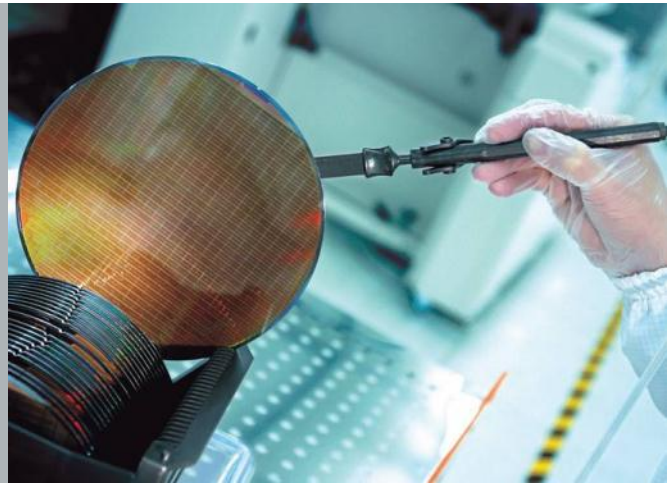
TBS1000B(-EDU) Oscilloscopes

Presented by TestEquity LLC



Tektronix®

Tektronix Scopes: The #1 Tool for Education and Entry-level Applications

- For years the TDS1000 and TDS2000 have been the most popular scopes in education and entry-level, general-purpose applications, with an installed base of over 600,000 units
- To refresh the portfolio Tektronix launched the new generation TBS1000 value oscilloscopes
  - TBS1000 2 CH models launched in October 2012
  - TBS1000 4 CH models launched in July 2013

Tektronix TBS1000B / Tbs1000B-EDU oscilloscopes address value-conscious, customers who are constantly looking for instruments with more performance and new features… offered at attractive prices.

Tektronix

Introducing *Two New* Oscilloscopes….

NEW

TBS1000B-EDU

The world's first dedicated teaching oscilloscope

NEW

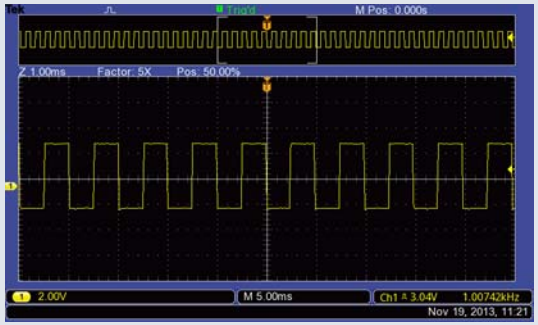
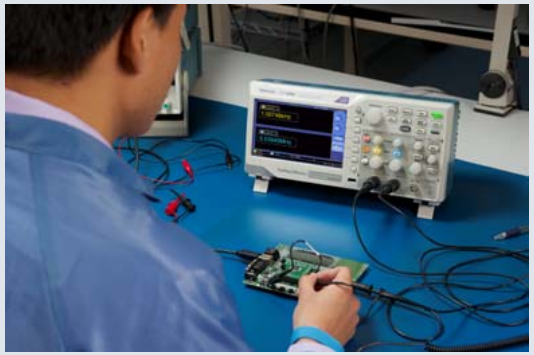
TBS1000B

The best value, all-around oscilloscope available

Tektronix

Unprecedented Value, Performance and Functionality

NEW TBS1000B/-EDU models replace existing 2-Channel TBS1000 models

Performance	Ease-of-Use	Value
		
• 50, 70, 100, 150 and 200 MHz bandwidth models • 2 analog channels • Best-in-class, always-on sampling rate up to 2 GS/s, independent of how many channels are being viewed • Standard dual-channel frequency counter • 3% DC gain accuracy, 10 mV/dv through 5 V/div	• User interface based on the industry leading Tektronix MSO/DPO oscilloscopes • Lightweight, compact design • 34 automated measurement types • USB connectivity and OpenChoice Desktop PC Software	• Prices starting at $520 (US MSRP) • Commercial and Education variants with unique features that satisfy different requirements. • 5 year warranty

Tektronix

Each Series' Models Offer Impressive Performance Specifications and Features

- **TBS1000B-EDU**
  - Education customers
  - Basic EE Teaching Labs in Academia
  - Corporate Education

"The world's first dedicated teaching oscilloscope making oscilloscope-based teaching and learning more effective than ever before."

Enabling Teaching — Built-in access to fully customizable courseware content

- **TBS1000B**
  - Commercial customers
  - Value-minded R&D Engineers
  - Manufacturing Technicians
  - Repair/Service Engineers

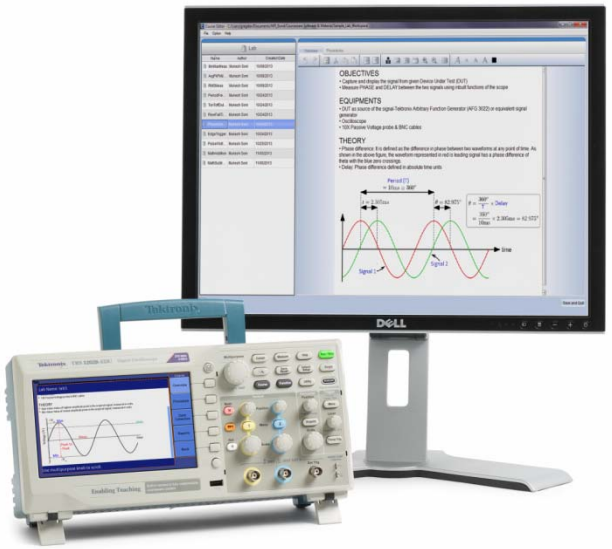
"The best-value general purpose oscilloscope for every-day use. One of these scopes belongs on every engineer's bench."

