

# Powerful. Portable. Affordable.

## TDS3000B Series Digital Phosphor Oscilloscopes



Unit Size: 14.8" wide (375.0 mm) x 6.9" high (176.0 mm) x 5.9" deep (149.0 mm)

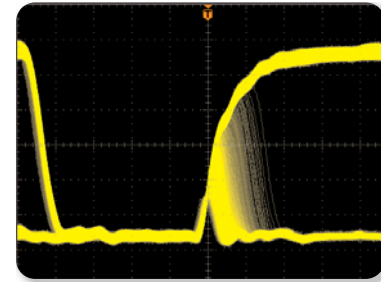
- ▶ Choice of 100 to 600 MHz bandwidths to meet the needs of your most demanding projects.
- ▶ Be sure to capture a complete view of your signal with digital real-time (DRT) sampling technology and  $\sin(x)/x$  interpolation.
- ▶ Capture glitches and infrequent events 3X faster than other oscilloscopes in its class with 3,600 wfms/s continuous waveform capture rate.
- ▶ Real-time intensity-graded color display to locate and analyze waveform anomalies that can be elusive or invisible on comparable oscilloscopes.
- ▶ WaveAlert® automatic waveform anomaly detection provides instant 3-D recognition of transients.
- ▶ Plug-in application and communication modules extend the application-specific features needed for the job at hand.
- ▶ Compact, lightweight, battery-capable design with optional plug-in printer to take you anywhere the job requires.

### Applications:

- ▶ Digital Design, Debug and Test
- ▶ Power Supply Design
- ▶ Video Installation and Service
- ▶ Telecommunications Mask Testing

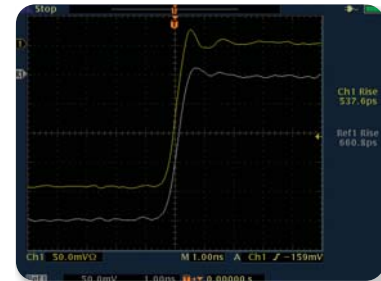
### Because Your Design Demands More Than Last Year's Technology

Many oscilloscopes lack the performance and features to stay abreast of the digital evolution. The TDS3000B Series digital phosphor oscilloscopes deliver the power, portability and affordability needed to tackle tough design challenges. With 3,600 wfms/s continuous waveform capture rate, up to 600 MHz bandwidth, digital real-time (DRT) sampling technology with 5 GS/s maximum real-time sample rate, and WaveAlert waveform anomaly detection—all in a compact battery-capable package—the TDS3000B Series is the most powerful, portable and affordable combination available.



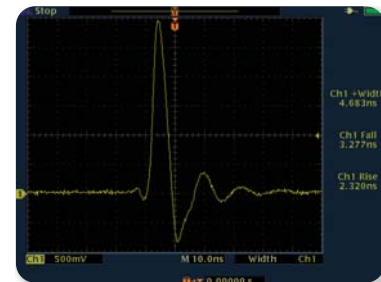
### ▶ High Waveform Capture Rate

Provides unmatched insight into complex signal behavior, such as metastable events.



### ▶ Up to 600 MHz Bandwidth

Offers a 20% improvement in rise time measurement accuracy, as illustrated with a 20 ps rising edge measured on 500 and 600 MHz instruments.



### ▶ DRT Sampling Technology

Capture high-frequency information, such as glitches and edge anomalies, that eludes comparable oscilloscopes.

# Boost Your Productivity With Superior Signal Acquisition

## A DPO Delivers Superior Insight into Complex Signals

The TDS3000B Series' exceptional waveform capture rate delivers unmatched signal fidelity to make it easier to capture, measure and analyze waveforms in real-time, instead of painstakingly combing through histories, or missing them altogether. Their intensity-graded color display provides information about the frequency of occurrence of signal amplitudes and widths to locate and characterize waveform anomalies that can be elusive on other oscilloscopes in its class.

## Higher Speeds Demand Greater Bandwidth

You face faster clock rates and edge speeds, increasingly complex signals and mounting time-to-market pressures. The higher the bandwidth of your oscilloscope, the more accurate the reproduction of your signal. The TDS3000B Series offers a wide range of bandwidth selections to best suit the needs of your most demanding projects, so that you can complete your tasks on time and with confidence.

