC - 120 MHz	≤ 2.92 ns
TCP0020	20 A DC; 20 A_{rms}; 100 A peak	10 mA	DC - 50 MHz	≤ 7 ns
TCP0150	150 A DC; 150 A_{rms}; 500 A peak	5 mA	DC - 20 MHz	≤ 17.5 ns

TDP7708

High Bandwidth Differential Probes

Model	Bandwidth
TDP7704	4 GHz
TDP7706	6 GHz
TDP7708	8 GHz
TDP7710	10 GHz

Tekflex Accessory	Attenuation	Input Impedance	Differential Input Voltage	Operating Window	Offset Range
P77STFLXA, P77STLFXB, P77STCABL	4X	100 kΩ ‖ 0.4 pF	5V	±5.25 V	±4 V
P77BRWSR	10X	150 kΩ ‖ 22 pF	12V	±10 V	±10 V
P77C292MM	Variable	50 Ω (SMA)	2V	±4 V	±4 V

Models and Instrument Options

For complete ordering details see the product datasheet or contact your local sales representative.

	Base Models	3 Series MDO	4 Series B MSO	5 Series B MSO	6 Series B MSO
Instrument Options	2 TekVPI Channels	MDO32			
	4 TekVPI Channels	MDO34			
	4 FlexChannel Inputs		MSO44B	MSO54B	MSO64B
	6 FlexChannel Inputs		MSO46B	MSO56B	MSO66B
	8 FlexChannel Inputs			MSO58B	MSO68B
	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, 10 GHz
	Digital Channels	•	*simply order TLP058 probes to enable 8 digital signals per probe*		
	Arbitrary Function Generator	•	•	•	•
	Spectrum Analyzer	1 GHz (std.), 3 GHz	*see Spectrum View analysis, Page 8*		
	Extend Record Length	(10 M standard)	62.5 M/ch max (31.25 M standard)	125 M/ch max 250 M/ch max 500 M/ch max (62.5 M standard)	125 M/ch max 250 M/ch max 500 M/ch max 1 G/ch max (up to 4 ch) (62.5 M standard)
Service Options	**Service Options**	**3 Series MDO**	**4 Series B MSO**	**5 Series B MSO**	**6 Series B MSO**
	Warranty Extensions	5 years	3 and 5 years	3 and 5 years	3 and 5 years
	Total Product Protection – accident protection, EOS/ESD protection, warranty extension	3 and 5 years	3 and 5 years	3 and 5 years	3 and 5 years
	Factory Calibration Plans	3 and 5 years	3 and 5 years	3 and 5 years	3 and 5 years

Learn how to protect your instrument and your uptime with service plans for individual instruments or probes at www.tek.com/factory-service-plans.

For fast, expert calibration services on all your electronic test and measurement equipment (any brand), visit www.tek.com/calibration-services.

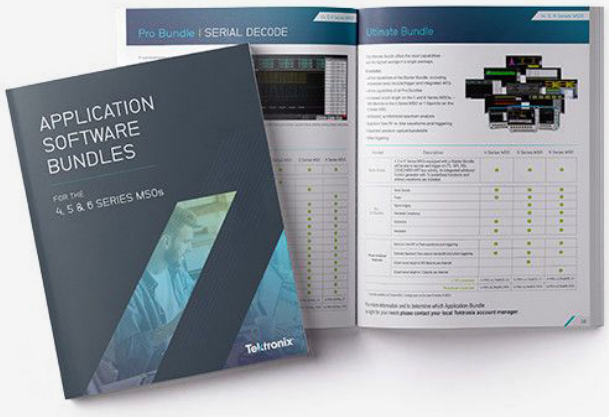
Application Software Bundles

Application Software Bundles combine multiple measurement and analysis options for much less than the cost of individual options. They can be a great value, especially if you have a diverse workload.

4 5 6

Find out more in Solution Bundles for 4, 5 and 6 Series MSOs

Individual software options are listed on the next page.



