# Tektronix®

# Educat10n

## Not Your Average Test Bench!

**Electrical engineering students need to understand complex circuits and electronic designs to develop next generation technologies.** Check out our great new deal for schools, colleges and universities. Train your students using the best oscilloscopes in the world.

**See inside** for the latest product information, special promotions and offers, plus classroom and lab resources available from Tektronix.
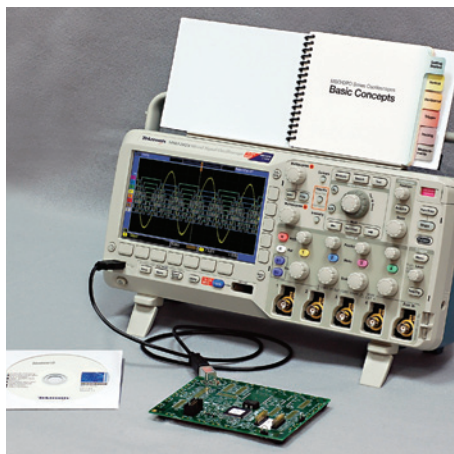
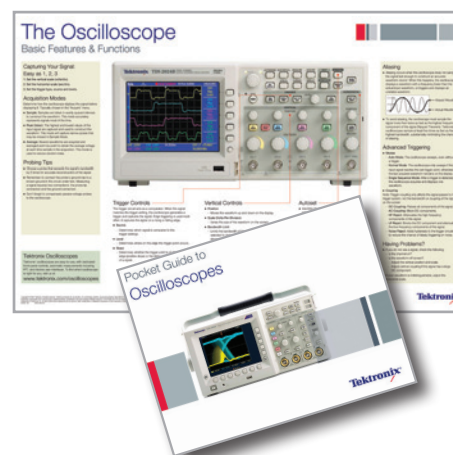# Tektronix®

# Get your FREE Classroom Resource CD

## Fundamentals Library:
The Tektronix Fundamentals Library is a comprehensive set of 15 technical papers that cover basic concepts to advanced test and measurement techniques.

## Teaching Labs:
These labs have been shared by educational institutions to provide assistance when developing your lab materials. They include teacher guides and student worksheets.

## Posters and pocket guides:
Ideal reference material for students, in an easily downloadable and printable format.

Visit www.tektronix.com/education10 to get your copy.

# Buy 6 or more Oscilloscopes

## and get a FREE Classroom Kit worth €500

- **Classroom resource CD**
- **Training kit –** includes demo board and lab exercises
- **Signal Integrity text book**
- **Access to Tektronix Centre of Excellence consultancy service**
- **Printed primers (XYZs of Oscilloscopes, ABCs of Probes, XYZs of Signal Generators)**
- **Signal Integrity text book**

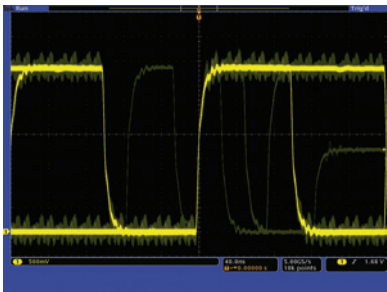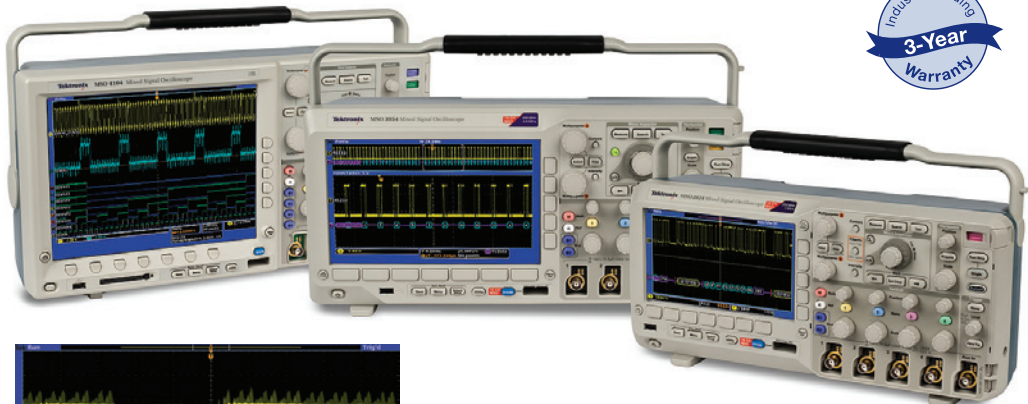Limited to one per customer and while stocks last

Kit contents may vary depending on products purchased.

# Bench Oscilloscopes
## Debug Mixed Signal Designs in Less Time



**3-Year Warranty** Industry Leading

Automated serial and parallel bus analysis simplifies debug.