## Quickly Debug and Characterize Signals with DRT Sampling Technology and Sin(x)/x Interpolation

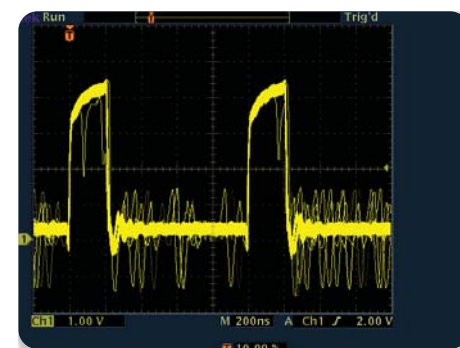
You need the confidence and trust that you're accurately capturing the details of your signal. If an oscilloscope's sample rate isn't fast enough, transient signal details can be lost, resulting in errors. Equipped with digital real-time (DRT) sampling technology, the TDS3000B Series acquires signals in real time, capturing enough samples of the signal needed to faithfully reconstruct a waveform in a single acquisition cycle. DRT sampling technology allows you to characterize a wide range of signal types on all channels simultaneously and makes it possible to capture high-frequency information, such as glitches and edge anomalies, that eludes other oscilloscopes in its class.

The TDS3000B Series pairs DRT sampling technology with  $\sin(x)/x$  interpolation to ensure accurate reconstruction of each waveform. In order to reconstruct an original signal from a sampled signal, an oscilloscope interpolates between data points. Unlike linear interpolation, which can lead to inaccurate reconstruction,  $\sin(x)/x$  interpolation ensures precise signal reconstruction.

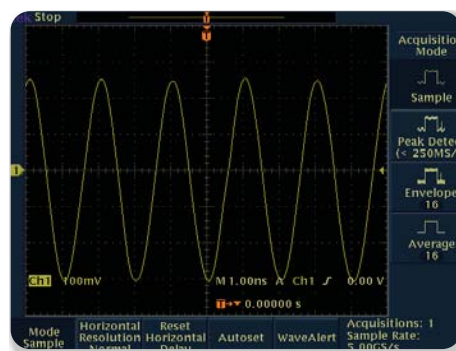
Together, DRT sampling technology and  $\sin(x)/x$  interpolation deliver a complete view of your signal to speed debug and characterization.

## WaveAlert® Enhances Your Troubleshooting Ability

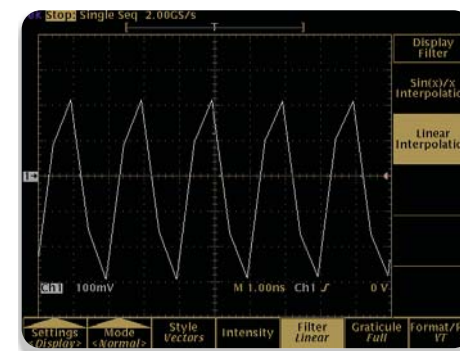
WaveAlert waveform anomaly detection speeds your troubleshooting tasks by helping you find those elusive problems faster. Because WaveAlert can stop an acquisition, sound a beep, make a hard copy or save the waveform when it detects an anomaly, you can run tests over long time periods—even unattended—to find those challenging, very infrequent failures.



► Capture glitches and infrequent events 3X faster than comparable oscilloscopes with the TDS3000B DPO.



► The TDS3054B's 5 GS/s real-time sample rate and  $\sin(x)/x$  interpolation ensure accurate reconstruction of a 500 MHz sine wave.



► Even with 2 GS/s sample rate, which exceeds the Nyquist requirement of 2X oversampling, linear interpolation does not provide accurate reconstruction of the same 500 MHz sine wave.

# Flexible Features for Every Application

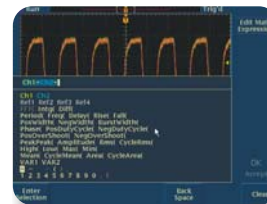
Transform your TDS3000B Series into the ideal tool for a range of applications with application-specific modules and other recommended accessories.

## TDS3000B Series Recommended Accessories

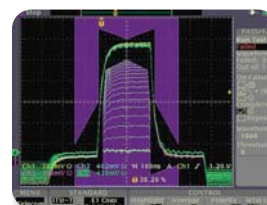
<b>TDS3GV Communication Module</b>	GPIB, VGA and RS-232 interfaces Includes TDSPCS1 OpenChoice® Software
<b>TDS3AAM Advanced Analysis Module</b>	Adds extended math capability, arbitrary math expressions, measurement statistics and additional automated measurements
<b>TDS3LIM Limit Testing Module</b>	Offers fast, accurate Go/No Go verification that tested circuits are operating within intended parameters
<b>TDS3TMT Telecommunications Mask Testing Module</b>	Pass/Fail compliance testing of ITU-T G.703 and ANSI T1.102 standards, custom mask editing and more
<b>TDS3VID Extended Video Editing Module</b>	Adds Video QuickMenu, Autoset, Holdoff, Line Count Trigger, Video Picture mode, Vectorscope mode, HDTV format triggering and more
<b>TDS3SDI 601 Serial Digital Video Module</b>	Identify and analyze ITU-R BT.601 video signals, video picture mode with bright line select, vectorscope mode, HDTV format triggering and more
<b>TDS3BATB Battery Pack</b>	For up to 3 hours of continuous operation without line power
<b>TDS3PRT Plug-In Printer</b>	Adds easy, portable documentation capability, even when operating on battery power
<b>AC3000</b>	Soft carrying case
<b>HCTEK321</b>	Hard carrying case
<b>RM3000</b>	Rackmount kit