Serial Bus Decoding, Compliance/Conformance Testing and Advanced Analysis

Listing of individual software options

	Options	3 Series MDO	4 Series B MSO	5 Series B MSO	6 Series B MSO
Serial Decode Options	1-Wire serial decoding and analysis		•	•	•
	8b10b serial decoding and analysis			•	•
	Aerospace serial trig. and analysis (MIL-STD-1553, ARINC429)	•	•	•	•
	Audio serial trig. and analysis (I2S, LJ, RJ, TDM)	•	•	•	•
	Automotive serial trig. and analysis (CAN, CAN FD, LIN, FlexRay)	•	•	•	•
	Automotive sensor serial triggering and analysis (SENT)		•	•	•
	Computer serial triggering and analysis (RS-232/422/485/UART)	•	•	•	•
	CXPI serial decoding and analysis		•	•	•
	Embedded serial triggering and analysis (I^2C, SPI)	•	•	•	•
	EtherCAT serial decoding and analysis		•	•	•
	Ethernet serial triggering and analysis (10BASE-T, 100BASE-TX)		•	•	•
	eSPI serial decoding and analysis		•	•	•
	eUSB2 serial decoding and analysis		•	•	•
	I3C serial decoding and analysis		•	•	•
	Manchester triggering and analysis		•	•	•
	MDIO serial decoding and analysis		•	•	•
	MIPI D-PHY (CSI/DSI) decoding and analysis			•	•
	NFC (ISO/IEC 15693, 14443A, 14443B, and FeliCa)		•	•	•
	NRZ serial decoding and analysis		•	•	•
	Power management serial triggering and analysis (SPMI)		•	•	•
	PSI5 serial decoding and analysis		•	•	•
	SDLC serial decoding and analysis		•	•	
	SMBus serial decoding and analysis		•	•	•
	SpaceWire serial decoding and analysis		•	•	•
	SVID serial decoding and analysis		•	•	•
	USB serial triggering and analysis (USB 2.0 LS, FS, HS)	•	•	•	•
Compliance Options	Automotive Ethernet (10BASE-T1S) compliance solution				•
	Automotive Ethernet (100BASE-T1, 1000BASE-T1, 10BASE-T1S) automated compliance test application			•	•
	DDR3 and LPDDR3 automated compliance solution				•
	Ethernet (2.5G and 5G BASE-T) automated compliance solution				•
	Ethernet (10G BASE-T) automated compliance solution				•
	Ethernet (1000BASE-T, 100BASE-T, 10BASE-T, 10Base-T1L) automated compliance solution			•	•
	MIPI D-PHY 1.2 automated compliance solution				•
	MIPI C-PHY 2.0 automated compliance solution				•
	MIPI D-PHY 2.1 automated compliance solution				•
	Multi-Gigabit Automotive Ethernet (2.5G/5GBASE-T1) automated compliance solution				•
	USB2.0 automated compliance test solution			•	•
Analysis Options	3-phase, inverter, motor, drive analysis			•	•
	3-phase power measurements and analysis		•		
	Advanced jitter and eye analysis			•	•
	Advanced power measurement and analysis		•	•	•
	Basic power measurements and analysis	•	•		
	DDR3 and LPDDR3 analysis and debug				•
	DQ0 measurements for inverter motor drives			•	•
	Enhanced security for instrument declassification	•	•	•	•
	Mechanical measurements for inverter motor drives			•	•
	Removable SSD with Windows license			•	•
	RF vs Time traces, triggers, spectrograms and IQ capture		•	•	•
	User-defined filter creation tool			•	•
	Vector signal analysis (SignalVu-PC)			•	•

High Speed Digitizers

These low profile digitizers are essentially full-featured 5 and 6 Series oscilloscopes in a compact 2U “rack ready” form factor. They offer the same graphical user interface and performance but in a much smaller package.

5 Series B MSO Low Profile

The 5 Series B MSO is available in a 2U low-profile form factor. Eight channels and 12-bit ADCs set a new standard when extreme channel density and measurement performance are required.

- 1 GHz bandwidth
- 6.25 GS/s sample rate
- 8 FlexChannel inputs
- Record length from 125 M to 500 M

6 Series Low Profile Digitizer

The 6 Series Low Profile Digitizer sets a new standard for performance by not interleaving sample rate, bandwidth or record length. You get the fastest and most accurate performance from your digitizer – all in a 2U space.

- 1 GHz to 8 GHz bandwidth
- 25 GS/s sample rate
- 4 inputs
- Record length from 125 M to 1 G

Find more valuable resources at TEK.COM

1/2024 SBG 48W-61573-5