JPO71304 Digital Phosphor Oscilloscope

40GSa/s | 13GHz | 1Gpts

Introduction to JPO71304 Digital Phosphor Oscilloscope

Core specifications of this product: 13 GHz bandwidth, 4 standard analog channels, 40 GSa/s sampling rate per channel, 8-bit vertical resolution, and a maximum storage depth of 1 Gpts. In addition, it offers a variety of configurable hardware and software analysis functions to fully meet your growing testing requirements. It can be used as a broadband data acquisition and analysis instrument for capturing ultrafast signals, testing communication links, and acquiring radar pulses. It can also serve as a general-purpose oscilloscope for verifying high-speed digital signal integrity, evaluating semiconductor chip performance, and conducting various scientific research measurements.

Industry-leading combination of broadband bandwidth and high sampling rate

Industry-leading broadband Effective Number of Bits (ENOB)

Industry-leading broadband spurious-free dynamic range (SFDR)

Industry-leading broadband base noise

Exceptional performance with precision down to the finest detail

Self-developed AFE ASIC analog front-end chipset

Featuring lower noise and higher ENOB, multiple self-developed low-noise conditioning chips significantly enhance the oscilloscope′s performance and specifications.

High-performance ADCs deliver powerful core specifications

- 40 GSa/s per channel when all four channels are active
- 13 GHz bandwidth per channel when all four channels are active
- 33ps rise time (typical)
- Testable pulse width from 80ps to 1ms
- Equipped with independent waveform arithmetic and automatic measurement functions

Powerful Spectrum Analysis Capabilities

- Standard Enhanced FFT with up to 1Mpts signal analysis
- Frequency analysis range: Full analog bandwidth
- Supports multiple spectrum views: amplitude spectrum, power spectrum, power spectral density, etc.

Flexible Customizable Analysis Capabilities

- Embedded Custom Hardware Real-time Analysis Algorithm
- Embedded Custom Software Processing Algorithm

Additional Technical Specifications

All specifications are guaranteed unless marked as "Typical". The instrument must be operated continuously for a minimum of 30 minutes at the specified operating temperature before use.

Analog Channels	
number of channels	4+1EXT
Vertical input sensitivity range	50Ω：10mV/div ～ 1V/div
input coupling	DC
Input Impedance	50Ω ±3%
DC Gain Accuracy	50Ω: ±3% full scale
Offset Range	**50Ω:** 10mV/div-50mV/div: ±500mV； 100mV/div-200mV/div: ±1V 500mV/div-1V/div: ±4V
DC Offset Accuracy	>200mV/div:±0.1div±2mV±1.5% offset Offset of ≤200mV/div:±0.1div±2mV±2.0%
maximum input voltage	50Ω：≤ 5Vrms
channel isolation	≥100:1 （DC ～ 13GHz)

Horizontal System	
time base range	50ps/div-1000s/div
time base accuracy	±1ppm ±2* calibrated years (ppm)
Horizontal mode	Y-T\X-Y

Acquisition System	
Averaging Factor	2 ～ 1,000,000
Fast Capture	In the ultra-fast capture mode, the maximum waveform capture rate per channel reaches 500,000wfms/s.

Trigger System	
trigger mode	Automatic, Normal, Single

trigger coupling	DC	
triggering sensitivity	Internal Trigger: C1 ~ C4	DC~13GHz: 10mV/div~20mV/div：1div
		DC~13GHz: 50mV/div~1V/div：0.8div
trigger level range	Internal	±4 grid units from the screen center

Trigger Types

Edge Trigger	source	C1 ~ C4
		EXT
	Trigger Edge	rising edge, falling edge

Waveform Measurement

Cursor Measurement

Source	C1 ~ C4、Math、Ref
Measurement Types	Vertical cursor measures time and voltage (X, Y), the reciprocal of ΔX (Hz) (1/ΔX), and ΔY/ΔX (V/s). Horizontal cursor measurement voltage (Y) and ΔY; Supports auto-cursor tracking;

Automatic Measurement

Vertical measurement parameters	Maximum, minimum, peak-to-peak, top value, bottom value, median, amplitude, average, valid value, standard deviation, positive overshoot, negative overshoot, period maximum, period minimum, period valid value, period average, period peak-to-peak, period median, positive pre-charge, negative pre-charge
Horizontal measurement parameters	Period, Frequency, Rise Time, Fall Time, Positive Pulse Width, Negative Pulse Width, Positive Duty Cycle, Negative Duty Cycle, Time@Max, Time@Min, Rise Time@Lv, Fall Time@Lv, Period@Lv, Frequency@Lv, Pulse Width@Lv, Duty Cycle@Lv, Phase Difference@Lv, RRD@Lv, FFD@Lv, RFD@Lv, FRD@Lv, Offset, Data Points, Set Time, Hold Time, Period Count, Rise Edge Count, Fall Edge Count, Positive Pulse Count, Negative Pulse Count
Other measurement parameters	Area, Periodic Area
Histogram parameters	μ±1σ, μ±2σ, μ±3σ, mode, mean, standard deviation, maximum, minimum, median, peak-to-peak, number of peaks, total sample size
Measurement Source	C1 ~ C4
Measurement Capacity	52 automatic measurements, displaying up to 10 measurements simultaneously
Measurement Range	Screen or cursor-defined area