## TDS3000B Series Recommended Software

<b>TDSPCS1 OpenChoice® Software</b>	A collection of applications that enables fast and easy documentation and analysis of measurement results
<b>WaveStar™ Software</b>	Offers live remote waveform reproduction, active remote control of oscilloscope-specific settings, advanced measurement and power harmonics analysis



▶ **TDS3AAM Advanced Analysis Module**



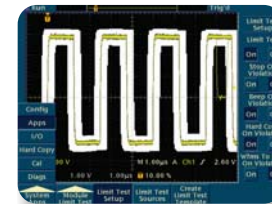
▶ **TDS3TMT Telecommunications Mask Testing Module**



▶ **TDS3SDI 601 Serial Digital Video Module**



▶ **TDS3PRT Plug-in Printer**



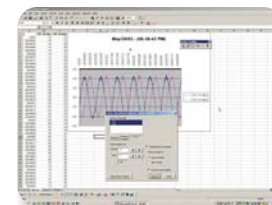
▶ **TDS3LIM Limit Testing Module**



▶ **TDS3VID Extended Video Module**



▶ **TDS3BATB Battery Pack**



▶ **TDS3GV Communication Module with TDSPCS1 OpenChoice® Software**

## Ordering Information

TDS3012B, TDS3014B, TDS3024B, TDS3032B, TDS3034B,  
TDS3044B, TDS3052B, TDS3054B, TDS3064B

Standard Accessories: probes, power cord, documentation,  
accessory tray, protective front cover and calibration certificate

### Recommended Option

**Option PB** - Available on all TDS3014B, TDS3024B, TDS3034B,  
TDS3044B, TDS3054B and TDS3064B models. Includes TDS3GV  
Communication Module with TDSPCS1 OpenChoice® Software,  
TDS3AAM Advanced Analysis Module and TDS3LIM Limit Testing  
Module.

### Recommended Accessories

**TDS3AAM** - Advanced Analysis Module

**TDS3LIM** - Limit Testing Module

**TDS3TMT** - Telecom Mask Testing Module

**TDS3VID** - Extended Video Module

**TDS3SDI** - 601 Serial Digital Video Module

**TDS3GV** - Communication Module

**TDSPCS1** - OpenChoice® Software

**WSTRO** - WaveStar™ Software

**TDS3BATB** - Battery pack

**TDS3CHG** - Fast charger for battery pack

**TDS3PRT** - Plug-in printer

**AC3000** - Soft case to carry instrument

**HCTEK321** - Hard case to carry instrument

**RM3000** - Rackmount kit

**TNGTDS01** - Operator Training Kit

### Recommended Probes

**ADA400A** - 100X, 10X, 1X, 0.1X high-gain differential amplifier

**P6243** - 1 GHz, ≤1 pF input C 10X active probe

**P5205** - 1.3 kV, 100 MHz high-voltage differential probe

**P5210** - 5.6 kV, 50 MHz high-voltage differential probe

**P5100** - 2.5 kV, 100X high-voltage passive probe

**TCP202** - 15 A, DC + peak AC 50 MHz AC/DC current probe

**TCP303\*<sup>1</sup>** - 15 MHz, 150 A current probe

**TCP305\*<sup>1</sup>** - 50 MHz, 50 A current probe

**TCP312\*<sup>1</sup>** - 100 MHz, 30 A current probe

**TCPA300** - 100 MHz probe amplifier

**TCP404XL\*<sup>2</sup>** - 2 MHz, 500 A current probe

**TCPA400** - 50 MHz probe amplifier

# Made Right for Your Applications

Models	Channels	Bandwidth (MHz)	Sample Rate <sup>3</sup> (GS/s)	Continuous Waveform Capture Rate (wfms/s)	Price
TDS3064B	4	600	5	3,600	
TDS3054B	4	500	5	3,600	
TDS3052B	2	500	5	3,600	
TDS3044B	4	400	5	3,600	
TDS3034B	4	300	2.5	3,600	
TDS3032B	2	300	2.5	3,600	
TDS3024B	4	200	2.5	3,600	
TDS3014B	4	100	1.25	3,600	
TDS3012B	2	100	1.25	3,600	

Built-in Ethernet and floppy drive standard.

<sup>1</sup> Requires TCPA300 probe amplifier.

<sup>2</sup> Requires TCPA400 probe amplifier.

<sup>3</sup> Digital real-time (DRT) sampling technology.

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