

TEKTRONIX

TDS3052C

The Tektronix TDS3052C is a 500 MHz, 2-channel Digital Phosphor Oscilloscope (DPO) belonging to the TDS3000C Series. Offering real-time sample rates of up to 5 GS/s per channel and a continuous waveform capture rate of 3,600 wfms/s, the TDS3052C provides powerful, portable performance with optional battery operation and built-in USB host, LAN, and VGA connectivity.

SPECIFICATIONS

General

Interfaces	USB Host Port (front), USB Device Port (rear), RJ-45 Ethernet (LAN, rear), optional GPIB, RS-232, and VGA Out via TDS3GV module
Display	6.5 in (165.1 mm) color active-matrix TFT LCD, 640 × 480 pixels
Standard Warranty	3 years

Physical

Power Supply	100 to 240 V AC RMS $\pm 10\%$ (45 to 440 Hz at 100 to 120 V, 45 to 66 Hz at 120 to 240 V), 75 W max; optional battery power (TDS3BATC)
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	375 mm × 176 mm × 149 mm mm
Weight	3.2 kg kg

Vertical System

Analog Bandwidth	500 MHz
Number of Channels	2
Calculated Rise Time (10-90%)	700 ps
Input Coupling	AC, DC, GND
Input Impedance	1 M Ω $\pm$ 1% in parallel with 13 pF $\pm$ 2 pF, or 50 Ω $\pm$ 1%
Input Sensitivity Range (1 M Ω)	2 mV/div to 10 V/div
Input Sensitivity Range (50 Ω)	2 mV/div to 1 V/div
Vertical Resolution	9 bits
DC Gain Accuracy	$\pm$ 2% ($\pm$ 2.5% at 2 mV/div)
Maximum Input Voltage (1 M Ω)	150 V RMS CAT I
Maximum Input Voltage (50 Ω)	5 V RMS
Offset Range (2 mV to 100 mV/div)	$\pm$ 1 V
Offset Range (101 mV to 1 V/div)	$\pm$ 10 V
Offset Range (1.01 V to 10 V/div)	$\pm$ 100 V
Hardware Bandwidth Limits	20 MHz, 150 MHz
Channel-to-Channel Isolation	$\geq$ 100:1 at 100 MHz
Channel-to-Channel Deskew Range	$\pm$ 100 ns
Vertical Position Range	$\pm$ 5 divisions

Horizontal System

Timebase Range	1 ns/div to 10 s/div
Timebase Accuracy	$\pm$ 20 ppm
Record Length	10k points per channel
Horizontal Zoom Range	1X to 10,000X

Acquisition System

Real-time Sample Rate	5.0 GS/s per channel
Continuous Waveform Capture Rate	3,600 wfms/s
Acquisition Modes	Sample, Peak Detect, Envelope, Average, Single Sequence
Peak Detect Minimum Pulse Width	1.0 ns

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Trigger Types	Edge, Video, Pulse (Width, Runt, Slew Rate), Logic (Pattern, State)
Trigger Coupling	AC, DC, HF Reject, LF Reject, Noise Reject
Trigger Source	CH1, CH2, AC Line, External
Edge Trigger Sensitivity (Internal)	0.35 div (DC to 50 MHz), 1.0 div (at 500 MHz)
Trigger Level Range (Internal)	±8 divisions from center of screen
Trigger Level Range (External)	±1.5 V
Trigger Holdoff Range	250 ns to 8 s
Video Trigger Formats	NTSC, PAL, SECAM
External Trigger Input Impedance	1 MΩ ±1% in parallel with 13 pF ±2 pF
Max External Trigger Input Voltage	150 V RMS CAT I

Waveform Measurements & Analysis

Automatic Waveform Measurements	25
Waveform Math Operators	Add, Subtract, Multiply, Divide, FFT
FFT Window Types	Rectangular, Hanning, Hamming, Blackman-Harris
Waveform Anomaly Detection	WaveAlert® automatic waveform anomaly detection
Internal Waveform Storage	4 reference waveforms

Display & User Interface

Graticule Types	Full, Grid, Crosshair, Frame
Display Persistence	Off, Short, Medium, Long, Infinite
Internal Setup Storage	10 setups

Interfaces & Connectivity

Front-panel USB Host Port	1x USB 2.0 (supports USB flash drives)
Built-in LAN Port	1x RJ-45, 10Base-T Ethernet
VGA Video Output	Standard, DB-15 female connector
External Trigger Input	Standard, BNC connector
Probe Interface	TekProbe® (supports active, differential, and current probes)
Probe Calibration Output (Amplitude)	5.0 V into ≥1 MΩ load
Probe Calibration Output (Frequency)	1 kHz
Optional GPIB/RS-232 Module	Not supported

Power & Electrical

Optional Battery Pack	TDS3BATC rechargeable Lithium-Ion battery pack
Battery Operating Time	Up to 3 hours of continuous operation

Environmental & Safety

Storage Temperature	-40 °C to +71 °C
Operating Humidity	Up to 95% RH at or below +30 °C; up to 45% RH up to +50 °C
Operating Altitude	Up to 3,000 m
Safety Certifications	UL61010B-1, CSA C22.2 No. 1010.1, EN61010-1
Electromagnetic Compatibility (EMC)	EN61326 Class A, FCC Part 15 Subpart B Class A

Physical Characteristics

Net Weight (Instrument Only)	3.2 kg (7.0 lbs)
Net Weight (With Battery Installed)	4.5 kg (9.8 lbs)

Display

Supported Color Palettes	Normal, Green, Gray, Temp, Spectral, Fire
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Interfaces

USB Host Port Type	USB 2.0 Full-speed (supports USB flash drives)
LAN Port Type	10Base-T RJ-45
VGA Output Port Type	DB-15 female
Rear-panel USB Device Port	1x USB 2.0 Type-B client port supporting USBTMC
Direct Printing Support	PictBridge compatible printers via USB device port

Power

Power Source Voltage	100 V to 240 V AC $\pm 10\%$
Power Source Frequency	47 Hz to 440 Hz
Power Consumption (Maximum)	75 W
Optional Battery Model	TDS3BATC Lithium-Ion

Environmental

Vibration (Operating)	0.31 g RMS, 5 Hz to 500 Hz, 10 min per axis, 3 axes
Vibration (Non-operating)	2.46 g RMS, 5 Hz to 500 Hz, 10 min per axis, 3 axes
Mechanical Shock (Operating)	50 g, 11 ms, half-sine

Software & Control

e*Scope Web-based Remote Control	Enabled via built-in RJ-45 Ethernet port
Included Software	OpenChoice Desktop, NI LabVIEW SignalExpress Tektronix Edition

Triggering

Trigger after Time Range	13.2 ns to 50 s
Trigger after Events Range	1 to 9,999,999 events
Pulse Width Trigger Range	39.6 ns to 2.24 s

Storage

Waveform Export Formats

CSV, TSV, BMP, PNG, TIFF, ISF

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic design, debugging, manufacturing test, service, education

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