Enabling Efficiency — Rich set of automated measurements and analysis functions

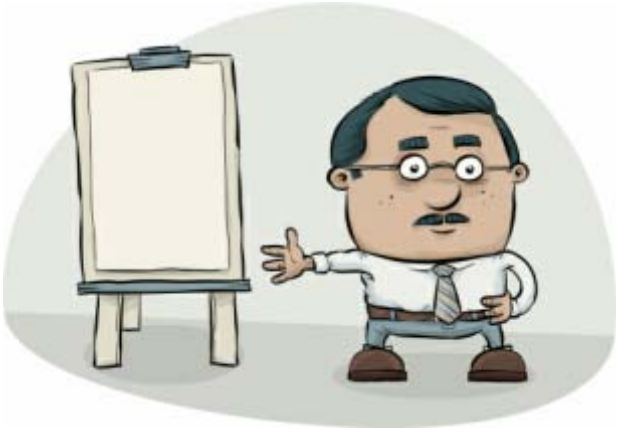
Tektronix

Innovative Courseware Functionality

- ***First*** oscilloscope with integrated courseware capability
  - Lab content can be loaded directly onto the oscilloscope
  - Students can review lab content, perform step-by-step instructions, record lab results and create lab reports, all on the scope
- ***First*** oscilloscope with a web-based content eco-system
  - A courseware web page has been created to promote sharing of lab content
  - Users can search, download, upload and comment on lab material
- ***First*** oscilloscope with "Auto-set Enable/disable" functionality
  - Insures that students take the time to learn an oscilloscope's basic operation
- Starting price - **$520**



Key Challenges Faced by Educators & Students



- Educators need to:
  - Create new lab experiments and share information with students
  - Prepare and organize laboratory exercises that support a variety of courses and topics
  - Adapt and customize existing laboratory exercises to address new technologies
  - Minimize the cost of printing lab manuals
- Students Need:
  - Easily accessible reference material to reinforce theories examined in lab experiments
  - Clear instructions on procedures and set-ups when performing lab exercises
  - An easy way to record results and create lab reports from the data

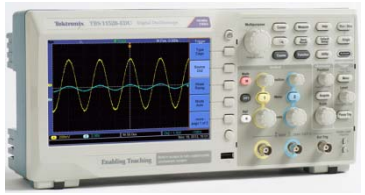
New Courseware Feature Solves Those Problems