Digital Phosphor Technology reveals signal details missed by other oscilloscopes.

Wave Inspector® automated search provides unprecedented efficiency in navigating waveform data.

Now you can have it all with Tektronix bench oscilloscopes. With as many as 20 channels for analyzing analog and digital signals, you can simultaneously monitor many points of your design. And, each oscilloscope is packed with features to speed every stage of debug:

- **Discover** infrequent transients and glitches in seconds with Tektronix' patented Digital Phosphor Technology, featuring a capture rate of up to 50,000 waveforms/second.

- **Capture** your specific event the first time with over 125 trigger combinations, including setup/hold and serial packet content, and a deep record length of up to 10 M points.

- **Search** your entire waveform record instantly for an event you specify with Wave Inspector's automated search. Along the way, Wave Inspector will mark every occurrence so you can quickly move between events.

- **Analyze** your signal fast and efficiently with 29 automated measurements, FFT, waveform math and a variety of analysis packages, including serial and parallel bus analysis, power measurements and video debug.

| | MSO/DPO4000 Series | MSO/DPO3000 Series | MSO/DPO2000 Series |
|---|---|---|---|
| **Bandwidth** | 1 GHz, 500 MHz, 350 MHz | 500 MHz, 300 MHz, 100 MHz | 200 MHz, 100 MHz |
| **Channels** | 4 analog<br>16 digital (MSO Series) | 2 or 4 analog<br>16 digital (MSO Series) | 2 or 4 analog<br>16 digital (MSO Series) |
| **Record Length** | 10 M points | 5 M points | 1 M points |
| **Display Size** | 10.4 inches | 9 inches | 7 inches |
| **Serial and Parallel Bus Trigger, Decode and Search (Optional)** | ■ I²C, SPI<br>■ USB<br>■ CAN, LIN, FlexRay<br>■ RS-232/422/485/UART<br>■ I²S/LJ/RJ/TDM<br>■ Parallel (MSO Series) | ■ I²C, SPI<br>■ CAN, LIN<br>■ RS-232/422/485/UART<br>■ I²S/LJ/RJ/TDM<br>■ Parallel (MSO Series) | ■ I²C, SPI<br>■ CAN, LIN<br>■ RS-232/422/485/UART<br>■ Parallel (MSO Series) |
| **Analysis Packages (Optional)** | Power Analysis<br>HDTV and Custom Video | Power Analysis<br>HDTV and Custom Video | -- |

**NEW**

**USB Decode for the MSO/DPO4000 Series:**
- Decode low-speed, full-speed and high-speed USB 2.0 buses
- Trigger on packet-and byte-level content
- Search your entire waveform instantly to find every instance of a specific packet or byte with Wave Inspector®

■ **25% discount for education - MSO/DPO2000 Series**

# Basic Oscilloscopes

## Brilliantly Engineered. Irresistibly Priced.

Visualizing signals has never been easier or faster. Tektronix basic oscilloscopes provide at least 5x digital real-time oversampling on all channels to accurately capture signal details. With dedicated front-panel controls, automated measurements and intuitive user interfaces, operation is simple and easy.

### TDS3000C Series

Industry Leading **3-Year** Warranty

- 100 MHz to 500 MHz models
- 25 automated measurements and FFT
- High waveform capture rate and intensity-graded display for visualizing glitches and infrequent events
- WaveAlert® automatic waveform anomaly detection
- USB port on front panel for saving data, screen shots and settings
- Optional battery pack for 3-hours of battery operation
- Optional application modules for additional analysis

### TDS1000B/2000B Series

Industry Leading **Lifetime** Warranty

- 40 MHz to 200 MHz models
- 12 automated measurements and FFT
- Probe Check Wizard to quickly verify your probe is calibrated and operating properly
- Direct print to PictBridge® compatible printers
- USB port on front panel for saving data, screen shots and settings
- Lifetime Warranty
  Limitations apply. For terms and conditions visit
  www.tektronix.com/lifetimewarranty
- **25% discount for education**
  Qualifying institutions must be non-profit institutions, degree-granting institutions or post-secondary educational institutions and fully accredited by the state/government board of higher education)

### TPS2000 Series

Industry Leading **3-Year** Warranty

- 100 MHz to 200 MHz models
- Isolated channels for making floating measurements, including 3-phase power
- 11 automated measurements and FFT
- CompactFlash™ port on front panel for saving data, screen shots and settings
- Standard battery pack provides 4-hours of operation
- Optional power analysis application module
- **NEW: High-voltage 100x probe for power measurements**

|  | TDS3000C Series | TDS2000B/1000B Series | TPS2000 Series |
|---|---|---|---|
| **Bandwidth** | 500 MHz, 300 MHz, 100 MHz | 200 MHz, 100 MHz, 60 MHz, 40 MHz | 200 MHz, 100 MHz |
| **Channels** | 2 or 4 analog | 2 or 4 analog | 2 or 4 analog isolated |
| **Record Length** | 10 k points | 2.5 k points | 2.5 k points |
| **Battery Power** | Optional | -- | Standard |
| **Analysis Packages (Optional)** | ■ Limit Testing<br>■ Communications Mask Testing<br>■ HDTV/Custom Video | -- | ■ Power Analysis |
| **Display Size** | 6.5 inches | 5.7 inches | 5.7 inches |

