ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Tektronix TDS6124C* at our website: *Click HERE*

Digital Storage Oscilloscope

▶ TDS6000 Series



Uncompromised Performance Oscilloscope Solution — Probing, Acquisition, Analysis, Compliance, and Debug

TDS6000 Series digital storage oscilloscopes provide unprecedented performance along with a complete feature set designed to address design validation, debug and compliance challenges of next generation computer, datacom and communications equipment. High bandwidth, high sample rate and deep memory also provide the ideal solution for data acquisition applications.

Uncompromised Acquisition

You won't need to need to trade-off bandwidth, record length and sample rate for your serial data measurement and analysis needs. The TDS6000C DSOs provide acquisition architecture with 40 GS/s maximum sample rate and 64 Msamples record length on two channels (20 GS/s and 32 Msamples on each of the four channels simultaneously), for the acquisition power you need. They provide the ultimate combination of bandwidth, sample rate and record length for the fastest signals. The TDS6154C provides matched 15 GHz performance across any two channels using advanced, Tektronix-proprietary DSP enhancement, important for high-speed, channel-to-channel measurements. The user-selectable DSP filter on each channel provides magnitude and phase correction, plus extension of the analog bandwidth to 15 GHz for more accurate signal fidelity on high speed measurements – easily capturing the fifth harmonic of 3.0 GHz embedded clocks used in next generation 6.0 Gb/s serial data standards, and even the third harmonic of 5 GHz clocks being developed for future systems. The DSP filter on each channel can also be switched off to take advantage of true 12 GHz analog bandwidth for applications needing the highest available raw data capture.

▶ Features & Benefits

Bandwidths of 15 GHz (TDS6154C), 12 GHz (TDS6124C), 8 GHz (TDS6804B) and 6 GHz (TDS6604B)

Rise Times to 19 ps 20 to 80% (28 ps 10 to 90%) on TDS6154C Typical Rise Time, with Channel-matched, User-selectable DSP

40 GS/s Real-time Sample Rate on Two Channels[*1]; 20 GS/s Real-time Sample Rate on All Four Channels with 500 fs/sample Interpolated Points

Up to 64 Msamples on Two Channels[*1]; up to 32 Msamples Record Length on All Four Channels with MultiView Zoom™ Function for Quick Navigation

MyScope® Custom Control Windows Enhance Productivity

Right Mouse Click Menus for Exceptional Efficiency

Pinpoint™ Triggering Provides the Most Flexible and Highest Performance Triggering, with Over 1400 Combinations to Address Virtually Any Triggering Situation

Serial Pattern Triggering up to 3.125 Gb/s with 8b/10b Protocol Triggering

Serial Data Analysis and Compliance at Rates of 6.25 Gb/s and Above

OpenChoice® Software with Microsoft Windows XP OS Delivers Built-in Networking and Analysis

Technology Specific Software Solutions Provide Built-in Domain Expertise for Serial Data, Jitter, Ethernet, DVI, USB 2.0, Communications and Power Measurements

System Includes: Dual Processor System (2.8 GHz Pentium 4 and 583 MHz PowerPC), High Resolution XGA Display, Front Panel CD-R/W, Front Panel USB 2.0 Port and 1000Base-T Network Connection

▶ Applications

Signal Integrity, Jitter and Timing Analysis

Validation, Debug, Characterization and Compliance of Next Generation Digital Designs

Computer, Datacom, Storage Area Network Equipment Designs and High-speed Backplanes

High Energy Physics Measurements and Data Acquisition

[*1] For C Model versions only.

Tektronix

Enabling Innovation

MyScope® Custom Control Windows

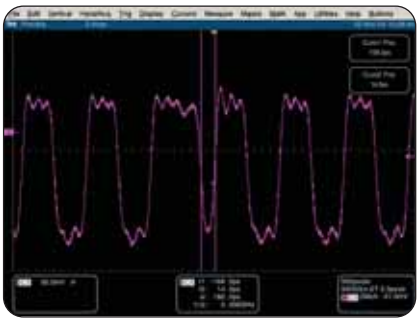
MyScope control windows allow you to build your own control windows with only the controls, features and capabilities that you care about and are important in your job. For the first time you can create your own personalized "toolbox" of oscilloscope features. No longer do you need to search through menus for features or re-learn how to drive the oscilloscope after a break from the lab. MyScope control windows are easily created in a matter of minutes using a simple, visual, drag-and-drop process. Once created, these customized windows are easily accessed through a dedicated MyScope button and menu selection on the oscilloscope button/menu bar, just like any other control window. You can make an unlimited number of custom control windows, enabling each person who uses the oscilloscope, in a shared environment, to have their own unique control window. Since the control windows are stored as files on the hard drive, they can easily be transferred to other TDS5000B or TDS/CSA7000B Series oscilloscopes, or they can even be e-mailed to a co-worker around the world when the need arises. MyScope control windows will benefit all oscilloscope users, from eliminating the ramp-up time that many face when returning to the lab after not using an oscilloscope for a while, to the power user who can now operate far more efficiently. Everything you need is found in one control window rather than having to constantly navigate through menu after menu to repeat similar tasks.

Right Clicks

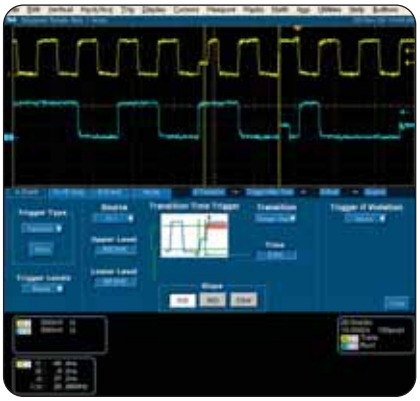
Right mouse click menus make simple things as they should be – simple. Right click menus are context sensitive, meaning the choices presented in the menu depend on where you right clicked the mouse. This makes right click menus extremely intuitive. Want to change the cursor type? Right click on a cursor or the cursor readouts. Want to change the reference levels of an automatic measurement? Right click on the measurement. Want to change trigger parameters? Right click on the trigger readouts. Want to change a waveform's color? Right click on the waveform handle. Virtually all objects on the oscilloscope display have right click menus associated with them that include all the appropriate actions or features relative to those objects. There are also right click menus for regions of the display in addition to just objects. For example, right clicking in the main graticule brings up a menu with choices such as Clear Data, Default Setup, Autoset, Screen Captures, Save All Waveforms and Add Screen Text, providing single-click access to many of your most commonly performed tasks.