Courseware Eco-System

Course Editor SW

Courseware Webpage

Courseware Enabled Oscilloscope

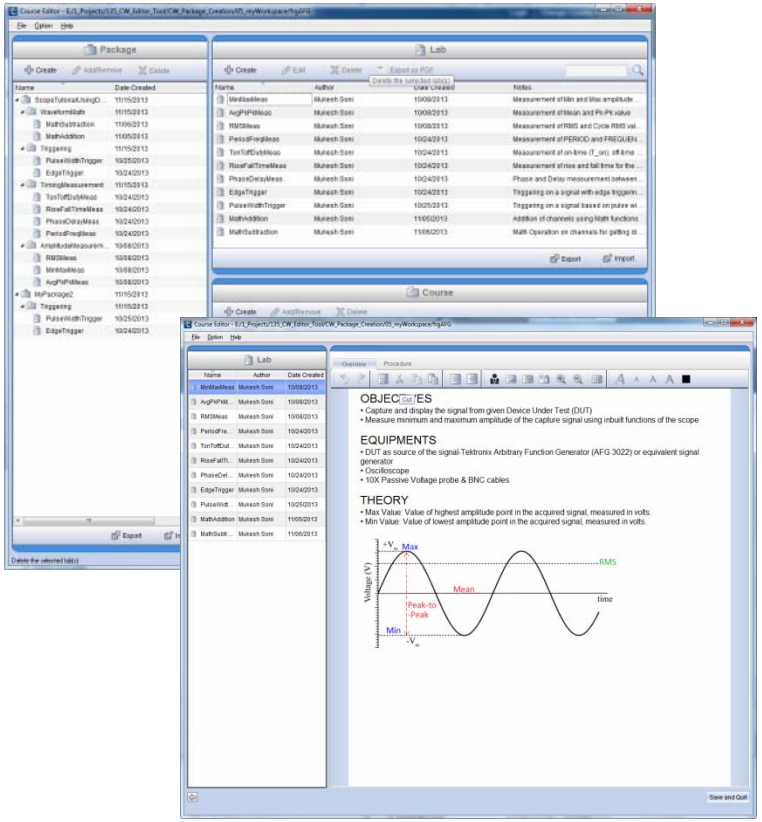


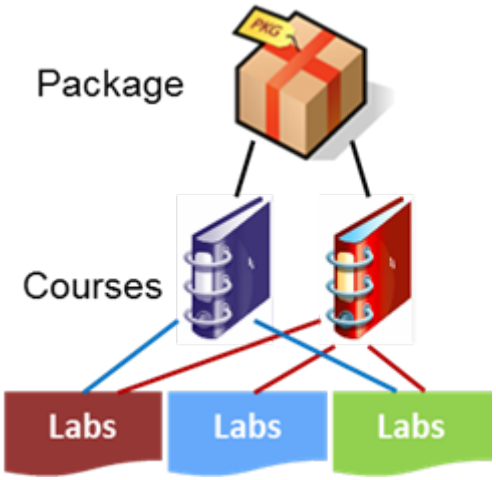
The courseware eco-system assists professors	– Engineering professors can quickly create or update lab exercises and distribute the material to students using the oscilloscope – Up to 8 courses, each with multiple labs, can be uploaded onto the scope – A Tektronix courseware web page has been created to offer a global platform where academicians can share lab experiments and ideas
The courseware eco-system assists students	– Students can review, perform and document lab experiments right on the scope – Provides easily accessed, step-by-step instructions for lab experiments and progress can be documented right on the scope – Creates HTML lab reports which simplifies the submission and review process and supports a paperless laboratory

PC Courseware Editor Tool

PC Courseware Editor Tool

- A program with a familiar Windows interface makes it easy to create or update lab material
- Enables the exporting of lab material to a USB drive for transfer to the oscilloscope
- Includes a feature for adding instructor profiles to labs
- Bundles multiple labs to create a course
- Bundles up to 8 courses to create a package for uploading into a TBS1000B-EDU oscilloscope





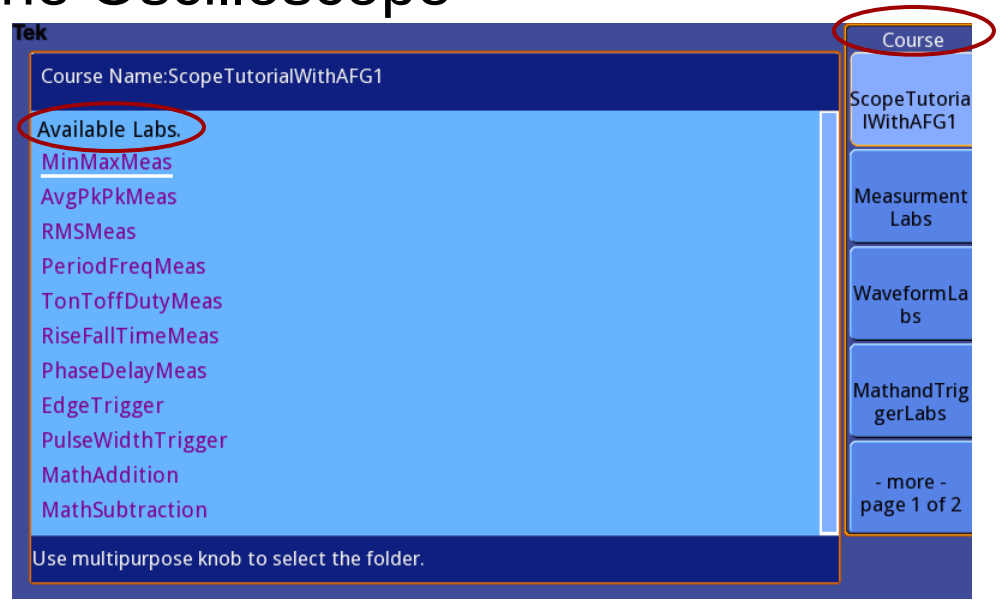
Courseware Feature on the Oscilloscope

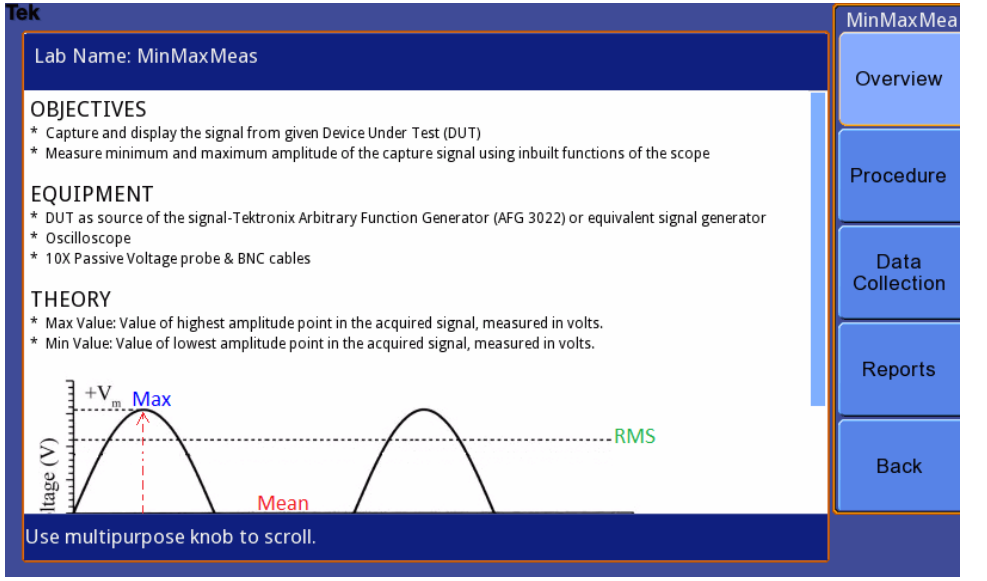
Courseware on the TBS1000-EDU

- Import courseware material created with the PC application by using a USB drive
- Press the front panel “Course” button to access the Course and Lab options

