Characteristics

TDS2000C Series Digital Storage Oscilloscopes

	TDS2001C	TDS2002C	TDS2004C	TDS2012C	TDS2014C	TDS2022C	TDS2024C
Display (QVGA LCD)	TFT	TFT	TFT	TFT	TFT	TFT	TFT
Bandwidth*[3]	50 MHz	70 MHz	70 MHz	100 MHz	100 MHz	200 MHz	200 MHz
Channels	2	2	4	2	4	2	4
External Trigger Input	Included on all models						
Sample Rate on Each Channel	500 MS/s	1.0 GS/s	1.0 GS/s	2.0 GS/s	2.0 GS/s	2.0 GS/s	2.0 GS/s
Record Length	2.5k points at all time bases on all models						
Vertical Resolution	8 bits						
Vertical Sensitivity	2 mV to 5 V/div on all models with calibrated fine adjustment						
DC Vertical Accuracy	±3% on all models						
Vertical Zoom	Vertically expand or compress a live or stopped waveform						
Maximum Input Voltage	300 V_{RMS} CAT II; derated at 20 dB/decade above 100 kHz to 13 V_{p-p} AC at 3 MHz						
Position Range	2 mV to 200 mV/div +2 V >200 mV to 5 V/div +50 V						
Bandwidth Limit	20 MHz for all models						
Input Coupling	AC, DC, GND on all models						
Input Impedance	1 MΩ in parallel with 20 pF						
Time Base Range	5 ns to 50 s/div	5 ns to 50 s/div	5 ns to 50 s/div	2.5 ns to 50 s/div	2.5 ns to 50 s/div	2.5 ns to 50 s/div	2.5 ns to 50 s/div
Time Base Accuracy	50 ppm						
Horizontal Zoom	Horizontally expand or compress a live or stopped waveform						
I/O Interfaces							
USB Ports	USB host port on front panel supports USB flash drives USB device port on back of instrument supports connection to PC and all PictBridge-compatible printers						
GPIB	Optional						
Nonvolatile Storage							
Reference Waveform Display	(2) 2.5k point reference waveforms						
Waveform Storage without USB Flash Drive	(2) 2.5k point	(2) 2.5k point	(4) 2.5k point	(2) 2.5k point	(4) 2.5k point	(2) 2.5k point	(4) 2.5k point
Maximum USB Flash Drive Size	64 GB						
Waveform Storage with USB Flash Drive	96 or more reference waveforms per 8 MB						
Setups without USB Flash Drive	10 front-panel setups						
Setups with USB Flash Drive	4000 or more front-panel setups per 8 MB						
Screen Images with USB Flash Drive	128 or more screen images per 8 MB (the number of images depends on file format selected)						
Save All with USB Flash Drive	12 or more Save All operations per 8 MB A single Save All operation creates 3 to 9 files (setup, image, plus one file for each displayed waveform)						

*[3] Bandwidth is 20 MHz at 2 mV/div, all models.

Acquisition Modes

Mode	Description
Peak Detect	High-frequency and random glitch capture. Captures glitches as narrow as 12 ns (typical) at all time base settings from 5 µs/div to 50 s/div
Sample	Sample data only
Average	Waveform averaged, selectable: 4, 16, 64, 128
Single Sequence	Use the Single Sequence button to capture a single triggered acquisition sequence
Roll	At acquisition time base settings of >100 ms/div

Trigger System

Characteristic	Description
Trigger Modes	Auto, Normal, Single Sequence

Trigger Types

Trigger	Description
Edge (Rising/Falling)	Conventional level-driven trigger. Positive or negative slope on any channel. Coupling selections: AC, DC, Noise Reject, HF Reject, LF Reject
Video	Trigger on all lines or individual lines, odd/even or all fields from composite video, or broadcast standards (NTSC, PAL, SECAM)
Pulse Width (or glitch)	Trigger on a pulse width less than, greater than, equal to, or not equal to, a selectable time limit ranging from 33 ns to 10 s

Trigger Source

Characteristic	Description
2-channel Models	CH1, CH2, Ext, Ext/5, AC Line
4-channel Models	CH1, CH2, CH3, CH4, Ext, Ext/5, AC Line

Trigger View

Displays trigger signal while Trigger View button is depressed.

Trigger Signal Frequency Readout

Provides a frequency readout of the trigger source.

Cursors

Characteristic	Description
Types	Amplitude, Time
Measurements	ΔT, 1/ΔT, ΔV

Automatic Waveform Measurements

Period, Frequency, +Width, –Width, Rise Time, Fall Time, Max, Min, Peak-to-Peak, Mean, RMS, Cycle RMS, Cursor RMS, Duty Cycle, Phase, Delay

Waveform Math

Characteristic	Description
Operators	Add, Subtract, Multiply, FFT
FFT	Windows: Hanning, Flat Top, Rectangular 2048 sample points
Sources	
2-channel models	CH1 – CH2, CH2 – CH1, CH1 + CH2, CH1 × CH2
4-channel models	CH1 – CH2, CH2 – CH1, CH3 – CH4, CH4 – CH3, CH1 + CH2, CH3 + CH4, CH1 × CH2, CH3 × CH4

Autoset Menu

Single-button, automatic setup of all channels for vertical, horizontal, and trigger systems, with undo Autoset.