# Digital Multimeters

**See measurement trends with TrendPlot™**

## DMM4050 and DMM4040

- 6.5 digit resolution
- Up to 11 measurement functions
- 4-wire measurement technique for accurate resistance measurements using only 2 test leads
- Analyze measurement trends with TrendPlot™, measurement statistics and histogram plots
- USB port on front panel for saving data and settings

*Industry Leading 3-Year Warranty*

## DMM4020

- 5.5 digit resolution
- Up to 8 measurement functions
- 4-wire measurement technique for accurate resistance measurements using only 2 test leads
- Dedicated DC leakage current measurements
- Six dedicated buttons for saving instrument setups
- Limit compare mode for pass/fail testing

*Industry Leading 3-Year Warranty*

|  | DMM4050 | DMM4040 | DMM4020 |
|---|---|---|---|
| **Resolution** | 6.5 digit | | 5.5 digit |
| **Basic Vdc Accuracy** | Up to 0.0024% | Up to 0.0035% | Up to 0.015% |
| **Measurements** | V ac, V dc, I ac, I dc, Resistance, Continuity, Diode, Frequency, Period, Temperature, Capacitance | V ac, V dc, I ac, I dc, Resistance, Continuity, Diode, Frequency, Period | V ac, V dc, I ac, I dc, Resistance, Continuity, Diode, Frequency |
| **Analysis Modes** | TrendPlot™, Statistics, Histogram | | Limit Compare |

# Arbitrary/Function Generators

|  | AFG3000 Series |
|---|---|
| **Bandwidth** | 240 MHz, 100 MHz, 25 MHz, 10 MHz |
| **Channels** | 1 or 2 (independent or synchronized) |
| **Memory Depth** | 128 k points |
| **Standard Waveforms** | Sine    Sine(x)/x    Square<br>DC    Ramp    Gaussian<br>Pulse    Lorentz    Noise<br>Arbitrary    Haversine<br>Exponential Decay    Exponential Rise |
| **Modulation** | AM, FM, PM, FSK, PWM, External |
| **Additional Modes** | Sweep, Burst, Add Noise Impairment |

## AFG3000 Series

- 10 MHz to 240 MHz models
- 12 standard waveforms, arbitrary waveform capability and signal impairment options
- 5.6 inch display shows all relevant waveform parameters and wave shape
- USB port on front panel for saving waveforms and settings

*Industry Leading 3-Year Warranty*

- ArbExpress™ Software included for importing a waveform from a Tektronix oscilloscope or creating one with easy-to-use tools
- **25% discount for education**
  - Qualifying institutions must be non-profit institutions, degree-granting institutions or post-secondary educational institutions and fully accredited by the state/government board of higher education)

# Probes & Accessories

## See a complete listing of probes at:
## www.tektronix.com/probeselector

Tektronix probes and accessories are perfectly matched to our industry-leading oscilloscopes. With over 100 choices available, you will find the probe you need.

Active Probes - TAP Series shown.

Current Probes - TCP Series shown.

Differential Probes - TDP Series shown.

## Active Probes

- Bandwidth up to 4 GHz
- True signal reproduction and fidelity
- Low input capacitances: < 0.5 pF
- Small compact probe heads for probing small geometry circuit elements

## Current Probes

- Easy to use and accurate AC/DC current measurements
- DC up to 2 GHz
- Amplitude measurements from 1 mA to 20,000 A
- Split core and solid core construction

## Differential Probes

- Bandwidth up to 20 GHz
- Easily measure differential signals
- Low input capacitances: < 0.3 pF
- High common mode rejection ratio (CMRR)
- Wide range of probe tips for easier circuit access

Passive Probes

High Voltage Probes

## Passive Probes

- DC to 500 MHz
- Wide range of performance to meet the demands of many applications
- Lightweight, ergonomic designs to fit your needs
- Wide range of probe tips for easier circuit access