Lab Details

- The Overview section is used to provide an explanation of the lab material, supporting theory and required equipment





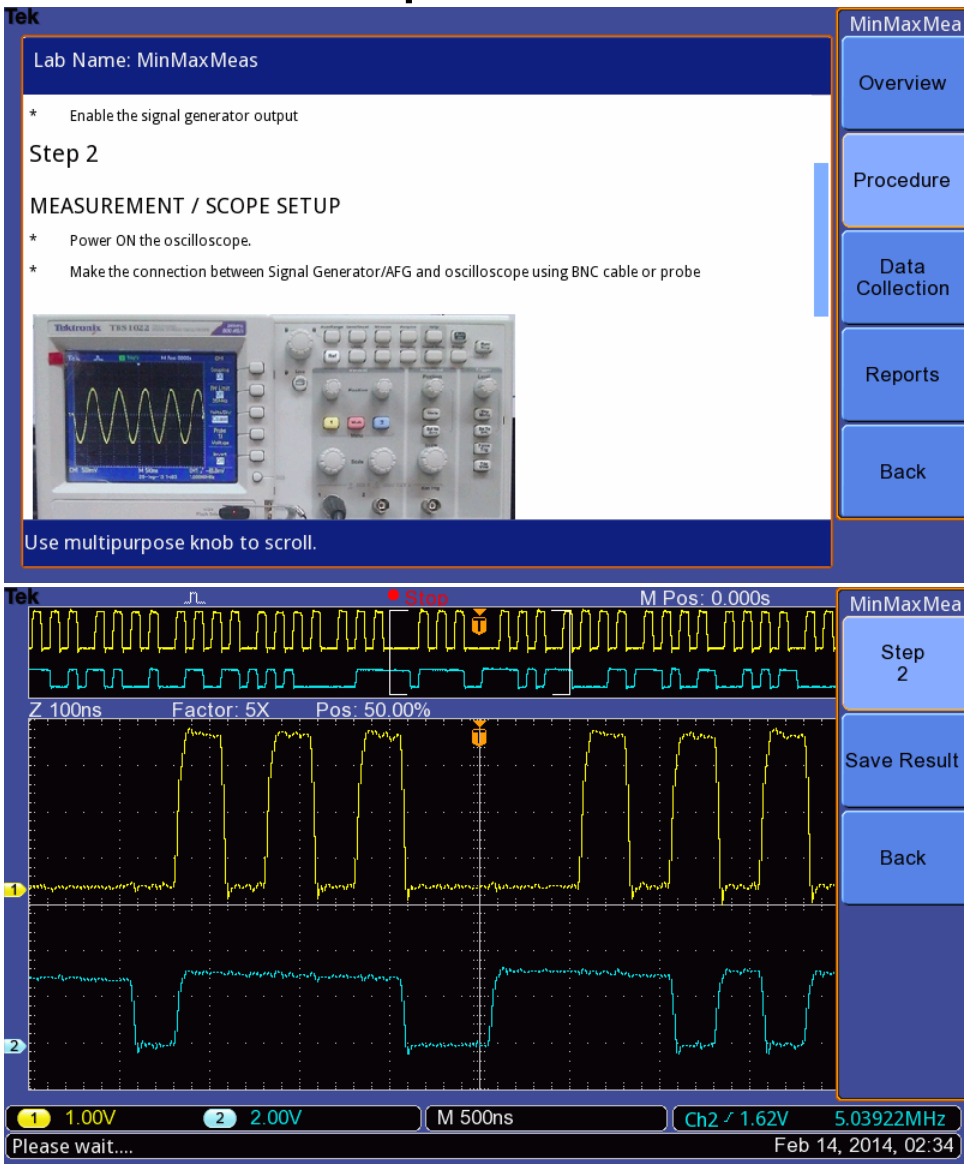
Courseware Feature on the Oscilloscope

Lab Details (con't)

- The Procedure section is used to provide step by step instructions on how to proceed through the lab

- The Data Collection option opens the oscilloscope screen where results can be saved in the form of screen images that can be associated with a specific step in the procedure

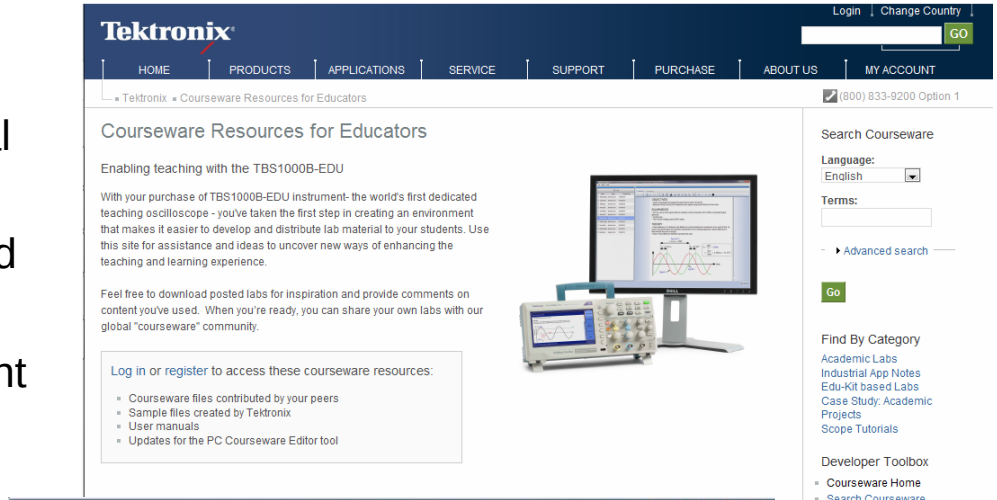
- The Reports option will automatically create an HTML report document and a folder with all of the captured screen images
  - Student can now easily turn in "soft copy" lab reports



