

TEKTRONIX

DPO3054

The Tektronix DPO3054 is a high-performance 500 MHz, 4-channel digital phosphor oscilloscope from the DPO3000 Series. Engineered with 2.5 GS/s sampling rate on all channels, a standard 5 Mpoint record length, and a 50,000 wfm/s waveform capture rate, it provides advanced signal visualization and analysis. It features the Wave Inspector® navigation system, a large 9-inch WVGA widescreen display, and the TekVPI® probe interface for seamless connectivity.

SPECIFICATIONS

General

Interfaces	USB 2.0 Host (1x Front, 1x Rear), USB 2.0 Device (Rear), LAN (10/100 Base-T), DB-15 Video Out
Display	9.0 inch (228.6 mm) WVGA widescreen color TFT-LCD (800 x 480 pixels)
Standard Warranty	3 years (excluding probes and accessories)

Physical

Power Supply	100 to 240 V $\pm 10\%$ (50/60 Hz), 115 V $\pm 10\%$ (400 Hz), 120 W maximum
Operating Temperature	0 to 50 °C
Dimensions (W×H×D)	417 x 203 x 137 mm
Weight	4.2 kg

Vertical System

Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time (10% to 90%)	700 ps
Number of Input Channels	4
Input Coupling	AC, DC
Input Impedance	1 M Ω $\pm 1\%$ parallel with 13 pF ± 2 pF, 50 Ω $\pm 1\%$
Input Sensitivity Range (1 M Ω)	1 mV/div to 10 V/div
Input Sensitivity Range (50 Ω)	1 mV/div to 1 V/div
Vertical Resolution	8 bits
Max Input Voltage (1 M Ω)	300 VRMS CAT II
Max Input Voltage (50 Ω)	5 VRMS with peaks $\leq \pm 20$ V
DC Gain Accuracy	$\pm 1.5\%$ for 2 mV/div to 10 V/div ($\pm 2.5\%$ at 1 mV/div)
Channel-to-Channel Isolation	$\geq 100:1$ at ≤ 250 MHz; $\geq 30:1$ at > 250 MHz to 500 MHz
Hardware Bandwidth Limits	20 MHz, 250 MHz

Horizontal System

Time Base Range	1 ns/div to 1000 s/div
Time Base Delay Time Range	-10 divisions to 5000 s
Channel-to-Channel Deskew Range	±75 ns
Time Base Accuracy	±10 ppm

Acquisition System

Max Real-Time Sample Rate (All Channels)	2.5 GS/s
Max Record Length (All Channels)	5 Mpoints
Max Waveform Capture Rate	50,000 wfm/s
Acquisition Modes	Sample, Peak Detect, Averaging, Envelope, Hi-Res, Roll
Peak Detect Mode	Captures high frequency glitches down to 1.6 ns
Averaging Mode	Linear average of 2 to 512 waveforms
Envelope Mode	Min-max envelope reflecting Peak Detect data over multiple acquisitions
Hi-Res Mode	Boxcar average reduces random noise and increases vertical resolution
Roll Mode	Scrolls waveforms at sweep speeds slower than 40 ms/div

Trigger System

Trigger Modes	Auto, Normal, Single
Trigger Coupling	AC, DC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	20 ns to 8 s
Trigger Sensitivity	0.4 div (at ≤ 50 MHz), 1.0 div (at 500 MHz)
Trigger Source	CH1, CH2, CH3, CH4, AC Line
Edge Triggering	Rising, falling, or either slope on any channel
Pulse Width Triggering	Trigger on width of positive or negative pulses (4 ns to 8 s)
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second
Logic Pattern Triggering	Trigger when any logical pattern of channels goes false or stays true
Setup and Hold Triggering	Trigger on violations of setup and hold times between clock and data
Rise/Fall Time Triggering	Trigger on pulse edge rates that are faster or slower than specified
Video Triggering	Trigger on all lines, specific line numbers, odd/even/all fields on NTSC, PAL, SECAM
I2C/SPI Serial Triggering	Optional (with DPO3EMBD module)
CAN/LIN Serial Triggering	Optional (with DPO3AUTO module)
RS-232/UART Serial Triggering	Optional (with DPO3COMP module)

