Tektronix®

7 Series DPO

FACT SHEET



The 7 Series DPO delivers unparalleled signal fidelity, high ENOB, low jitter, fast measurement throughput, and an award-winning user interface making it ideal for meeting the evolving needs of high-speed serial, high-energy physics, and key RF applications.

With up to 25 GHz analog bandwidth, the 7 Series DPO provides the most accurate real time performance with several industry firsts:

- First 8 channel 25 GHz performance oscilloscope
- Lowest vertical (random) noise with highest ENOB (Effective Number of Bits)
- Fastest throughput with 10 Gb Ethernet LAN SFP+ port
- Delightful, yet familiar TekScope® user interface available with either embedded or Windows operating system

Key Applications

The 7 Series' low noise, high fidelity signal acquisition is critical for high bandwidth applications such as:

- Advanced research including analysis of transient events
- Digital design & validation including signal integrity, jitter, and timing analysis
- Memory bus analysis and debug
- Compliance testing and debug of high-speed serial interfaces for industry standards
- Analysis of signal integrity and power integrity in artificial intelligence data center development
- Spectral analysis of transient or wide-bandwidth RF

Key Features and Performance Specifications

- Available bandwidths (all analog channels): 8 GHz, 10 GHz, 13 GHz, 16 GHz, 20 GHz, 25 GHz (customer upgradable)
- 4 TekConnect® input channels and 4 2.92 mm input channels (DPO718AX only) with one TekConnect® Aux In
- Sample rate 125 GS/s on all 4 TekConnect channels or 62.5 GS/s on both 4 TekConnect and 4 2.92 mm channels (user selectable)
- 12-bit ADC with highest ENOB and lowest random noise
- Precision timebase with low intrinsic jitter
- QuietChannel™ technology with active CTLE (Continuous Time Linear Equalization) which compensates for high-frequency signal channel loss
- Record length of 500 Mpoints standard, 1 or 2 Gpoints optional
- P7700 and P7600 Series TriMode™ probe compatible
- 15.6 inch HD touch screen display (1920 x 1080 resolution)

Pinpoint® digital triggering to full bandwidth

- Allows selection of virtually all trigger types on both A and B trigger events delivering the full suite of advanced trigger types for finding sequential trigger events
- Edge, Pulse width, Timeout, Cycle, Runt, Sequence, Rise/Fall time, Visual Trigger

Low-latency Aux In analog triggering

- Low-latency analog trigger mode (Channel 1 and Aux In only)
  - < 20 ns from trigger in to Aux Out BNC on rear panel
  - Accessible from User Preferences menu
- Aux In - Trigger
  - Normal: ≥ 8 GHz, 50 Ω, all digital triggers, < 1.9 µs latency
  - Low-latency: ≥ 8 GHz, 50 Ω, edge trigger only, < 20 ns latency

Waveform Capture Rate

- FastAcq™ - up to 150,000 waveforms/sec
- FastFrame™ - maximum trigger rate > 30,000,000 waveforms/sec

26.6 Gbps Bit Error Detector

- Supports 1 - 26.6 Gbps NRZ data rates
- Utilizes digital trigger system to detect & trigger on bit errors in PRBS7-9-11-13-15-16-20-21-23-31 & custom patterns
- Combine with optional 7-SRxxx decoders to facilitate debug & diagnosis of errors

Arbitrary/Function Generator (optional)

- 100 MHz waveform generation
- Single-ended and differential outputs
- Waveform Types: Arbitrary, Sine, Square, Pulse, Ramp, Triangle, DC Level, Gaussian, Lorentz, Exponential Rise/Fall, Sin(x)/x, Random Noise, Haversine, Cardiac

Compute and Storage

- 12-core processor
- 96 GB System RAM
- ≥ 1.6 TB removable NVMe SSD (solid state drive)
- Standard SSD: Closed Embedded OS
- Optional SSD: Windows 10

Connectivity

- LAN (10G Ethernet on SFP+ and 10/100/1000 Base-T Ethernet on RJ-45)
- USB 3.0 Host (3 front and 4 rear), USB 3.0 Device (1 port rear)
- DisplayPort, HDMI
- Sample Clock In/Out, Ext Ref In, Ref Clock Out, Sync In/Out, Aux Out

Specifications Overview

7 Series DPO	DPO714AX	DPO718AX
Bandwidth	8 GHz, 10 GHz, 13 GHz, 16 GHz, 20 GHz, 25 GHz (customer upgradeable)	
Channels	4 TekConnect®	4 TekConnect and 4 2.92 mm
Sample Rate	125 GS/s on TekConnect channels	125 GS/s on TekConnect channels 62.5 GS/s on TekConnect and 2.92 mm channels
Record Length	500 Mpoints standard; 1 or 2 Gpoints optional	
ADC	12-bit	
Effective Number of Bits (ENOB)	7.7 bits at 8 GHz to 6.7 bits at 25 GHz, 125 GS/s, 500 mV full scale, signal 80% of full scale 7.5 bits at 8 GHz to 6.5 bits at 25 GHz, 125 GS/s, 500 mV full scale, signal 90% of full scale 7.4 bits at 8 GHz to 6.4 bits at 25 GHz, 62.5 GS/s, 500 mV full scale, signal 80% of full scale 7.2 bits at 8 GHz to 6.2 bits at 25 GHz, 62.5 GS/s, 500 mV full scale, signal 90% of full scale	
Random Noise	523 µV at 8 GHz (0.10% FS) to 1.13 mV at 25 GHz (0.23% FS), 125 GS/s, 500 mV full scale 645 µV at 8 GHz (0.13% FS) to 1.38 mV at 25 GHz (0.28% FS), 62.5 GS/s, 500 mV full scale	
Intrinsic Jitter	60 fs (1 µs time duration) to 70 fs (1 ms time duration)	
Operating System	Closed Linux on removable SSD (standard); Open Windows 10 on removable SSD (optional)	
Display	15.6 inch high definition capacitive touch screen (1920 x 1080)	
Warranty	1 year standard	

Note: Full scale (FS) is defined as 10 vertical divisions

Optional Accessories	Description
RM7	Rackmount kit for 7 Series

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