Pinpoint™ Triggering

The ability to trigger an oscilloscope on events of interest is paramount in high-speed debug and validation. Whether you're trying to find a system error or need to isolate a section of a complex signal for further analysis, Tektronix' Pinpoint triggering provides the solution. The Pinpoint trigger system uses Silicon Germanium (SiGe) technology to provide trigger sensitivity of up to 9 GHz (TDS6000C models), and allows selection of all trigger types on both A and B trigger circuits. It can capture glitches down to 100 ps wide with 1 ps_{RMS} trigger jitter typical (TDS6000C models). Other trigger systems offer multiple trigger types only on a single event (A Event), with delayed trigger (B Event) selection limited to edge type triggering and often does not provide a way to reset the trigger sequence if the B-event doesn't occur. But Pinpoint triggering provides the full suite of advance trigger types on both A and B triggers with Reset triggering to begin the trigger sequence again after a specified time, state or transition so that even events in the most complex signals can be captured. Other oscilloscopes typically offer less than 20 trigger combinations; Pinpoint triggering offers over 1400 combinations, all at full performance.



► Trigger on glitches down to 100 ps wide.



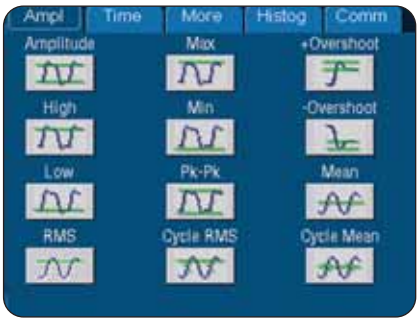
► Pinpoint™ trigger system provides the most advanced, highest performance triggering available.



▶ Decode 8b/10b data streams and set up to 4 data words (40 bits) to trigger on.

Protocol Triggering and Decoding Software (Opt. PTD)

Easily decode 8b/10b and other encoded serial data streams, and set desired encoded words for the serial pattern trigger to capture. 8b/10b decoding on data rates over 10 GB/s is possible on the TDS6000C models. Option PTD recovers the clock signal, identifies the transitions, decodes the characters and other protocol data. The TDS6000C models can trigger on up to four consecutive 10-bit words or specified error conditions at data rates up to 3.125 Gb/s. And you can see the captured bit sequences decoded into their words for convenient analysis.



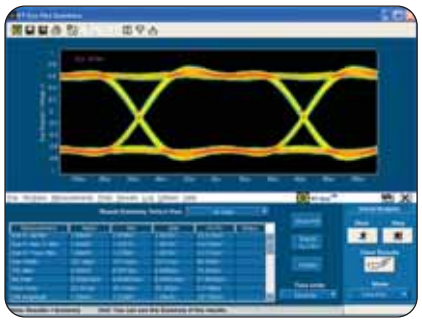
▶ Measurement System. Enables over 50 parametric measurements in the amplitude, time and statistical domain.

Unparalleled Analysis

Waveform data analysis can take many forms. Whether it's a simple math expression, waveform mask testing, a pass/fail compliance test, or a custom application that you develop, the TDS6000 Series offer the industry's most comprehensive set of analysis and compliance tools.

Built-in Analysis Tools

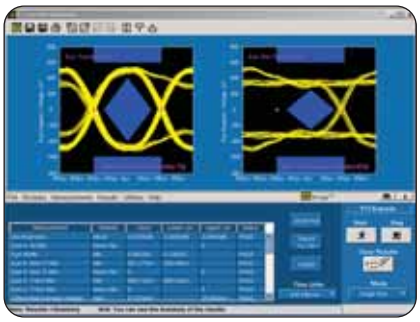
Standard tools built into the TDS6000 offer a wide range of analysis capabilities including Cursors, Measurements, Math Equation Editor, Serial Data Communications Mask Testing (with Opt. SM), and Spectrum Analysis.



▶ 8.5 Gb/s TDSRT-Eye™ diagram on the TDS6154C.



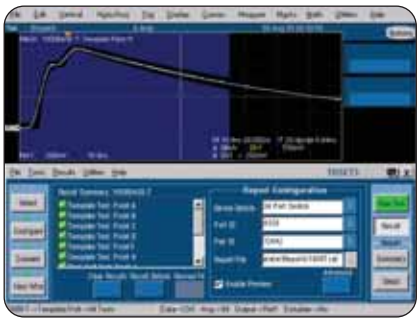
▶ Waveform Math Equation Editor. Enables boundless analysis on waveform data.



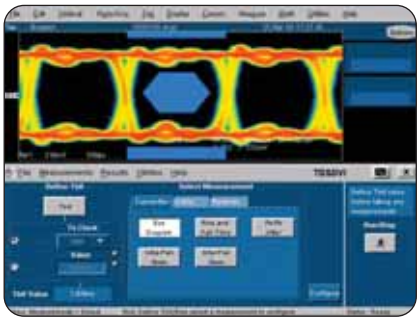
► TDSRT-Eye™ software. Compliance and analysis for testing high-speed serial standards. Eye diagrams at data rates to beyond 6.25 Gb/s. Software clock recovery to ≥10 Gb/s.