## High Voltage Probes

- Wide range of voltage measurements - Up to 40 kV peak (100 ms pulse)
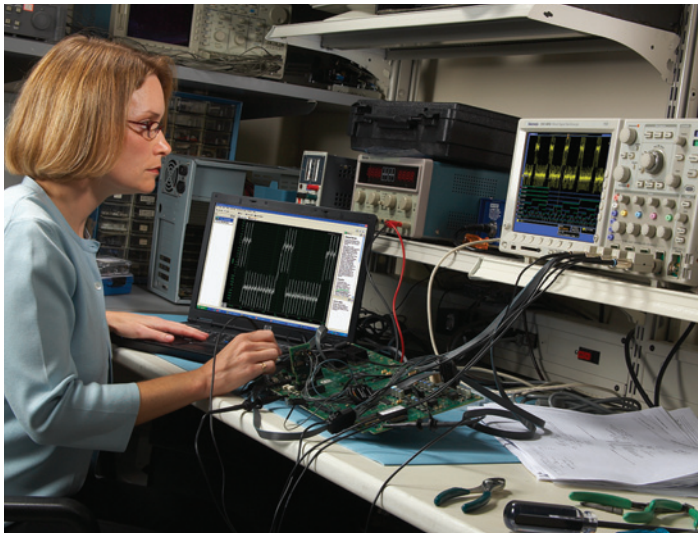- Single-ended or differential

## Carry Cases

- Soft- and hard-sided cases available

# Connect Your Test Bench

## with Tektronix Edition of National Instruments LabVIEW SignalExpress™



**To download your free copy, visit
www.tektronix.com/signalexpress**

To simplify your most complicated tasks, connect your test bench with LabVIEW SignalExpress™ from National Instruments, included standard with Tektronix bench instruments*. Control your Tektronix instruments right from your PC. Automate measurements and analyze data across multiple instruments. Capture and save results. Create reports. All from one intuitive software package.

The optional Professional Version of SignalExpress (SIGEXPTE) offers over 200 built-in functions for extended analysis including time and frequency domain analysis, limit testing, advanced data logging and customizable reports.

*For a list of qualifying instruments, visit:
 www.tektronix.com/signalexpress

# Your Tektronix Service Advantage

Tektronix bench instruments come standard with at least a 3-year warranty covering all parts and labor*. Tektronix offers a range of repair and calibration plans to extend your coverage and keep your instrument operating at optimal performance.

*Excludes probes.
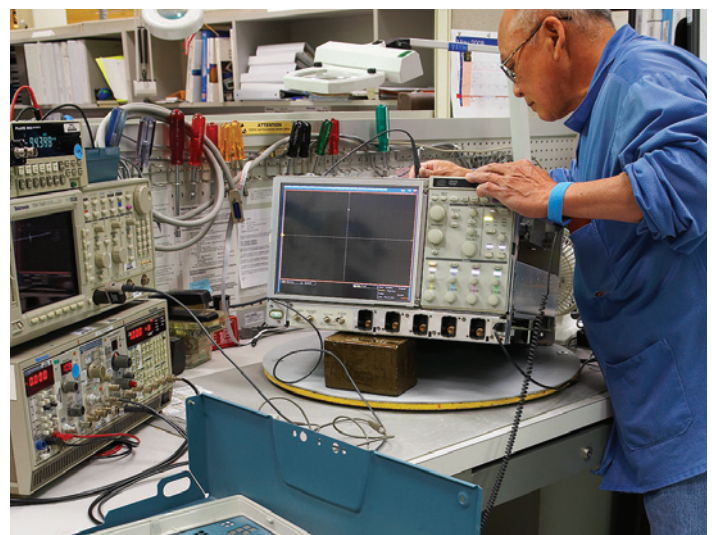
# Tektronix Training Kits

With ever-evolving technologies and standards in electronics, preparing electrical engineering students for tomorrow is not easy. Tektronix has developed customized training kits to help you prepare your lab curriculum with the latest standards and techniques for test and measurement.





## Tailored for
## MSO/DPO2000 Series Oscilloscopes

The comprehensive set of six laboratories cover key topics from Introduction to Oscilloscopes to Advanced Oscilloscope Features and Debugging a Digital Design. The Kit includes labs with accompanying instructor's guides, reference fact sheets for students and a training board to provide real-world signals during the labs.

All labs are based on the MSO/DPO2000 Series of Mixed Signal Oscilloscopes which offer up to 20 analog and digital channels for mixed signal debug plus automated serial and parallel bus decode.

## Tailored for
## TDS1000/2000B Series Oscilloscopes

This Operator Training Kit provides training on the features, uses and basic operation of an oscilloscope through its extensive instructions and step-by-step lab exercises. The kit includes a self-paced, CD-ROM-based manual and signal source board with documentation. An optional hard copy manual is available and can be ordered separately. The kit is designed specifically for the Tektronix TDS200, TDS1000, TDS2000, and TDS3000 Series instruments.

**Tektronix**®

# Education

## Special offers for educational institutions

Tektronix makes it easier than ever to invest in industry-leading test and measurement equipment by offering discounts and resources for the lab and classroom, visit:

## www.tektronix.com/education10