Courseware Web Page on tek.com

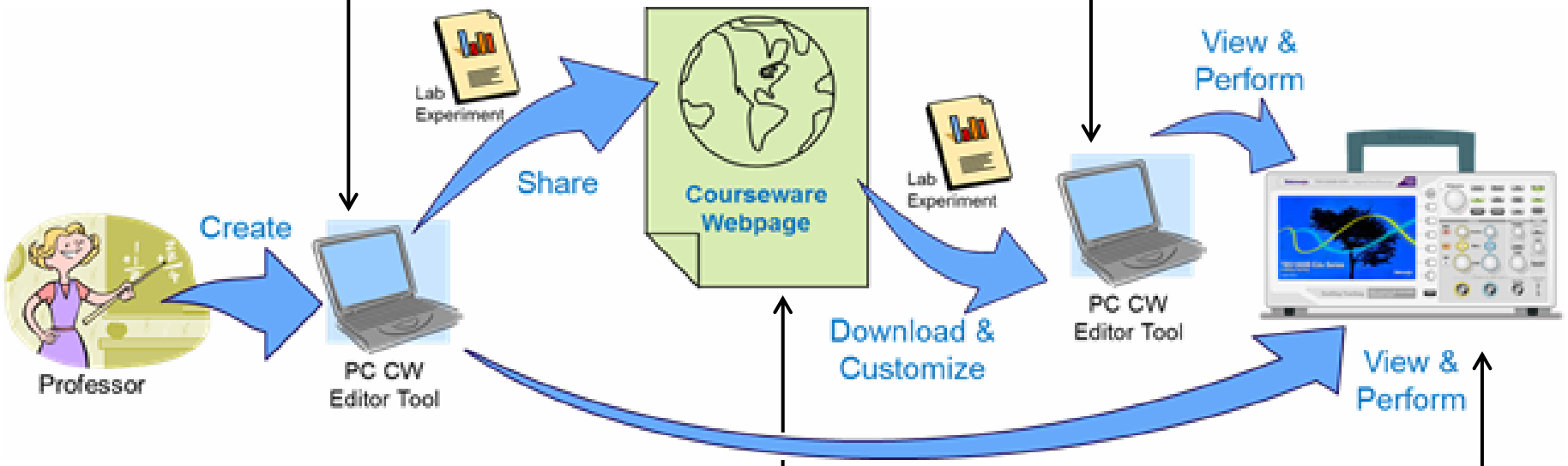
Courseware Web Page

- Is a repository of lab content posted by Tektronix and educators around the world
- Users can search for courseware material by type, language, keyword or author
- Courseware materials can be downloaded and used as-is or modified
- Users can also upload courseware content to share with peers in the educational community
- Users will also be able to comment on material they've downloaded



Courseware Content Ecosystem

- ***PC Courseware Editor Tool***
  - *Create and Edit Lab Content*
  - *Export to a TBS1000B- EDU via USB flash drive.*
  - *Share information with colleagues*



- ***Tektronix Courseware Web Page***
  - *Download existing lab content or upload your own to share with peers around the world*

- ***TBS1000B-EDU Instrument***
  - *Review, perform and document lab work directly on the oscilloscope.*

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Autoset Password Enable/Disable

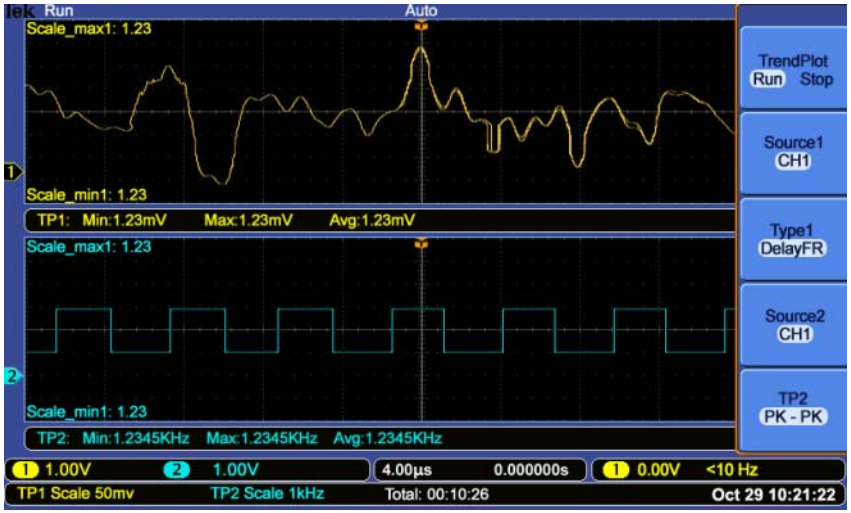
- The Autoset function can be enabled/disabled via a password
- Disabling the Autoset can help students learn an oscilloscope's operation instead of allowing them to take shortcuts
- Passwords can easily be updated and changed