► TDSJIT3 v2.0. Jitter analysis for validation and debug of high-speed digital systems.



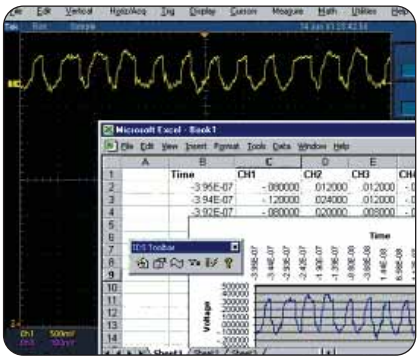
► TDSET3 10/100/1000Base-T Compliance.



► TDSDVI Digital Visual Interface Compliance.

► ActiveX controls to connect the oscilloscope to popular Windows applications – WITHOUT leaving the application

► PnP drivers to control the scope from LabVIEW and Lab Windows/CVI running directly on the oscilloscope, or running on external PCs



► Access data seamlessly for your own custom application such as this Microsoft Excel example.



► P7313 12.5 GHz and P7380 8 GHz Differential Probes.

Technology-specific Software Solutions

Validation, debug and compliance testing often require automated test tools that quickly analyze waveform data and provide the answers you need. The TDS6000 models provide complete "turn-key" solutions for the most demanding technologies. Software options are also available for performing validation and compliance measurements on emerging industry standards.

OpenChoice® Analysis

Designing your own custom solution? The analysis and networking features of OpenChoice software adds more flexibility to Tektronix open Windows XP oscilloscopes:

► Fast, PCI bus speed communication between the data acquisition processor and the Microsoft Windows desktop

Support for application development environments includes Visual BASIC, .NET, C, C++, MATLAB, LabVIEW and LabWindows/CVI.

Differential Probing with Performance to >12 GHz

Most high-speed signals today are differential. The P7313 12.5 GHz Differential Probing System provides true differential connection to the device under test for a variety of connection requirements: solder-in, hand held and fixtured. Typical system performance with the TDS6154C exceeds 12.5 GHz bandwidth. The P7313 offers the lowest loading, highest signal fidelity and lowest cost per connection in the industry. Versatile, inexpensive Tip-Clip™ adapters provide the optimum solution for virtually any connection need.

The P7380SMA Differential Probing System provides a 50 Ω per side termination network with a termination voltage. The termination voltage can be applied externally or through the TekConnect® interface from the TDS6000 probe menu, or not used at all. A gain switch provides two different sensitivity settings of the probe and an Aux Out provides an inverted version of the signal for driving other equipment. The P7380SMA probing system used with the TDS6000 oscilloscopes provides an ideal solution for validation and compliance testing of high speed serial data links.

▸ Characteristics

▸ Vertical System

	TDS6604B	TDS6804B	TDS6124C	TDS6154C
Input Channels	4			
Bandwidth, Rise Time (DSP)	N/A	8 GHz 50 ps (10 to 90%) (typical) 35 ps (20 to 80%) (typical)	12 GHz 35 ps (10 to 90%) (typical) 24 ps (20 to 80%) (typical)	15 GHz 28 ps (10 to 90%) (typical) 19 ps (20 to 80%) (typical)
True Analog Bandwidth (–3 dB), Typical Rise Time	6 GHz 70 ps (10 to 90%) (typical) 53 ps (20 to 80%) (typical)	7 GHz 62 ps (10 to 90%) (typical) 43 ps (20 to 80%) (typical)	12 GHz 35 ps (10 to 90%) (typical) 24 ps (20 to 80%) (typical)	12 GHz 35 ps (10 to 90%) (typical) 24 ps (20 to 80%) (typical)
Hardware Bandwidth Limits (Requires TCA-1 MEG Adapter)	Full, 250 MHz or 20 MHz			
Input Coupling	DC, GND			
Input Impedance	50 Ω ±2.5%		50 Ω ±2%	
Input Sensitivity, 50 Ω	Full-scale 100 mV to 10 V (10 mV/div to 1 V/div). Full-scale is the peak-to-peak digitizer range at a given sensitivity. Volts/div = Full-scale ÷ 10		Full-scale 50 mV to 10 V (5 mV/div*1 to 1 V/div). Full-scale is the peak-to-peak digitizer range at a given sensitivity. Volts/div = Full-scale ÷ 10	
Vertical Resolution	8-Bit (>11-Bit with averaging)			
Max Input Voltage, 50 Ω (also determined by TekConnect® accessory)	<1 V_{RMS} for <100 mV/div, <7 V_{RMS} for ≥100 mV/div settings		<1 V_{RMS} for <1 V full-scale, <5.5 V for ≥1 V full-scale	
DC Gain Accuracy	±(2.5% + (2% x offset))		±2%	
Position Range	±5 divisions			
Offset Range*2	Fullscale settings: 100 mV to 500 mV: ±0.5 V 505 mV to 995 mV: ±0.25 V 1 V to 5 V: ±5 V 5.05 V to 10 V: ±2.5 V		Fullscale settings: 100 mV: ±0.45 V 200 mV: ±0.4 V 500 mV: ±0.25 V 1 V: ±4.5 V 2 V: ±4.0 V 5 V: ±2.5 V 10 V: 0 General Formula for offset range 100 mV to 995 mV: ±|0.5 V – Fullscale/2| 1 V to 10 V: ±|5 V – Fullscale/2|	
Offset Accuracy	±(0.7% x offset + 1.5 mV + 0.1 x V/div setting) for ranges <100 mV/div ±(0.8% x offset + 15 mV + 0.1 x V/div setting) for ranges ≥100 mV/div		±(0.35% x offset + 1.5 mV + 0.1 x V/div setting) for ranges <100 mV/div ±(0.35% x offset + 15 mV + 0.1 x V/div setting) for ranges ≥100 mV/div	
Channel-to-Channel Isolation for Any Two Channels at Equal Vertical Scale	≥80:1 at 1.5 GHz ≥15:1 at rated bandwidth		≥150:1 at 0 to 10 GHz >80:1 at 10 GHz to 12 GHz ≥50:1 at 12 GHz to 15 GHz	

≥

*1 5 mV/div is a software zoom with 7 bits digitizer resolution at 50 mV full scale.