Parameter snapshot	Display 38 measurement items for the current channel, with switchable signal sources
Measurement statistics	Current value, average, maximum, minimum, standard deviation, and measurement count

Waveform Operations

Number of Functions	Supports 8 functions, which can be displayed simultaneously
source	C1 ~ C4，R1 ~ R4
Advanced Operations	Support Matlab embedded programming and data presentation
Basic Operations	Addition, subtraction, multiplication, division, AND, OR, NOT, XOR, average, absolute value, Exp10, Exp, differentiation, integration, Ln, Lg, square, square root, common mode, sine, cosine, tangent, correlation, convolution, expansion, extraction, interpolation, maximum, minimum, custom expression (can edit and execute compound formula operations)

Enhanced FFT	functions	Amplitude spectrum, power spectrum, PSD, real part, imaginary part, and phase spectrum
	Window types	Rectangular window, Hannin window, Blackman window, Hamming window, Flat-top window
	Display Modes	Full Screen (Spectrum View), Multi-Window
	Vertical units	Vrms/dBrms
digital filtering	Filter type	low-pass
	Custom Filter Design Methods	FIR、IIR
	Custom filter types	Sampling Method, Window Function, Remez, Butterworth, Chebyshev Type I, Chebyshev Type II, Elliptic
	Response type	low-pass
	filter order	FIR order: 2-1000 IIR order: 2-50
	filter characteristics	Amplitude-Frequency Response, Phase-Frequency Response, Impulse Response
MATH-ERes	Enhancement Bits: 0.5, 1, 1.5, 2, 2.5, 3 bit	

Measurement Analysis

histogram	source	P1 ~ P10
	types	Horizontal, Vertical, and Measurement
	Measurable Items	$\mu\pm1\sigma$, $\mu\pm2\sigma$, $\mu\pm3\sigma$, Mode, Mean, Standard Deviation, Maximum, Minimum, Median, Peak-

to-Peak, Peak Count, Total Sample Count

Display

Monitor	15.6-inch FHD screen (1920×1080 resolution) + gesture touch control
display type	Dot, Vector
Persistence Time	Persistence Off, Auto Persistence, Infinite Persistence

Host System

operating system	Windows（64bit）
Memory (RAM)	8GB (optional at the factory)
Solid State Drive (SSD)	128GB (optional at the factory)

Interfaces & Protocols

HD audio and video output	1×HDMI port (rear panel)
USB 3.0	4 ports (2 on front panel, 2 on rear panel)
LAN Port	One Ethernet interface (10/100/1000Mbps) on the rear panel
Calibration square wave	1kHz, approximately 3Vpp square wave
10MHz reference clock Input/Output	IN/OUT can be opened individually or simultaneously IN: Rear panel BNC connector for the oscilloscope's sampling reference clock OUT: The rear panel's BNC connector outputs a 10MHz reference clock, which can be used by external instruments for inter-instrument clock synchronization.
Remote Control Capabilities	Features: Check instrument status; View and modify network status; View help manual and programming manual; Download drivers; Save settings, export waveforms, and take screenshots.
SCPI Compliance	Supports standard SCPI command set

Power Supply

supply voltage	100V to 240VAC (±10% fluctuation) at 50Hz or 60Hz
Maximum Power Consumption	Maximum 750W

Environmental Specifications

temperature range	Working: 0℃ ~ +40℃; Non-working: -10℃ ~ +50℃
Humidity range	Humidity is not controlled when temperature is below 10℃; relative humidity is (5~95)% when temperature is in the range of 10℃~30℃; relative humidity is (5~75)% when temperature is in the range of 30℃~40℃
Operating Altitude	Work: below 4600 meters

Warranty and calibration services

Recommended calibration interval	1 year
Warranty Period	1 year

Order Information

JPO71304 Digital Phosphor Oscilloscope
13 GHz bandwidth, 40 GSa/s per channel, 4-channel desktop large-screen oscilloscope

Standard Accessories

UT-D30	1 USB3.0 data cable
--	1 front panel protective cover
--	1 power cord compliant with local standards
--	calibration certificate