Waveform Measurements & Analysis

Automatic Measurements	29
Measurement Statistics	Mean, Min, Max, Standard Deviation
Measurement Gating	Isolate a specific occurrence within an acquisition for measurement
Waveform Math Operators	Add, Subtract, Multiply, FFT
FFT Window Types	Hanning, Blackman-Harris, Rectangular, Hamming
FFT Vertical Scale	Linear RMS, dBV RMS
Search and Mark Features	Wave Inspector® automatically searches and marks user-defined events

Display Characteristics

Display Graticules	Full, Grid, Crosshair, Frame
Waveform Styles	Vectors, Dots, Variable Persistence, Infinite Persistence

Input/Output Interfaces

USB 2.0 Host Ports	2 (1 front, 1 rear)
USB 2.0 Device Port	1 rear panel (supports USBTMC)
LAN (Ethernet) Port	1 RJ-45 (10/100 Base-T)
Video Out Port	DB-15 female connector on rear panel
Auxiliary Input	None (available on 2-channel models only)
Probing Interface Type	TekVPI Probe Interface
Trigger Out / Calibrator Output	Probe Compensator: 0 to 2.5 V amplitude, 1 kHz frequency

Physical Characteristics

Dimensions (Height)	203.2 mm (8.0 in.)
Dimensions (Width)	416.6 mm (16.4 in.)
Dimensions (Depth)	137.2 mm (5.4 in.)
Net Weight	4.2 kg (9.2 lbs)
Shipping Weight	8.6 kg (19.0 lbs)
Security Slot	Kensington-style lock slot on rear panel

Environmental & Compliance

Non-Operating Temperature	-20 °C to +60 °C
Operating Humidity	Up to 90% RH at +40°C; Up to 60% RH at +50°C
Operating Altitude	3,000 m (9,843 ft)
Non-Operating Altitude	12,192 m (40,000 ft)
Safety Certifications	UL61010-1:2004, CAN/CSA-C22.2 No. 61010.1:2004, EN61010-1:2001, IEC61010-1:2001

Optional Configurations & Upgrades

Serial Bus Analysis Application Modules	DPO3EMBD, DPO3AUTO, DPO3COMP, DPO3AERO
Power Analysis Application Module	DPO3PWR
Limit and Mask Testing Module	DPO3LMT

Accessories

Standard Included Probes	P6139A (one per channel)
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Display

Display Size	9 in. (228.6 mm) widescreen TFT-LCD
Display Resolution	800 × 480 pixels (WVGA)
Display Color Support	262,144 colors (18-bit)

Power

Power Consumption	120 W maximum
Power Source Voltage	100 to 240 V AC ±10% (50/60 Hz) / 115 V AC ±10% (400 Hz)
Power Source Frequency	50 Hz to 60 Hz / 400 Hz

Interfaces

LXI Compliance	LXI Class C, Version 1.3
Optional GPIB Control	Supported via TEK-USB-488 adapter

Environmental

Operating Vibration	0.31 g RMS, 5 Hz to 500 Hz, 10 min per axis, 3 axes
Non-operating Vibration	2.46 g RMS, 5 Hz to 500 Hz, 10 min per axis, 3 axes
Operating Shock	30 g, 11 ms, half-sine

Interfaces & Connectivity

LAN Speed	10/100 Base-T
Video Output Resolution	1024 x 768 (XGA)

User Interface

Wave Inspector Dedicated Controls	Zoom, Pan, Play-Pause, Set-Clear Mark, Prev-Next Mark
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Software

Standard Software Support	OpenChoice Desktop, NI LabVIEW SignalExpress Tektronix Edition
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Storage

Internal Setup Storage Capacity	10 setups
Internal Reference Waveform Storage Capacity	4 reference waveforms

Triggering

Trigger Level Range (Internal)	±8 divisions from screen center
Trigger Level Range (Auxiliary Input)	Not applicable (no auxiliary trigger input on 4-channel models)

Calibration & Diagnostics

Probe Compensator Output Voltage	0 to 2.5 V
Probe Compensator Output Frequency	1 kHz

TECHNOLOGY

Digital Phosphor

APPLICATIONS

Electronic Design, Embedded Debugging, Power Measurement, Automotive Electronics Debugging

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