*2 Offset range in addition to ±5 division position range.

► Vertical System (Continued)

	Full Scale Gain Setting	TDS6000B DSP OFF	TDS6154C DSP ON	TDS6124C DSP ON	BOTH DSP OFF
Noise, typical	100 mV	950 µV	690 µV	570 µV	670 µV
	160 mV	—	950 µV	840 µV	950 µV
	200 mV	1.6 mV	1.1 mV	940 µV	1.0 mV
	300 mV	—	1.6 mV	1.45 mV	1.6 mV
	400 mV	—	2.1 mV	1.85 mV	2.1 mV
	500 mV	3.55 mV	2.5 mV	2.3 mV	2.4 mV
	800 mV	—	4.4 mV	3.8 mV	4.1 mV
	900 mV	—	4.8 mV	4.3 mV	4.6 mV
	1 V	9.5 mV	6.9 mV	5.7 mV	6.8 mV
	2 V	16 mV	10.5 mV	9.5 mV	10.0 mV
	5 V	35.5 mV	25 mV	23 mV	24 mV
	10 V	68 mV	56 mV	46 mV	50 mV

► Timebase System

	TDS6000B Models	TDS6000C Models
Timebase Range	25 ps to 40 s/div; Interpolation down to 500 fs/pt.	
Timebase Delay Time Range	5 ns to 250 s	
Channel-to-Channel Deskew Range	±75 ns	
Trigger Jitter (RMS)	<1.5 ps_{RMS} (typical)	<1 ps_{RMS} (typical)
Long-term Sample Rate and Delay Time Accuracy	<2 ppm over any ≥100 ms interval	
Clock Stability	<1 ppm (typical) <2.5 ppm (guaranteed)	
Jitter Noise Floor	420 fs_{RMS} (typical) over 10 µs duration or less	
Delta Time Accuracy	[(0.06/sample rate) + (2.5 ppm x [Reading])]$_{RMS}$, typical*3	635 fs_{RMS} over <100 ns duration, typical*4

*3 Test conditions: Sample mode, at 20 GS/s.

*4 Test conditions: Sample mode, 500 mV full scale (50 mV/div) setting, input signal 350 mV with rise time (10% to 90%) <50 ps.

► Acquisition System

	TDS6000B Models	TDS6000C Models
Max Sample Rate	20 GS/s on 4 channels	40 GS/s on 2 channels, 20 GS/s on 4 channels
Equivalent Time Sample Rate (max)	2 TS/s	
Maximum Record Length per Channel	32 Mb (requires Opt. 4M)	64 Mb on two channels; 32 Mb on all 4 channels (requires option 4M)
Standard	2 Mb on all 4 Channels	4 Mb on two channels; 2 Mb on all 4 Channels
with Memory Opt. 2M	8 Mb on all 4 Channels	16 Mb on two channels; 8 Mb on all 4 Channels
with Memory Opt. 3M	16 Mb on all 4 Channels	32 Mb on two channels; 16 Mb on all 4 Channels
with Memory Opt. 4M	32 Mb on all 4 Channels	64 Mb on two channels; 32 Mb on all 4 Channels

▸ Maximum Time Duration Captured at Highest Real-time Resolution (All Channels)

	TDS6000B Models (All Channels)	TDS6000C Models (Two Channels)
Max Duration with Standard Memory	100 µs	100 µs
Max Duration with Opt. 2M	400 µs	400 µs
Max Duration with Opt. 3M	800 µs	800 µs
Max Duration with Opt. 4M	1.6 ms	1.6 ms

▸ Acquisition Modes

	All Models
Waveform Database	Accumulate Waveform Database providing three-dimensional array of amplitude, time and counts
Sample	Acquire sampled values
Peak Detect	Captures narrow glitches at all real-time sampling rates
Minimum Peak Detect Pulse Width	50 ps
Averaging	From 2 to 10,000 waveforms included in average
Envelope	From 2 to $2x10^9$ waveforms included in min-max envelope
Hi-Res	Real-time boxcar averaging reduces random noise and increases resolution
FastFrame™ Acquisition	Acquisition memory divided into segments; maximum trigger rate >310,000 waveforms per second. Time of arrival recorded with each event
Roll Mode	200 kS/s at 8 Mb Record length and 500 kS/s at 4 Mb Record Length on all channels

▸ Pinpoint™ Trigger System

	All Models
Sensitivity	
Internal DC Coupled	0.5 div DC to 50 MHz increasing to 2.5 div at 7 GHz (TDS6000B models, typical) 0.4 div DC to 50 MHz, increasing to 1 div at 3 GHz, increasing to 3 div at 9 GHz (TDS6000C models, typical)
External (auxiliary input)	250 mV DC to 50 MHz, increasing to 350 mV at 1 GHz, increasing to 500 mV at 2 GHz (typical)
Trigger Characteristics	
Main Trigger Modes	Auto, Normal and Single
A Event and Delayed B Event Trigger Types	Edge, Glitch, Runt, Width, Transition Time, Timeout, Pattern, State, Setup/Hold, Window – all except Edge, Pattern and State can be Logic State qualified by up to two channels
Trigger Sequences	Main, Delayed by Time, Delayed by Events, Reset by Time, Reset by State, Reset by Transition. All sequences can include separate horizontal delay after the trigger event to position the acquisition window in time
Communications-related Triggers (requires Option SM)	Support for AMI, HDB3, BnZS, CMI, MLT3 and NRZ encoded communications signals up to 3.125 Gb/s. Select among isolated positive or negative one, zero pulse form or eye patterns as applicable to standard