Signal Type	Autoset Menu Choices
Square Wave	Single Cycle, Multicycle, Rising or Falling Edge
Sine Wave	Single Cycle, Multicycle, FFT Spectrum
Video (NTSC, PAL, SECAM)	Field: All, Odd, or Even Line: All or Selectable Line Number

Autorange

Automatically adjust vertical and/or horizontal oscilloscope settings when probe is moved from point to point, or when the signal exhibits large changes.

Display Characteristics

Characteristic	Description
Display	QVGA Active Color TFT
Interpolation	Sin(x)/x
Display Types	Dots, vectors
Persistence	Off, 1 s, 2 s, 5 s, infinite
Format	YT and XY

Multiple-language User Interface and Context-sensitive Help

Characteristic	Description
Languages Available	English, French, German, Italian, Japanese, Korean, Portuguese, Russian*4, Simplified Chinese, Spanish, Traditional Chinese

*4 Requires Russian firmware, indicated by "RUS" suffix.

Environmental and Safety

Characteristic	Description
Temperature	
Operating	0 to +50 °C
Nonoperating	–40 to +71 °C
Humidity	
Operating and nonoperating	Up to 80% RH at or below +40 °C Up to 45% RH up to +50 °C
Altitude	
Operating and nonoperating	Up to 3,000 m
Electromagnetic Compatibility	Meets Directive 2004/108/EC, EN 61326-2-1 Class A; Australian EMC Framework
Safety	UL61010-1:2004, CSA22.2 No. 61010-1:2004, EN61010-1:2001, IEC61010-1:2001

Physical Characteristics

Instrument		
Dimensions	**mm**	**in.**
Width	326.3	12.85
Height	158.0	6.22
Depth	124.2	4.89
Weight	**kg**	**lb.**
Instrument Only	2.0	4.4
With accessories	2.2	4.9
Instrument Shipping		
Package Dimensions	**mm**	**in.**
Width	476.2	18.75
Height	266.7	10.5
Depth	228.6	9.0
RM2000B Rackmount	**mm**	**in.**
Width	482.6	19.0
Height	177.8	7.0
Depth	108.0	4.25

Ordering Information

Models

Model	Description
TDS2001C	50 MHz, 2 Ch, 500 MS/s, TFT DSO
TDS2002C	70 MHz, 2 Ch, 1 GS/s, TFT DSO
TDS2004C	70 MHz, 4 Ch, 1 GS/s, TFT DSO
TDS2012C	100 MHz, 2 Ch, 2 GS/s, TFT DSO
TDS2014C	100 MHz, 4 Ch, 2 GS/s, TFT DSO
TDS2022C	200 MHz, 2 Ch, 2 GS/s, TFT DSO
TDS2024C	200 MHz, 4 Ch, 2 GS/s, TFT DSO

Standard Accessories

Accessory	Description
Passive Probes	TPP0101: 100 MHz passive probe for TDS2001C/TDS2002C/TDS2004C TPP0201: 200 MHz passive probe for TDS2012C/TDS2014C/TDS2022C/TDS2024C
Power Cord	(Please specify plug option)
NIM/NIST	Traceable Certificate of Calibration
Documentation	User Manual (Please specify preferred language option)
OpenChoice PC Communications Software	Enables fast and easy communication between a Windows PC and the TDS2000C Series using USB. Transfer and save settings, waveforms, measurements, and screen images
National Instruments SignalExpress Tektronix Edition Interactive Measurement Software – Base Version	A fully interactive measurement software environment optimized for the TDS2000C Series. Enables you to instantly acquire, generate, analyze, compare, import, and save measurement data and signals using an intuitive drag-and-drop user interface that does not require any programming. Standard TDS2000C Series support for acquiring controlling, viewing, and exporting your live signal. A 30-day trial period of the Professional Version provides additional signal processing, advance analysis, mixed signal, sweeping, limit testing, and user-defined step capabilities. Order SIGEXPTE for permanent Professional Version capability
Limited Lifetime Warranty*[5]	Covers labor and parts for defects in materials and workmanship for a minimum of 10 years, excluding probes and accessories*[6]

*[5] Lifetime is defined as 5 years after Tektronix discontinues manufacturing the product, but the warranty length shall be at least ten years from date of original purchase. Lifetime warranty is nontransferable, proof of original purchase is required. Limitations apply. For terms and conditions visit www.tektronix.com/lifetimewarranty.

*[6] Probes and accessories are not covered by the oscilloscope warranty and Service Offerings. Refer to the data sheet of each probe and accessory model for its unique warranty and calibration terms.

Power Plug Options

Option	Description
A0	North America
A1	Universal Euro
A2	United Kingdom
A3	Australia
A5	Switzerland
A6	Japan
A10	China
A11	India
A99	No power cord or AC adapter