

TEKTRONIX

DPO3052

The Tektronix DPO3052 is a 2-channel, 500 MHz digital phosphor oscilloscope from the DPO3000 Series. Featuring a large 9-inch WVGA display, a 5 Mpoint record length on all channels, and a 2.5 GS/s sample rate, it delivers advanced performance for debugging and analysis. With its standard Wave Inspector® controls and a wide range of optional serial triggering modules, the DPO3052 provides efficient waveform analysis and serial bus debugging capabilities in a compact, lightweight form factor.

SPECIFICATIONS

General

Interfaces	USB 2.0 Host (Front and Rear), USB 2.0 Device (Rear), LAN (10/100 Base-T), VGA (Video Out)
Display	9 in. (228.6 mm) widescreen TFT-LCD, 800 × 480 pixels (WVGA)

Physical

Power Supply	100 to 240 V AC ±10% (50/60 Hz), 100 to 132 V AC (400 Hz), < 120 W power consumption
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	416.6 × 203.2 × 137.2 mm mm

Vertical System

Analog Bandwidth (-3 dB)	500 MHz
Calculated Rise Time (10% to 90%)	700 ps
Number of Input Channels	2
Input Impedance	1 MΩ ± 1% in parallel with 13 pF ± 2 pF, 50 Ω ± 1%
Input Coupling	AC, DC
Vertical Resolution (ADC)	8 bits
Input Sensitivity Range (1 MΩ)	1 mV/div to 10 V/div
Input Sensitivity Range (50 Ω)	1 mV/div to 1 V/div
DC Gain Accuracy	±1.5% (±2.0% at 2 mV/div, ±2.5% at 1 mV/div)
Maximum Input Voltage (1 MΩ)	300 Vrms CAT II (with peaks ≤ ±450 V)
Maximum Input Voltage (50 Ω)	5 Vrms (with peaks ≤ ±20 V)
Hardware Bandwidth Limits	20 MHz, 250 MHz
Channel-to-Channel Isolation	≥ 100:1 at ≤ 500 MHz
Position Range	±5 divisions

Horizontal System

Maximum Real-Time Sampling Rate	2.5 GS/s
Maximum Record Length	5 Mpoints per channel
Time Base Range	1 ns/div to 1000 s/div
Time Base Accuracy	±10 ppm
Channel-to-Channel Deskew Range	±75 ns

Trigger System

Trigger Sources	CH1, CH2, AC Line, External
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, HF Reject, LF Reject, Noise Reject
Trigger Holdoff Range	250 ns to 8 s
Edge Triggering	Positive, negative, or either slope on any channel
Pulse Width Triggering	Trigger on width of positive or negative pulses that are >, <, =, ≠, or inside/outside (4 ns to 8 s)
Runt Triggering	Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again
Setup/Hold Triggering	Trigger on violations of setup time and hold time between clock and data
Video Triggering	Trigger on NTSC, PAL, and SECAM video signals
I2C Serial Triggering	Optional (with DPO3EMBD)
SPI Serial Triggering	Optional (with DPO3EMBD)
CAN/LIN Serial Triggering	Optional (with DPO3AUTO)
RS-232/422/485/UART Serial Triggering	Optional (with DPO3COMP)
External Trigger Input Impedance	1 MΩ ± 1% in parallel with 13 pF ± 2 pF
Internal Trigger Sensitivity	0.5 div from DC to 50 MHz, increasing to 1 div at 500 MHz

Acquisition System

Acquisition Modes	Sample, Peak Detect, Averaging, Envelope, Hi Res, Roll
Peak Detect Minimum Pulse Width	2.0 ns
Averaging Factor Range	2 to 512
Maximum Waveform Capture Rate	50,000 wfm/s

Waveform Measurements and Analysis

Automatic Measurements	29 measurements (including Period, Frequency, Rise Time, Fall Time, Width, Duty Cycle, Amplitude, RMS)
Measurement Statistics	Mean, Minimum, Maximum, Standard Deviation
Waveform Math	Arithmetic (Addition, Subtraction, Multiplication, Division)
FFT Window Types	Rectangular, Hamming, Hanning, Blackman-Harris
FFT Vertical Scale Options	Linear RMS, dBV RMS

Display and User Interface

Display Type	9-inch TFT-LCD Color Display
Display Resolution	800 × 480 pixels (WVGA)
Waveform Display Formats	YT, XY
Graticule Options	Full, Grid, Crosshair, Frame

Connectivity and Ports

USB Host Ports	1 front-panel port, 1 rear-panel port
USB Device Ports	1 rear-panel port (supports USBTMC)
LAN Port	RJ-45 connector, 10/100 Base-T Ethernet
External Video Output Port	DB-15 female connector
Auxiliary Output (Trigger Out)	BNC connector, selectable Trigger Out, Event Out, or Reference Clock Out
Probe Calibration / Demo Output	Front-panel pins, 1 kHz, 0 to 2.5 V square wave
Probe Interface	TekVPI

Power Specifications

Power Supply Voltage Range	100 to 240 V AC ±10%
Power Supply Frequency Range	50/60 Hz (100 to 240 V), 400 Hz (100 to 132 V)
Power Consumption (Maximum)	120 W

Environmental Specifications

Operating Temperature Range	0 °C to +50 °C
Storage Temperature Range	-40 °C to +71 °C
Operating Altitude	3,000 meters (approx. 9,843 feet)
Non-Operating Altitude	12,192 meters (approx. 40,000 feet)

Physical Characteristics

Form Factor	Benchtop
Height	203.2 mm (8.0 in.)
Width	416.6 mm (16.4 in.)
Depth	137.2 mm (5.4 in.)

Triggering

Logic Pattern Triggering	Trigger when logic pattern of channels goes true or false
Logic State Triggering	Any logical pattern of channels clocked by an edge on another channel
Rise/Fall Time Triggering	Trigger on pulse edge rates that are faster or slower than a specified rate

Search and Navigation

Wave Inspector® Navigation	Dedicated front-panel controls for zoom, pan, play/pause, marks, and search
Automated Search	Search for Edge, Pulse Width, Runt, Logic, Setup & Hold, Rise/Fall Time, or Bus criteria

Optional Serial Bus Analysis

Audio Bus Support	Optional (via DPO3AUDIO module) for I2S, Left Justified (LJ), Right Justified (RJ), and TDM
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Optional Power Analysis

Power Analysis Software	Optional (via DPO3PWR module) for power quality, switching loss, harmonics, SOA, modulation, ripple, and slew rate
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Security & Connectivity

GPIO Interface Option	Supported via TEK-USB-488 adapter
Kensington Lock Slot	Rear-panel security slot connects to standard Kensington-style lock

Standard Accessories

Included Standard Probes	P6139A (one per channel) 500 MHz, 10x passive voltage probe
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Display System

Display Size	9 in. (228.6 mm) diagonal widescreen
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Regulatory & Compliance

Safety Certifications	UL61010-1:2004, CAN/CSA-C22.2 No. 61010.1:2004, EN61010-1:2001
Electromagnetic Compatibility	2004/108/EC, EN61326-1:2006 Class A, AS/NZS CISPR 11:2004 Class A

TECHNOLOGY

Digital Phosphor Oscilloscope (DPO)

APPLICATIONS

Electronic Design and Debug, Embedded Systems, Education, Manufacturing Test

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