► Pinpoint™ Trigger System (continued)

	All Models
Trigger Characteristics (continued)	
Serial Pattern Trigger (requires Option ST)	64-Bit serial word recognizer, bits specified in binary (high, low, don't care) or hex format. Trigger on NRZ-encoded data up to 1.25 Gbaud. TDS6000C models only: trigger on 8b/10b encoded data up to 3.125 Gbaud (40 bits)
Trigger Level Range	
Internal	±12 divisions from center of screen
External (auxiliary in)	±5 V
Line	Fixed at 0 V
Trigger Coupling	DC, AC (attenuate <60 Hz), HF reject (attenuate >30 kHz). LF reject (attenuates <80 kHz) Noise reject (reduce sensitivity)
Trigger Holdoff Range	250 ns minimum to 12 s maximum

Trigger Types

Edge –
Positive and/or negative slope on any channel or front panel auxiliary input. Coupling includes DC, AC, noise reject, HF reject and LF reject.
Glitch –
Trigger on or reject glitches of positive, negative or either polarity. Minimum glitch width is down to 100 ps with re-arm time of 250 ps.
Width –
Trigger on width of positive or negative pulse (down to 100 ps) either within or out of selectable time limits.
Runt –
Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again. Optional time qualification.
Timeout –
Trigger on an event which remains high, low or either for a specified time period, selectable from 360 ps to 1 s.
Transition –
Trigger on pulse edge rates that are faster or slower than specified. Slope may be positive, negative or either.
Setup/Hold –
Trigger on violations of both setup time and hold time between clock and data present on any two input channels.
Pattern –
Trigger when pattern goes false or stays true for specified period of time. Pattern (AND, OR, NAND, NOR) specified for four input channels defined as HIGH, LOW or Don't Care.
State –
Any logical pattern of channels (1, 2, 3) clocked by edge on channel 4. Trigger on rising or falling clock edge.
Window –
Trigger on an event that enters or exits a window defined by two user-adjustable thresholds. Event can be time or logic qualified.
Trigger Delay by Time – 5 ns to 250 seconds.
Trigger Delay by Events – 1 to 10,000,000 events.

Waveform Measurements

Amplitude –
Amplitude, High, Low, Maximum, Minimum, Peak-to-Peak, Mean, Cycle Mean, RMS, Cycle RMS, Positive Overshoot, Negative Overshoot.
Time –
Rise Time, Fall Time, Positive Width, Negative Width, Positive Duty Cycle, Negative Duty Cycle, Period, Frequency, Delay.
Combination – Area, Cycle Area, Phase, Burst Width.
Histogram-related –
Waveform count, Hits in box, Peak hits, Median, Maximum, Minimum, Peak-to-Peak, Mean (μ), Standard Deviation (σ), μ + 1σ, μ + 2σ, μ + 3σ.
Eye Pattern-related –
Extinction Ratio (absolute, %, and dB), Eye Height, Eye Top, Eye Base, Eye Width, Crossing %, Jitter (peak-to-peak, RMS and 6σ), Noise (peak-to-peak and RMS), S/N ratio, Cycle Distortion, Q-factor.

Waveform Processing/Math

Algebraic Expressions –
Define extensive algebraic expressions including waveforms, scalars and results of parametric measurements e.g., (Integral (CH.1-Mean(CH.1)) x 1.414).
Arithmetic –
Add, subtract, multiply, divide waveforms and scalars.
Relational –
Boolean result of comparison >, <, ≥, ≤, =, ≠.
Calculus – Integrate, differentiate.
Frequency Domain Functions –
Spectral magnitude and phase, real and imaginary spectra.
Vertical Units –
Magnitude: Linear, dB, dBm;
Phase: Degrees, radians.
Window Functions –
Rectangular, Hamming, Hanning, Kaiser-Bessel, Blackman-Harris, Gaussian, Flattop2, Tek Exponential.
Waveform Definition – As arbitrary math expressions.

Display Characteristics

Display Type – Liquid crystal active-matrix color display.
Display Size – Diagonal: 264 mm (10.4 in.).
Display Resolution –
1024 horizontal x 768 vertical pixels.
Waveform Styles –
Vectors, Dots, Variable Persistence, Infinite Persistence.

Computer System and Peripherals

CPU – Intel Pentium 4 processor, 2.8 GHz.
PC System RAM – 1 GB (266 MHz DDR).
Hard Disk Drive –
40 GB removable hard disk drive: rear-panel standard or front-panel (Option FHD).
USB Ports –
One front panel, four on rear panel, USB 2.0 compliant.
CD-R/W Drive –
Front-panel CD-R/W standard or rear-panel (Option FHD).
Mouse –
Optical scroll wheel model included, USB interface.
Keyboard –
Small keyboard included (fits in pouch). Order 119-6297-xx for full-size keyboard; USB interface and hub.

Input/Output Ports

Front Panel

Fast Edge Output –
Front panel SMA connector provides fast edge signal. TDS6000B models: Amplitude 350 mV ±20% into a ≥50 Ω load, frequency 1 kHz ±5%, 200 ps typical rise time.
TDS6000C models: Amplitude 440 $mV_{pk\text{-}pk}$, ±20% in a 50 Ω load; VOH +0.3 V, VOL – 0.14 V; frequency 1 kHz ±5%, 200 ps typical rise time.

Recovered Clock –
SMA connector, ≤1.25 Gb/s, Output swing ≥130 mV_{pk-pk} into 50 Ω. Requires Opt. SM or Opt. ST to enable.
Recovered Data –
SMA connector, ≤1.25 Gb/s, Output swing of 1010 repeating pattern 200 mV into 50 Ω. Requires Opt. SM or Opt. ST to enable.
DC Probe Calibration Output –
BNC connector, ±10 V DC for DC probe calibration. (Signal available only during probe calibration.)
AUX Trigger Output –
BNC connector, provides a TTL-compatible, polarity switchable pulse when the oscilloscope triggers.
USB2.0 Port –
One in front. Allows connection or disconnection of USB keyboard, mouse or storage device while oscilloscope is on.