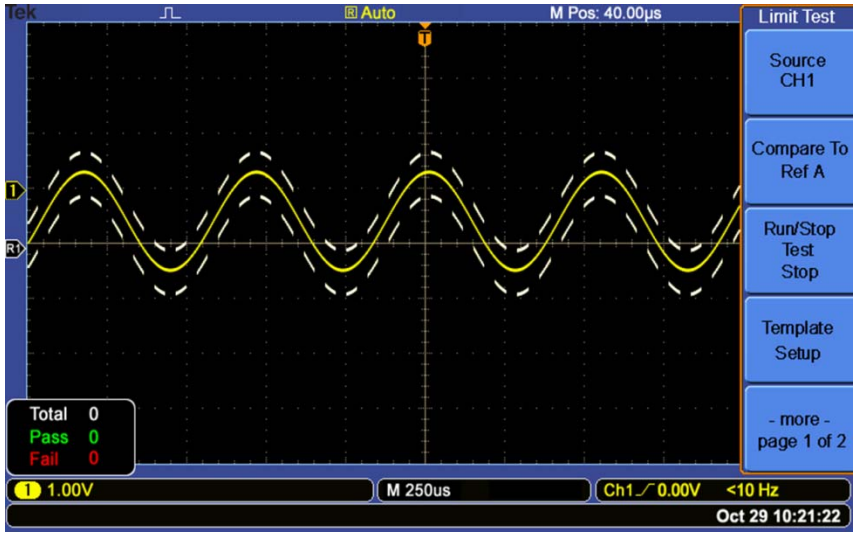
Extensive Monitoring and Analysis Tools

- ***New*** efficiency-enhancing features:
  - Enhanced Limit Test
    - Specify a tolerance band or specific high/low limits around signals of interest
  - TrendPlot™
    - Allows users to see measurement trends over long periods of time
    - No lost data - the display automatically adjusts the time and amplitude scales
  - Data Logging
    - Allows users to store triggered waveforms onto a USB memory stick
    - See changes in waveforms over long periods of time
- Starting price - **$550**

Extensive Monitoring and Analysis Tools

- New TrendPlot™ Function
  - Offers a method of displaying measurement changes over long periods of time
  - TBS1000B supports plotting two measurement readings simultaneously





- Enhanced Limit Test Capability
  - Monitor active signals against a predefined template
  - Create templates based on one or two reference waveforms, providing more flexibility in defining pass/fail criteria

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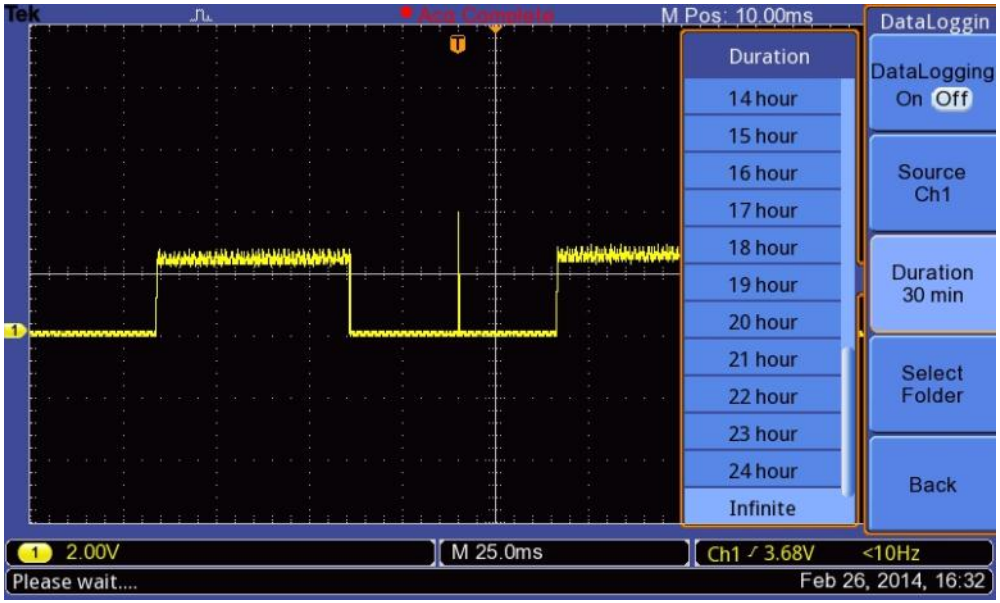
Extensive Monitoring and Analysis Tools

- Built in Data Logging
  - Set up the oscilloscope to save user- specified triggered waveforms with time stamps to a USB device.
  - The source can be any input channel or math waveform
  - Monitor waveforms for pre-determined time periods of up to 24 hours or choose the “Infinite” option for continuous monitoring.
  - If the USB device fills up, the oscilloscope will send a prompt to insert another USB memory device to continue saving waveforms.



