

## 7 Series DPO

### FACT SHEET



The 7 Series DPO (Digital Phosphor Oscilloscope) 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:

- 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 and investigation of transient phenomena
- 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 one TekConnect Aux In each with TCA292D 50 Ω 2.92 mm input adapter
- Sample rate 125 GS/s on all 4 channels
- 10-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 high-definition touch screen display (1920 x 1080 resolution)

## Performance Specifications continued

### 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:  $\geq 8$  GHz, 50  $\Omega$ , all digital triggers, <1.8  $\mu$ s latency
  - Low-latency:  $\geq 8$  GHz, 50  $\Omega$ , edge trigger only, <20 ns latency

### 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
- $\geq 1.6$  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	DP0714AX
Bandwidth	8 GHz, 10 GHz, 13 GHz, 16 GHz, 20 GHz, 25 GHz (customer upgradeable)
Channels	4 analog
Sample Rate	125 GS/s all channels
Record Length	500 Mpoints standard; 1 or 2 Gpoints optional
ADC	10-bit
Effective Number of Bits (ENOB)	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
Random Noise	523 $\mu$ V at 8 GHz (0.10% FS) to 1.13 mV at 25 GHz (0.23% FS), 500 mV full scale
Intrinsic Jitter	60 fs (1 $\mu$ s 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
HC7	Hard carrying case for 7 Series
RM7	Rackmount kit for 7 Series

Find more valuable resources at [TEK.COM](https://www.tek.com)