Rear Panel

External Time Base Reference In –
BNC connector; allows time base system to phase-lock to external 10 MHz reference.
Time Base Reference Out –
BNC connector; provides TTL-compatible output of internal 10 MHz reference oscillator.
Aux Trigger Input – BNC, see Ext Trigger specification.
Parallel Port – IEEE 1284, DB-25 connector.
Audio Ports –
Miniature phone jacks for stereo microphone input and stereo line output.
USB2.0 Ports –
Four in back. Allows connection or disconnection of USB keyboard, mouse, or storage device while oscilloscope power is on.
Keyboard Port – PS-2 compatible.
Mouse Port – PS-2 compatible.
LAN Port –
RJ-45 connector, supports 10Base-T, 100Base-T and 1000Base-T.
Serial Port – DB-9 COM1 port.
Windows Video Port –
15-Pin D-sub connector on the rear panel; connect a second monitor to use dual-monitor display mode allowing analysis results and plots to be viewed along with the oscilloscope display. Video is DDC2B compliant.
GPIB Port – IEEE 488.2 standard.
Scope XGA Video Port –
15-Pin D-sub connector on the rear panel, video is IBM XGA compatible. Connect to show the oscilloscope display, including live waveforms on an external monitor or projector. The primary Windows desktop can also be displayed on an external monitor using this port.

Power Source

Power –
100 to 240 V_{RMS}, ±10%, 50/60 Hz; 115 V_{RMS} ±10%, 400 Hz; CAT II, <500 W typical (650 VA).

Option SM

156 Standards Masks Supported –
ITU-T (1.544 Mb/s to 155 Mb/s).
ANSI T1.102 (1.544 Mb/s to 155 Mb/s).
Ethernet IEEE Std 802.3, ANSI X3.263 (1.544 Mb/s to 3.125 Gb/s XAUI).
Sonet/SDH (51.84 Mb/s to 2.4883 Gb/s).
Fibre Channel (133 Mb/s to 4.25 Gb/s*[3]).
InfiniBand (2.5 Gb/s).
USB (12 Mb/s to 480 Mb/s).
Serial ATA (1.5 Gb/s, 3.0 Gb/s).
Serial Attached SCSI (1.5 Gb/s, 3.0 Gb/s).
IEEE 1394b (491.5 Mb/s to 1.966 Gb/s).
RapidI/O (1.25 Gb/s to 3.125 Gb/s).
OIF Standards (2.488 Gb/s to 3.11 Gb/s).
PCI Express (2.5 Gb/s).

Physical Characteristics

BENCHTOP CONFIGURATION

Dimensions	**mm**	**in.**
Height	282	11.1
Width	457	18.0
Depth	540	23.25
Weight	**kg**	**lb.**
Net	21	47
Shipping	32.3	71.2

RACKMOUNT CONFIGURATION

Dimensions	**mm**	**in.**
Height	267	10.5
Width	491	19.3
Depth	638	25.1
Weight	**kg**	**lb.**
Net	22	49
Kit	5.6	12.25

*[3] 4.25 Gb/s mask supported using Glitch Trigger.

Mechanical

Cooling -

Required Clearance	**mm**	**in.**
Top	0 or >76	0 or >3
Bottom	25	1
Left side	76	3
Right side	76	3
Front	0	0
Rear	0	0

Environmental

Temperature

Operating –
Excluding CD-R/W drive:
TDS6000B models: +5 ºC to +40 ºC.
TDS6000C models: +10 ºC to +45 ºC.
Including CD-R/W drive: +10 ºC to +40 ºC.
Nonoperating – –22 ºC to +60 ºC.

Humidity

Operating –
20% to 80% relative humidity with a maximum wet bulb temperature of +29 ºC at or below +50 ºC, noncondensing. Upper limit derated to 25% relative humidity at +50 ºC.
Nonoperating –
5% to 90% relative humidity with a maximum wet bulb temperature of +29 ºC at or below +60 ºC, noncondensing. Upper limit derated to 20% relative humidity at +60 ºC.

Altitude

Operating – 10,000 ft. (3,048 m).
Nonoperating – 40,000 ft. (12,190 m).

Random Vibration

Operating –
0.000125 g^2/Hz from 5 to 350 Hz, –3 dB/octave from 350 to 500 Hz, 0.0000876 g^2/Hz at 500 Hz. Overall level of 0.24 g_{RMS}.
Nonoperating –
0.0175 g^2/Hz from 5 to 100 Hz, –3 dB/octave from 100 to 200 Hz, 0.00875 g^2/Hz from 200 to 350 Hz, –3 dB/octave from 350 to 500 Hz, 0.006132 g^2/Hz at 500 Hz. Overall level of 2.28 g_{RMS}.

Certifications

Electromagnetic Compatibility – 89/336/EEC.
Safety –
UL 3111-1, CSA1010.1, EN61010-1, IEC 61010-1.

► Ordering Information

TDS6154C

15 GHz Digital Storage Oscilloscope.

TDS6124C

12 GHz Digital Storage Oscilloscope.

TDS6804B

8 GHz Digital Storage Oscilloscope.

TDS6604B

6 GHz Digital Storage Oscilloscope.

TDS6000B and TDS6000C Models Include: Accessory pouch, front cover, USB mouse, USB mini-keyboard, user manual (071-1658-xx), Documentation CD-ROM (063-3760-xx), product software CD-ROM (020-2572-xx for TDS6000B models; 020-2647-xx for TDS6000C models), operating system restoration CD-ROM (020-2569-xx), optional applications software CD-ROM (020-2450-xx), performance verification procedure PDF file, GPIB programmer's reference (on product software CD-ROM), calibration certificate documenting NIST traceability, 2 540-1 compliance and ISO9000, power cord, one year warranty. (4) TekConnect® to SMA adapters (TCA-SMA), Deskew Fixture (067-0484-xx).Please specify power plug when ordering.