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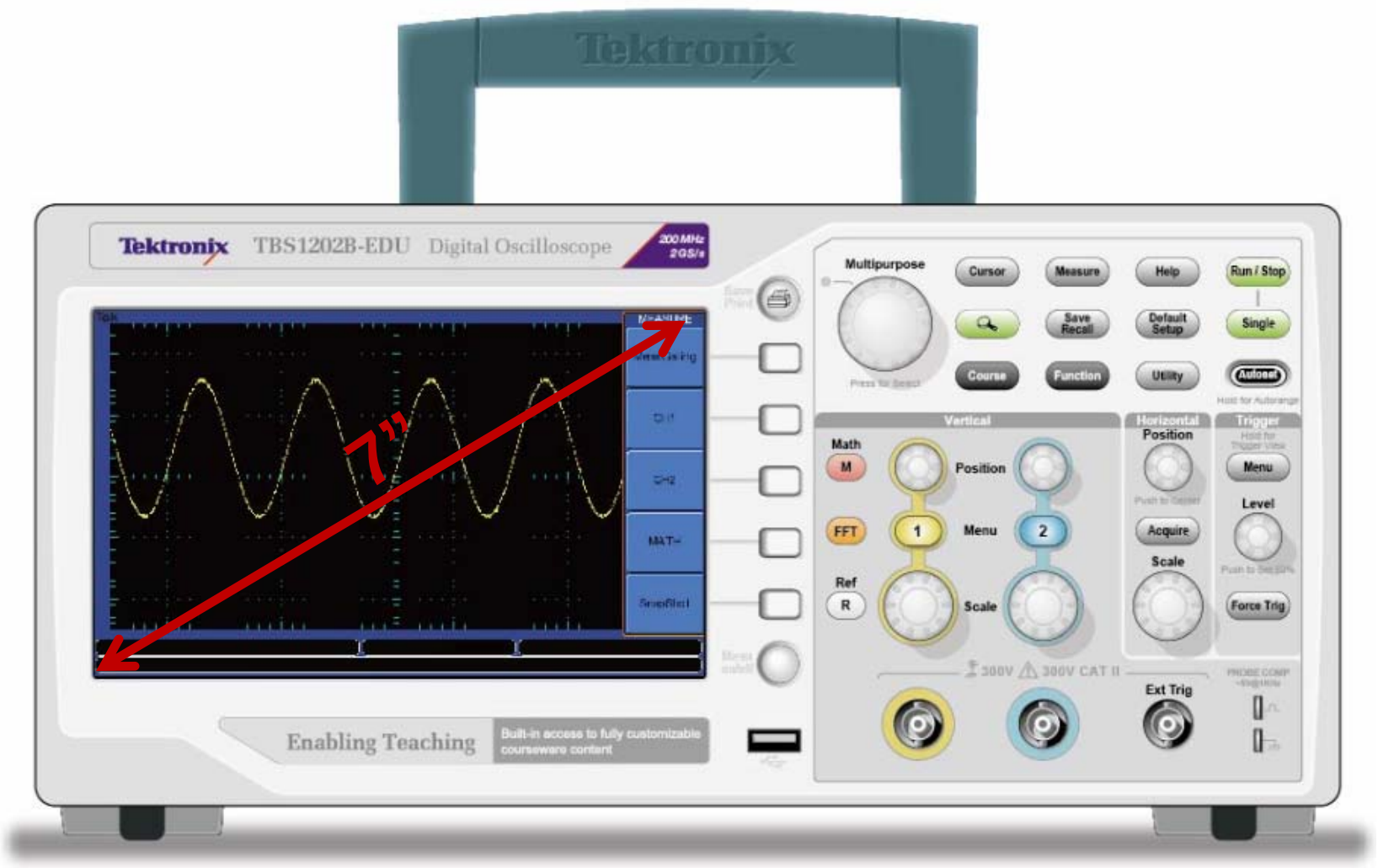
Improved Performance

- ***Highest* sampling accuracy of 2GS/s always-on:** only entry-level oscilloscope that offers advertised sampling rate on both channels simultaneously (not just for 1 active channel).
- ***Highest* number of automated measurements:** 34 automated measurement types to maximize measurement efficiency.
- **Only scope with dual-channel frequency counter** displaying frequency measurements on two channels simultaneously**.**
- ***New* DPO2k-style UI Design and Zoom Feature**
  - Dedicated Magnifier button on the front panel
  - Up to 10X Zoom
  - Convenient control using the multi-purpose knob
- ***New* TPP0051 50MHz probes**
  - Low cost & durable

Tektronix

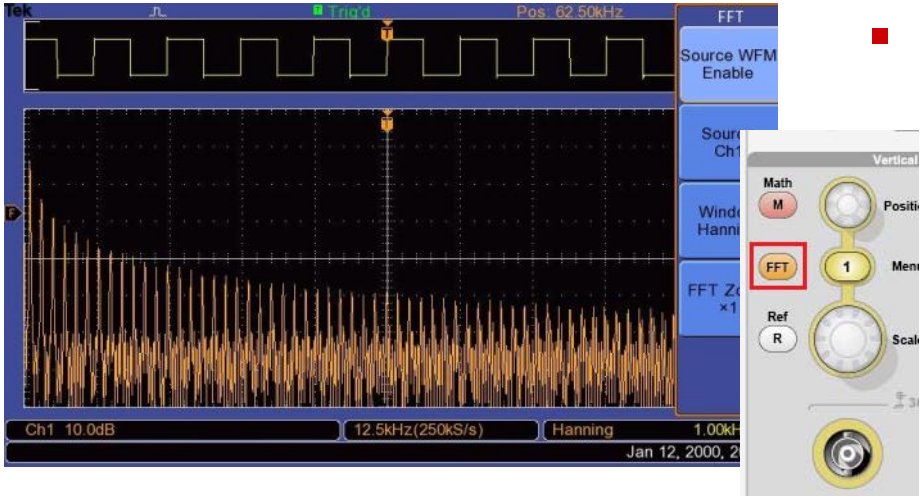
New 7” WVGA high-resolution Display & Updated User Interface



