

TEKTRONIX

DPO70404

The Tektronix DPO70404 is a high-performance Digital Phosphor Oscilloscope (DPO) belonging to the DPO70000 Series. Designed for verifying, characterizing, debugging, and testing sophisticated electronic and high-speed serial designs, it offers a 4 GHz analog bandwidth and a real-time sample rate of 25 GS/s on all four channels simultaneously. It features Pinpoint triggering, a highly intuitive user interface with a large touch screen, and advanced software compatibility.

SPECIFICATIONS

General

Interfaces	USB, LAN (10/100/1000 Base-T), GPIB, RS-232, DVI, VGA
Display	12.1 in. TFT-LCD color touch screen, 1024 × 768 (XGA)
Calibration Interval	1 year (recommended)
LXI Compliance	LXI Class C Version 1.3

Physical

Power Supply	100 to 240 V AC $\pm 10\%$, 47 to 63 Hz (and 400 Hz at 115 V), <1200 VA
Operating Temperature	5 °C to +45 °C °C
Dimensions (W×H×D)	451 mm × 298 mm × 489 mm mm
Weight	20 kg kg

Vertical System

Input Channels	4
Analog Bandwidth (-3 dB)	4 GHz
Rise Time (10% to 90%)	98 ps (typical)
Rise Time (20% to 80%)	65 ps (typical)
Input Impedance	50 Ω $\pm 1.5\%$
Input Coupling	DC, GND
Input Sensitivity Range	10 mV/div to 1 V/div
Vertical Resolution	8-bit (up to 11-bit with averaging)
DC Gain Accuracy	$\pm 2\%$
Offset Range	± 1 V (10 to 99.5 mV/div), ± 5 V (100 mV to 1 V/div)
Maximum Input Voltage	5 V RMS, with peaks $\leq \pm 24$ V
Channel-to-Channel Isolation	$\geq 120:1$ at ≤ 100 MHz, $\geq 80:1$ at > 100 MHz to 2.5 GHz, $\geq 50:1$ at > 2.5 GHz to 4 GHz
Low-frequency Limit (AC Coupling)	N/A (DC coupled only)

Horizontal System

Maximum Real-Time Sample Rate	25 GS/s (on all 4 channels)
Maximum Record Length (Standard)	10 MS per channel (40 MS max)
Maximum Record Length (Optional Upgrade)	up to 200 MS (option dependent)
Timebase Range	20 ps/div to 1000 s/div
Channel-to-Channel Deskew Range	±75 ns
Timebase Delay Range	-5.0 ks to 250 s
Timebase Accuracy	±1.5 ppm initial accuracy, with aging <1 ppm/year
Equivalent-Time Sample Rate	Up to 2.5 TS/s

Acquisition System

Acquisition Modes	Sample, Peak Detect, Hi Res, Envelope, Average, Waveform Database, FastAcq
Maximum Waveform Capture Rate (FastAcq)	>300,000 wfms/s (per channel)
FastFrame™ Segmented Memory	Standard, up to 1,000,000 frames (configuration and record length dependent)

Trigger System

Trigger System Type	Pinpoint Triggering
Trigger Combinations	>1400
Trigger Modes	Auto, Normal, Single
Trigger Coupling	DC, AC, Low Frequency Reject, High Frequency Reject, Noise Reject
Trigger Jitter (Typical)	1 ps RMS
Serial Pattern Triggering Speed	up to 3.125 Gb/s
Trigger Level Range (Internal)	±12 divisions from center of screen
Trigger Holdoff Range	250 ns to 12 s

Waveform Measurements and Analysis

Automatic Measurements	53 automatic measurements
Waveform Histograms	Vertical and Horizontal
Algebraic Math Functions	Add, Subtract, Multiply, Divide
Advanced Math	FFT, user-defined equations

Display System

Display Type	Liquid crystal active-matrix color TFT
Display Size	12.1 in.
Display Resolution	1024 × 768 pixels
Format	YT, XY, XYZ

Computer System & Storage

Operating System	Microsoft Windows XP
Storage Drive Capacity	≥80 GB removable hard disk drive
Optical Drive Type	CD-RW/DVD drive

Connectivity & Interfaces

Analog Input Connectors	TekConnect
USB Ports	5 USB 2.0 ports (1 front, 4 rear)
LAN Port	1 RJ-45 (10/100/1000 Base-T)
GPIO Interface	IEEE 488.2
External Video Output	DVI, VGA
External Reference Input	10 MHz (BNC)
Internal Reference Output	10 MHz (BNC)
Auxiliary Trigger Output	Yes (BNC)

Power and Environmental

Operating Humidity	8% to 80% relative humidity, non-condensing
Operating Altitude	up to 3,000 m (9,843 ft.)
Non-Operating Altitude	up to 12,190 m (40,000 ft.)

Physical Characteristics

Height	298 mm
Width	451 mm
Depth	489 mm
Rackmount Configuration Size	7U

Compliance & Certifications

Safety Standards Compliance	UL61010-1, CSA22.2 No. 61010-1, EN61010-1
Electromagnetic Compatibility (EMC)	EN61326, FCC Part 15 Class A

Software Options & Application Packages

Jitter and Eye Diagram Analysis	Option DJA / DPOJET
Serial Data Compliance Testing	Yes (PCI Express, SATA, FB-DIMM, SAS, Fibre Channel, Ethernet, HDMI, DVI, USB 2.0)
DDR Analysis Software	Option DDRA (supports DDR1, LP-DDR1, DDR2, DDR3, GDDR3)
Limit Testing	Yes
Custom Interface Software	MyScope Custom Windows, OpenChoice Software

Power Specifications

Input Voltage Range	100 to 240 V AC ±10% (50 to 60 Hz), 115 V AC ±10% (400 Hz)
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Inputs & Outputs

Probe Interface	TekConnect® interface, supporting active, differential, and optical probes
TekLink Port	1 rear-panel proprietary TekLink connector

Environmental

Cooling Clearance Requirements	76 mm (3 in.) minimum on Left, Right, and Rear
Operating Shock	15 g, 11 ms, half-sine

Power

Power Line Frequency Range	47 Hz to 63 Hz (90 V to 264 V) or 360 Hz to 440 Hz (100 V to 132 V)
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TECHNOLOGY

Digital Phosphor

APPLICATIONS

Signal integrity verification, jitter characterization, high-speed serial design debugging and compliance testing

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