Instrument Options

Power Plug Options

Opt. A0 – North America power.

Opt. A1 – Universal EURO power.

Opt. A2 – United Kingdom power.

Opt. A3 – Australia power.

Opt. A5 – Switzerland power.

Opt. A6 – Japan power.

Opt. A10 – China power.

Opt. A99 – No power cord or AC adapter.

Manual Language Options

Opt. L5 – Japanese manual.

Opt. L7 – Simplified Chinese manual.

Opt. L10 – Russian manual.

Disk Drive Options

Opt. FHD – Front-panel 40 GB removable hard disk drive, replaces front panel CD-R/W which is moved to the back.

Cables

GPIB Cable (1 m) – Order 012-0991-01.

GPIB Cable (2 m) – Order 012-0991-00.

RS-232 Cable – Order 012-1298-00.

Centronics Cable – Order 012-1214-00.

Mounting Options

1K – K4000 Oscilloscope Cart.

1R – Rackmount Kit.

Service Options

Opt. C3 – Calibration Service 3 Years.

Opt. C5 – Calibration Service 5 Years.

Opt. D1 – Calibration Data Report.

Opt. D3 – Calibration Data Report 3 Years (requires Option C3).

Opt. D5 – Calibration Data Report 5 Years (with Option C5).

Opt. R3 – Repair Service 3 Years.

Opt. R5 – Repair Service 5 Years.

Acquisition Memory Options

TDS6000B Models:

2M – 8 M samples on all channels.

3M – 16 M samples on all channels.

4M – 32 M samples on all channels.

TDS6000C Models:

2M – 16 M samples on two channels; 8 M samples on all channels.

3M – 32 M samples on two channels; 16 M samples on all channels.

4M – 64 M samples on two channels; 32 M samples on all channels.

Software Options

CP2[*1] – TDSCPM2 ANSI/ITU Telecom pulse compliance testing software (requires Option SM).

DVI – TDSDVI DVI compliance test solution.

ET3 – TDSET3 Ethernet compliance test software.

HT3 – HDMI compliance test software.

JA3 – TDSJIT3 v2.0 Advanced jitter analysis software.

JE3 – TDSJIT3 v2.0 Essentials jitter analysis software.

J2 – TDSDDM2 Disk drive analysis software.

PW3[*2] – TDSPWR3 Power measurement and analysis software.

[*1] Requires Option SM.

[*2] Option 3M and a TCA-1MEG TekConnect 1 MΩ buffer amplifier are recommended for use with this software.

RTE – TDSRT-Eye™ Serial Data Compliance and Analysis Software.

RJA – Software Bundle of TDSJIT3 v2.0 (Opt. J3A), TDSRT-Eye (Opt. RTE), and Protocol Trigger Decode (Opt. PTD).

RSA – Software Bundle of TDSJIT3 v2.0 (Opt. J3A), RT-Eye (Opt. RTE), Serial Trigger (Opt. ST), Protocol Trigger and Decode (Opt. PTD), and Serial Mask testing (Opt. SM).

PCE[*3] – PCI Express™ Compliance Module for Option RTE.

PTD – Protocol Trigger and Decode (provides protocol decode on all models, requires Opt. ST for protocol triggering on the TDS6000C series only).

IBA[*3] – InfiniBand Compliance Module for Option RTE.

SM – Serial communications mask testing (enables hardware clock recovery).

SST – SATA and SAS Analysis Software Module for Option RTE.

ST – Serial pattern trigger (enables hardware clock recovery)

USB[*4] – TDSUSBS USB2.0 Compliance test S/W only.

Recommended Accessories

P7313 – 12.5 GHz Differential Probe.

P7380 – 8 GHz Differential Probe.

P7380SMA – 8 GHz Differential Probing System.

AFTDS – Telecom differential electrical interface adapter (for line rates <8 MB/sec; requires TCA-BNC adapter).

Keyboard (USB interface) Full-size Keyboard with 4-port USB Hub – Order 119-6297-00.

Transit Case – Order 016-1942-00.

TekConnect Adapters –

TCA-1MEG: TekConnect high-impedance buffer amplifier. Includes P6139A passive probe.

TCA-SMA: TekConnect-to-SMA Adapter.

TCA-N: TekConnect-to-N Adapter.

TCA-BNC: TekConnect-to-BNC Adapter.

TCA75: 4 GHz precision TekConnect® 75 Ω to 50 Ω adapter with 75 Ω BNC input connector.

Oscilloscope Cart – Order K4000.

Software – WSTRO: WaveStar™ waveform capture and documentation software.

Test Fixtures– TDSUSBF: TDSUSB test fixture for use with Opt. USB.

[*3] Requires Option RTE (Serial Data Compliance and Analysis).

[*4] Requires TDSUSBF (USB Test Fixture).

After Purchase Upgrades of TDS6000B and TDS6000C Series Oscilloscopes

To upgrade your oscilloscope, order option as noted.