Tektronix

Dual Frequency Counters & Improved FFT Analysis

- Dual Channel Frequency Counter
  - ***World's first*** 2CH hardware based frequency counter on an oscilloscope
  - Independent trigger level settings for each channel
  - Easy-to-read, large character display



- Improved FFT Visualization
  - Dual windows to simultaneously view the frequency and time domain waveforms
  - Dedicated front panel FFT button for easy access

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34 Automated Measurements & Snapshot Feature

- With 34 automated measurements, this scope offers the most measurements in its class
- Cursor measurement option is available for all measurement types
- Convenient snapshot feature for displaying all measurements results

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TBS1000B/-EDU Series

Models	Education model	TBS1052B-EDU	TBS1072B-EDU	TBS1102B-EDU	TBS1152B-EDU	TBS1202B-EDU
	Commercial model	TBS1052B	TBS1072B	TBS1102B	TBS1152B	TBS1202B
Bandwidth(MHz)		50	70	100	150	**200**
Sample rate		**1 GS/S p.ch**		**2 GS/s p.ch**		
Channel Count		2	2	2	2	2
Accuracy		3%, 2mV				
Record Length		2.5k p.ch				
UI Features		**DPO-like Look & Feel, Zoom Function**				
Display		**7 inch WVGA**				
Waveform Math		-,+,x, **improved FFT**				
Trigger		Edge, Video, Pulse				
# of Measurements		**34**				
Connectivity		USB-D, USB-H, PC-SW, API				
Special Apps	Education model	**Frequency Counter, Courseware Integration**				
	Commercial model	**Frequency Counter, Trend Plot, Enhanced Pass/Fail,** Data Logging				
Probe		**TPP0051**	TPP0101		TPP0201	
Warranty		5year				

*Note – Feature improvements over the TBS1000 series are highlighted in **Red***

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Ordering Information

Oscilloscope Models		US MSRP
TBS1052B	50MHz, 2 Channel, 1GS/s sample rate, w/o courseware	$550
TBS1052B-EDU	50MHz, 2 Channel, 1GS/s sample rate, with courseware	$520
TBS1072B	70MHz, 2 Channel, 1GS/s sample rate, w/o courseware	$890
TBS1072B-EDU	70MHz, 2 Channel, 1GS/s sample rate, with courseware	$790
TBS1102B	100MHz, 2 Channel, 2GS/s sample rate, w/o courseware	$1,190
TBS1102B-EDU	100MHz, 2 Channel, 2GS/s sample rate, with courseware	$1,090
TBS1152B	150MHz, 2 Channel, 2GS/s sample rate, w/o courseware	$1,490
TBS1152B-EDU	150MHz, 2 Channel, 2GS/s sample rate, with courseware	$1,390
TBS1202B	200MHz, 2 Channel, 2GS/s sample rate, w/o courseware	$1,790
TBS1202B-EDU	200MHz, 2 Channel, 2GS/s sample rate, with courseware	$1,690

Options & Accessories		US MSRP
Opt. P2220	Change the two 10X standard probes to two P2220 1X/10X probes	$100
Opt. D1	Service Option: Calibration Data Report	$10
TEK-USB-488	GPIB to USB converter	$779
AC2100	Soft Carrying Case for Instrument	$131
HCTEK4321	Hard Plastic Carrying Case for Instrument (requires AC2100)	$804
RM2000B	Rackmount Kit	$389

Note: MSRP may change over time, please check TEK.COM for the latest prices.

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Additional Accessories

- Passive probes
  - TPP0201 standard for 200MHz and 150MHz model
  - TPP0101 standard for 100MHz and 70MHz model
  - New TPP0501 standard 50MHz models & offered at significantly lower after-market prices
  - 1X/10X probe option
- Free Software & Support material
  - Included on the Product CD and downloadable from tek.com
  - OpenChoice Software(released by firmware update)
  - Courseware Editor
  - LabView Driver
  - IVI-C Driver
  - PC Courseware Editor Tool
  - Example Courseware labs
  - ABC's of Probes & XYZ's of Oscilloscopes application notes
  - Link to courseware landing page
- Warranty
  - Standard 5 year warranty for all models

TBS1000B-EDU/TBS1000B Series Oscilloscopes

TBS1000B-EDU

The world's first dedicated teaching oscilloscope

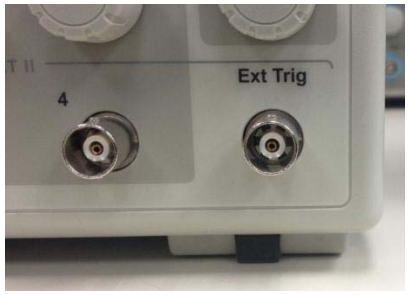
TBS1000B

The best value, all-around oscilloscope available

TBS1000B/-EDU Series Common Feature

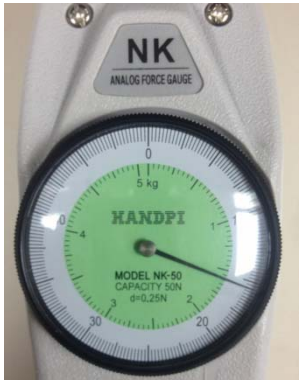
Rubberized footing increases stability

- The TBS1000B(-EDU) oscilloscopes us a Santoprene rubberized material that provides increased stability
- The TBS1000B(-EDU) models are three times more stable than TBS1000



TBS1000

TBS1000B



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