Acquisition Record Length:

Current Record Length	Desired	Order
Standard	8 Msamples (16 Msamples TDS6000C)	TDS6BUP Opt. M02
	16 Msamples (32 Msamples TDS6000C)	TDS6BUP Opt. M03
	32 Msamples (64 Msamples TDS6000C)	TDS6BUP Opt. M04
8 Msamples	16 Msamples (32 Msamples TDS6000C)	TDS6BUP Opt. M23
	32 Msamples (64 Msamples TDS6000C)	TDS6BUP Opt. M24
16 Msamples	32 Msamples (64 Msamples TDS6000C)	TDS6BUP Opt. M34

Desired Option	Order
Serial Comm Mask Testing	TDS6BUP Opt. SM
Serial Pattern Trigger	TDS6BUP Opt. ST
Hardware Clock Recovery for Serial Data Stream	Included in Opt. SM and ST
Analysis and Compliance Software:	
ANSI/ITU Telecom Pulse Compliance	TDS6BUP Opt. CP2 (Requires Opt. SM)
DVI Compliance Test	TDS6BUP Opt. DVI
Ethernet Compliance	TDS6BUP Opt. ET3
JIT3 V2.0 Advanced Jitter Analysis Software	TDS6BUP Opt. JA3
JIT3 V2.0 Essentials Jitter Analysis Software	TDS6BUP Opt. JE3
DDM2 Disk Drive Analysis Software	TDS6BUP Opt. J2
Power Measurement/Analysis	TDS6BUP Opt. PW3
Protocol Trigger and Decode (trigger capability for TDS6000C only, requires Opt. ST)	TDS6BUP Opt PTD
RT-Eye Serial Data Compliance and Analysis Software	TDS6BUP Opt. RTE
PCI Express™ Compliance Module for Option RTE	TDS6BUP Opt. PCE (Requires Opt. RTE or RJA or RSA)
InfiniBand® Compliance Module for Option RTE	TDS6BUP Opt. IBA (Requires Opt. RTE or RJA or RSA)
USB2.0 Compliance, software only	TDS6BUP Opt. USB (Requires TDSUSBF test fixture)
RT-Eye Serial Data Analysis Software, TDSJIT3 v2.0 Advanced Jitter Analysis, PTD Protocol Trigger and Decode Software Bundle	TDS6BUP Opt. RJA
RT-Eye Serial Data Analysis, TDSJIT3 v2.0 Advanced Jitter Analysis, Opt. SM Serial Mask, Opt. ST Serial Trigger, Opt. PTD Protocol Trigger and Decode Software Bundle	TDS6BUP Opt. RSA

Digital Storage Oscilloscope

► TDS6000 Series

DPO – Digital Phosphor Technology

You have to see it to believe it.



A Digital Phosphor Oscilloscope (DPO) is ideal for those who need the best design and troubleshooting tool for a wide range of applications, for communication mask testing, digital debug of intermittent signals, repetitive digital design and timing applications. Covering a spectrum of bandwidth from 100 MHz to 7 GHz, Tektronix offers a wide selection of DPOs for you to see a world others don't.

OpenChoice®

Provides more choices for your networking and analysis solutions.



OpenChoice is a collection of software libraries, utilities, samples, industry-standard protocols and interfaces offered with many Tektronix oscilloscopes and logic analyzers. From 60 MHz to 15 GHz, OpenChoice allows you to communicate with your oscilloscope or logic analyzer over a network, using numerous connectivity protocols and physical interfaces, such as GPIB, Ethernet, RS-232 and shared memory.

TekConnect®

Superior signal fidelity and unparalleled versatility at your fingertips.



TekConnect interface takes probe intelligence to the next level whether you are measuring high voltage, current, power, or even micro-volt level signals. The TekConnect interface ensures superior signal fidelity with useful bandpass up to 18 GHz at the oscilloscope input, while offering unparalleled versatility. With the TekConnect interface, you can be assured that maximum signal integrity is maintained to meet your present and future bandwidth needs.

Oscilloscope Software

Turn your general purpose oscilloscope into a highly specialized analysis tool.



Tektronix offers exceptional application solutions that instill your oscilloscope with specific technology or procedure expertise, vastly simplifying the development and testing of specialized designs. From serial data standards to power measurements, Tektronix has the broadest selection of oscilloscope software to convert your oscilloscope into a highly specialized and power analysis tool.

Contact Tektronix:

ASEAN / Australasia / Pakistan (65) 6356 3900
Austria +41 52 675 3777
Balkan, Israel, South Africa and other ISE Countries +41 52 675 3777
Belgium 07 81 60166
Brazil & South America 55 (11) 3741-8360
Canada 1 (800) 661-5625
Central East Europe, Ukraine 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 & North Africa +33 (0) 1 69 86 81 81
Germany +49 (221) 94 77 400
Hong Kong (852) 2585-6688
India (91) 80-22275577
Italy +39 (02) 25086 1
Japan 81 (3) 6714-3010
Luxembourg +44 (0) 1344 392400
Mexico, Central America & Caribbean 52 (55) 56666-333
Middle East, Asia and North Africa +41 52 675 3777
The Netherlands 090 02 021797
Norway 800 16098
People's Republic of China 86 (10) 6235 1230
Poland +41 52 675 3777
Portugal 80 08 12370
Republic of Korea 82 (2) 528-5299
Russia & CIS 7 095 775 1064
South Africa +27 11 254 8360
Spain (+34) 901 988 054
Sweden 020 08 80371
Switzerland +41 52 675 3777
Taiwan 886 (2) 2722-9622
United Kingdom & Eire +44 (0) 1344 392400
USA 1 (800) 426-2200
For other areas contact Tektronix, Inc. at: 1 (503) 627-7111

Updated 15 June 2005

Our most up-to-date product information is available at:
www.tektronix.com

Product(s) are manufactured in ISO registered facilities.

Copyright © 2005, Tektronix, Inc. All rights reserved. Tektronix products are covered by U.S. and foreign patents, issued and pending. Information in this publication supersedes that in all previously published material. Specification and price change privileges reserved. TEKTRONIX and TEK are registered trademarks of Tektronix, Inc. All other trade names referenced are the service marks, trademarks or registered trademarks of their respective companies.

07/05 HB/WOW 55W-14873-8

Tektronix
Enabling Innovation

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP