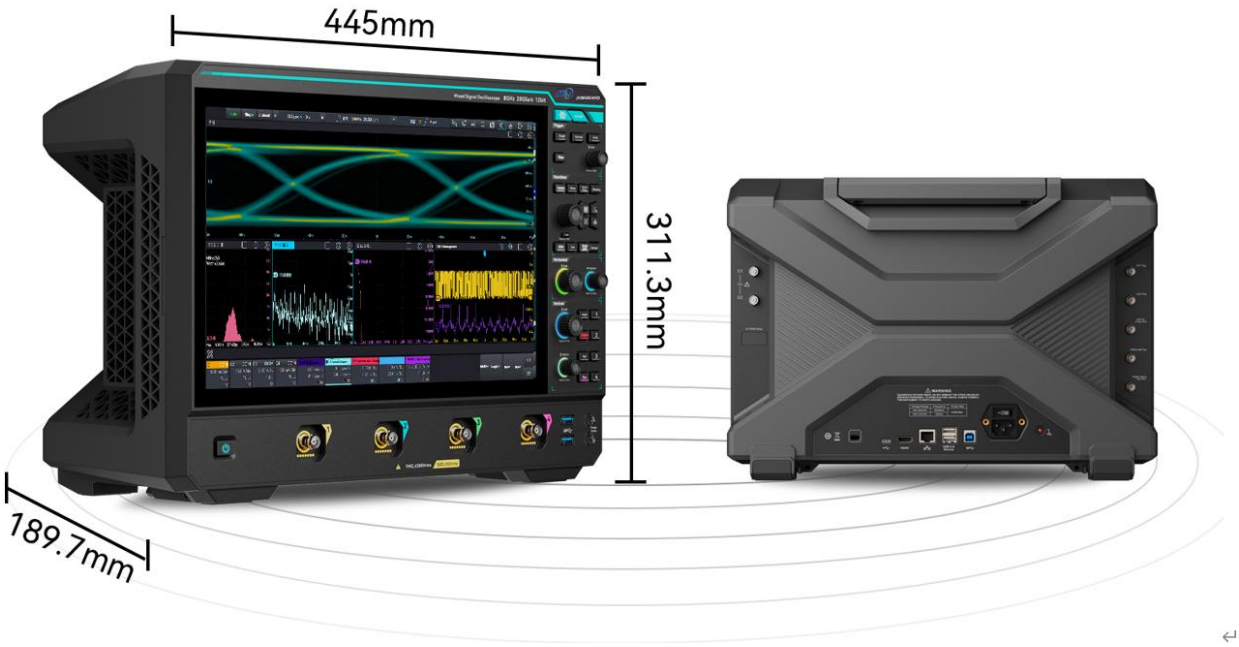
JHM8000HD Series Mixed Signal Oscilloscope

20GSa/s | 8GHz | 12-bit | 2Gpts | 1,000,000wfm/s

Introduction to the JHM8000HD Series

Introducing the all-new JHM8000HD Series high-resolution oscilloscopes. This series includes two models with 8 GHz/5 GHz bandwidth, and comes standard with a 20 GSa/s sampling rate and 12-bit vertical resolution across the entire lineup. It is equipped with 4 analog channels and 16 digital channels, with 1 Gpts/2 Gpts memory depth available as options. In addition, a wide range of hardware and software analysis functions can be flexibly configured to fully meet your evolving testing requirements. Whether you need to verify high-speed digital signal integrity, validate semiconductor chip performance, conduct 5G communication testing, monitor new energy systems, design and test power supplies, or engage in more industrial electronics applications and scientific research, the JHM8000HD is your ideal solution.

Technology Blue Tone, X-shaped Blade-Style Tough Design
More Compact, Portable, and Premium Than Competing Products



Key Specifications of the JHM8000HD Series	
Bandwidth	8GHz/5GHz
sampling rate	20GSa/s
Number of Input Channels	4 + 16 (Analog + Digital)
vertical resolution	12bit （ERES 16bit）
ENOB	>7bit system full bandwidth （50Ω,50mV/div,-3dBFS）
intrinsic jitter	≤150fs RMS
SFDR (Typical)	≥50dBc
Background Noise (Typical)	≤800μV (50mV/div, 8GHz bandwidth)
Memory Depth	1Gpts (standard), 2Gpts (optional)
waveform capture rate	Up to 1,000,000wfms/s
Trigger types	Advanced Trigger + Protocol Trigger + Zone Trigger
Cross-platform access	Webserver instrument access control, supports mobile devices
Advanced Analysis Tools	Power analysis suite, jitter analysis and eye diagram suite, extreme template test suite, serial protocol analysis suite
Display	15.6-inch HD capacitive touch screen
connectivity	USB Host 3.0×4，USB Device 3.0 × 1，TYPE-C×1，10M Ref IN/Out ，HDMI AUX In/Out，10/100/1000LAN、

Integrated Tools	Optional/Standard
spectrum analyzer	standard configuration
digital voltmeter	standard configuration
Frequency Counter	standard configuration
Function/Arbitrary Waveform Generator	JHM8000HD-AWG
logic analyzer	JHM8000HD-LA
Limit & Mask Test Suite	standard configuration
Protocol Analysis Suite	Standard features: RS232/422/485/UART, I2C, SPI, CAN, and LIN
Protocol Analysis Suite	Optional: CAN-FD, FlexRay, SENT, I3C, PSI5, USB 2.0, PCIe 2.0, 10/100Mbps Ethernet, NRZ, Manchester, 8b/10b, SMBUS, SPMI, AudioBus (I2S, LJ, RJ, TDM) MIL-STD-1553、ARINC429
Jitter Analysis & Eye Diagram Suite	JHM8000HD-JITTER
Power Analysis Suite	JHM8000HD-PWR
Upgrade Suite	JHM8000HD-BND

Exceptional Performance with Pinpoint Precision

The all-new JHM8000HD high-resolution mixed-signal oscilloscope boasts a maximum bandwidth of 8 GHz and a 20 GSa/s sampling rate. It is equipped with a 12-bit ADC, which can reach up to 16-bit resolution in ERES mode, and delivers an ultra-low noise floor plus outstanding ENOB performance.
Powered by the latest AFE ASIC analog front-end chipset and the 7th-generation oscilloscope platform, the instrument achieves new heights in both data accuracy and complex signal processing capabilities.

All-New Analog Front-End Chipset: Lower Noise, Higher ENOB

The JHM8000HD integrates a suite of low-noise conditioning chips, which significantly boosts the oscilloscope′ s performance and key specifications, delivering highly insightful measurements for your testing needs.

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12-bit ADC: Superior Faint Signal Resolution & Finer Feature Capture

The 12-bit ADC delivers finer feature capture and superior discrimination of faint signals.
All models in the JHM8000HD series are equipped with an integrated 12-bit ADC. In high-resolution mode, it supports enhanced resolution up to 16-bit, and provides a maximum sampling rate of 20 GSa/s in half-channel mode. Compared to standard 8-bit oscilloscopes, the high-resolution ADC enables the low-noise front-end to support 16 times more quantization levels. This gives you a distinct advantage in high-dynamic-range applications—such as precise measurement of weak voltage signals superimposed on large DC signals in power analysis, or easier differentiation between true jitter and noise components in jitter analysis.

- The vertical resolution is 16 times that of an 8-bit oscilloscope.
- The resolution reaches up to 16 bits in high-resolution mode.
- Half-channel sampling rate: 20 GSa/s, full-channel sampling rate: 10 GSa/s
- Half-channel 8GHz bandwidth, full-channel 4GHz bandwidth
- Maintains 12-bit vertical resolution at full bandwidth and full sampling rate without any compromise

High-Performance All-in-One Standalone Instrument Capabilities: Effortlessly Tackle Any Measurement Task

The JHM8000HD series is more than just an oscilloscope—it integrates the most widely used measurement instrument functions in the industry. While you may not need these instrument features right now, they can prepare you for future testing requirements. The JHM8000HD also supports online upgrades and optional purchases, enabling you to activate these functions anytime or when needed.

Digital Oscilloscope Core Specifications

- Bandwidth Options: 8 GHz / 5 GHz
- The entire series features a sampling rate of 20 GSa/s.
- Maximum Memory Depth: 2 Gpts
- Maximum Waveform Capture Rate: 1,000,000 wfms/s
- 4 analog channels + 1 external trigger channel

Function/Arbitrary Waveform Generator (Optional)

- Dual Channels with Matched Performance
- Maximum output frequency: 60MHz
- Sampling rate: 625 MSa/s
- Built-in multiple standard waveforms: sine wave, square wave, pulse wave, ramp wave, noise, DC. Over 200 customizable waveforms are available.
- Supports modulation and frequency sweep of multiple signals

Spectrum Analyzer

- Standard Enhanced FFT with up to 1Mpts signal analysis
- Frequency analysis range: Oscilloscope analog bandwidth
- Supports Multiple Spectrum Displays: Amplitude Spectrum, Power Spectrum, Power Spectral Density, Real Part, Imaginary Part, Phase Spectrum
- Allows simultaneous addition of up to 2 spectrum analysis windows for visual comparison under different window functions

Digital Voltmeter (Standard)

- 4-digit voltage measurement for DC, AC RMS, DC+AC RMS

Digital Frequency Counter (Standard)

- 8-digit high-precision frequency counter

Logic Analyzer (Optional)

- 16-channel logic analysis capability
- Provide 16-channel logic analysis probe
- Digital channel sampling rate: 1.25 GSa/s
- Digital channel memory depth: 125 Mpts
- The minimum detectable pulse width is as low as 3.2ns.
- The digital probe features separate high-byte and low-byte signal input ports, simplifying connection to the device under test

(DUT). When interfacing with square pins, the LA probe can directly connect to an 8×2 square pin header with 2.54 mm pin pitch..

Protocol Analyzer (Optional)

The JHM8000HD provides a comprehensive suite of serial bus analysis functions and multi-protocol trigger modes. It enables triggering on specific packet content, polarity identification, chip select signals and more. Trigger events are displayed in a list format, and the built-in protocol search function allows for precise protocol frame localization.

- Embedded: RS-232/422/485/UART, SPI, I2C, SMBUS, SPMI, AudioBus (I2S, LJ, RJ, TDM)
- Automotive: CAN, CAN-FD, SENT, FlexRay, LIN, I3C, PSI5
- Computer & Communication: USB 2.0, PCIe 2.0, Ethernet, NRZ, Manchester, 8b/10b
- Aerospace: MIL-STD-1553, ARINC429

Supports packet parameter triggering, protocol packet view, event list, protocol search, and protocol analysis report generation.

Sequence Mode: Unlock More Signal Details to Effortlessly Review Past and Capture Upcoming Waveforms

The JHM8000HD comes standard with 500 Mpts memory depth for full channels and 1 Gpts for half channels. Users also have the option to expand the memory depth to 1 Gpts for full channels and 2 Gpts for half channels. With optimized fast response in Sequence Mode, you can review historical waveform events or capture upcoming ones with ease.

The 500 Mpts－2 Gpts segmented memory effectively stores a large number of trigger events while eliminating long intervals between events. After acquisition, you can view or replay the captured waveforms frame by frame. Alternatively, you can conduct holistic observation of up to 40 waveform segments in 45° display, overlapping, superimposition, or splicing modes.

In optimal conditions, Sequence Mode supports the acquisition and playback of up to 1,000,000 waveform frames—ensuring you can always locate the waveforms you care about.

Technical Specifications

Except for the specifications marked as Typical, all other specifications are guaranteed. The instrument must be operated continuously for more than 30 minutes at the specified operating temperature prior to use.

Key Specifications	JHM8804HD	JHM8504HD
Bandwidth (-3dB) @ 50Ω★1	8GHz	5GHz
Bandwidth (-3dB) @1MΩ	-	500MHz
Rise Time @ 50Ω (Typical)	55ps	88ps
number of analog channels	4+EXT	
Number of Digital Channels (Optional)	16 (requires JHM8000HD-LA accessory)	
Analog channel sampling rate ★2	Half-channel: 20 GSa/s; Full-channel: 10 GSa/s	
vertical resolution	12-bit	
ERes Mode	Supports up to 16-bit	
Memory Depth	Standard configuration: 500Mbps/CH (full-channel), 1Gbps/CH (half-channel) Optional: 1 Gbps/CH (full channel), 2 Gbps/CH (half channel)	
Maximum Waveform Capture Rate★3	≥1,000,000wfms/s	
Function/Arbitrary Waveform Generator (Optional)	The maximum frequency of waveform is 60MHz, and the sampling rate is 625MSa/s. Supports any waveform and provides a waveform editor Supports modulation and frequency sweep	
digital voltmeter	4 digits, DC, AC RMS, DC+AC RMS	
Frequency Counter	8-digit	
serial protocol analysis	Standard features: RS-232/422/485/UART, SPI, I2C, CAN, and LIN. Optional: CAN-FD, SENT, FlexRay, AudioBus (I2S\\LJ\\RJ\\TDM) MIL-STD-1553、ARINC429、SMBUS、SPMI、I3C、PSI5、USB1.0/2.0、PCIe1.0/2.0、Ethernet、NRZ、Manchester、8b/10b	
Measurement Functions	Supports over 52 types of automatic parameter measurements and parameter snapshots. and statistical analysis, histogram, trend chart and tracking chart analysis;	
Math Operations	Supports up to 8 math waveforms simultaneously Enhanced FFT, basic arithmetic, filtering, advanced formula editing, MATLAB embedded programming & rendering (optional), enhanced resolution, advanced filter designer (optional)	
Analysis Tools	Histogram, zone histogram, trend plot, tracking plot	

Advanced Analysis Functions	Power analysis (optional), jitter and eye diagram analysis (optional), and limit template testing Sequence mode, search and navigation;
Interfaces	USB Device, USB Host*5 (TYPE-C*1, TYPE-A*4), LAN (10/100/1000Mbps), HDMI, AuxIn (Trigger Sync Input, AWG External Trigger Input), AuxOut (Trigger Sync Output, Test Result Output, AWG Trigger Output), 10MHz REF In/Out
Display	15.6-inch FHD high-definition capacitive touchscreen (1920×1080) with gesture control

Analog Channels Specifications	**JHM8804HD**	**JHM8504HD**
number of channels	4+EXT	
Bandwidth limit @50Ω（representative value）	20MHz	500MHz，20MHz
Bandwidth Limit @ 1 MΩ (Typical))	-	500MHz，20MHz
Vertical Input Sensitivity Range★4	50Ω：1mV/div ~ 1V/div	50Ω：1mV/div ~ 1V/div
	-	1MΩ：1mV/div ~ 10V/div
input coupling	DC，GND	AC，DC，GND
Input Impedance	50Ω ± 2%	50Ω ± 2% 1MΩ ± 1% (15 ± 3pF)
DC gain accuracy ★4	50Ω: ±1.5% (±2.0% when ≤5mV/div) ±1% of full scale (≤5mV/div: ±1.5% of full scale)	50Ω: ±1.5% (±2.0% when ≤5mV/div) ±1% of full scale (≤5mV/div: ±1.5% of full scale)
	-	1MΩ: ±1.2% (±1.5% when ≤ 5mV/div); ±1% of full scale (±1.2% of full scale when ≤5mV/div)
Offset Range	**50Ω:** 1mV/div-50mV/div:±500mV; 100mV/div-200mV/div:±1V 500mV/div-1V/div:±4V	**50Ω:** 1mV/div-50mV/div: ±500mV; 100mV/div-200mV/div：±1V; 500 mV/div-1V/div：±4V;
	-	**1MΩ:** 1mV/div-100mV/div: ±2V; 200mV/div-500mV/div: ±10V 1V/div-2V/div: ±40V 5V/div-10V/div:±100V
DC Offset Accuracy	>200mV/div:±0.1div±2mV±1.5% offset Offset of ≤200mV/div:±0.1div±2mV±2.0%	

Probe Attenuation Ratio	1X,10X,100X, Custom: 0.001X~1000X	
maximum input voltage	50Ω：≤5Vrms	50Ω：≤5Vrms 1MΩ：≤300Vrms，CAT I；
channel isolation	≥500:1 （DC～4GHz）	

★1:8G and 5G bandwidth are only available in half-channel mode, with full-channel bandwidth at 4GHz

★2: Half-channel mode: either C1 or C3 is activated, or both C1 and C3 are activated simultaneously;

★3: The maximum waveform capture rate applies when sequence mode is enabled.

★4: JHM8804HD: The 1mV/div, 2mV/div, and 5mV/div scales are digital amplifiers of 10mV/div. For vertical precision calculations, the sensitivity of these scales should be determined based on the full scale of 10mV/div (80mV).
JHM8504HD: 1mV/div and 2mV/div are digital amplifiers of 5mV/div. For vertical precision calculation, the vertical sensitivity of 1mV/div and 2mV/div should be calculated based on the full scale of 5mV/div (40mV).

Digital Channel (Optional)	
number of channels	16
sampling rate	1.25GSa/s
Memory Depth	125Mpts
maximum input switching rate	500MHz
minimum distinguishable pulse width	3.2ns
Threshold Groups	There are 4 groups, each with 4 channels
threshold selection	TTL （1.4 V）\5.0V CMOS （+2.5 V），3.3V CMOS （+1.65 V）\2.5V CMOS （+1.25 V），1.8V CMOS （+0.9 V） ECL (-1.3 V) / PECL (+3.7 V) / LVDS (+1.2 V) / 0 V / User-defined (4 channels per group, adjustable threshold)
Threshold Range*	±20.0V,20mV step
Threshold resolution*	20mV
Threshold accuracy*	±(100mV + 3% of the calibrated threshold)
maximum input voltage *	±40Vpeak
Maximum input dynamic range*	±10V+ threshold
Minimum voltage swing*	500mVpp
Input Impedance*	101kΩ±1%
vertical resolution	1bit
Channel-to-Channel Skew*	1.6 ns (Typical)

Note: * indicates the oscilloscope's performance after connecting the digital probe

Horizontal System		
time base range	50ps/div-1000s/div	
time base accuracy	±0.5ppm ±1* calibrated years (ppm)	
time base delay range	Pre-trigger: ≥0.5 screen width; Post-trigger: ≤5000 seconds	
range of channel offset adjustment	±100ns, minimum step 1ps	
Interchannel Synchronization Accuracy (Typical)	≤10ps	
Horizontal modes	Y-T\X-Y\ROLL	

Acquisition System	
Peak Detect Mode	Captures narrowest glitches down to 100 ps
High Resolution Mode	13–16-bit resolution
ERes	Enhancement levels: 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4
Averaging	2 ~ 65536
UltraAcq® Mode	In ultra-fast capture mode, the waveform capture rate reaches 300,000 frames per second.

Trigger System		
trigger modes	Automatic, Normal, Single	
trigger coupling	High-Frequency Rejection	Suppresses signals above 100 kHz
	Low-Frequency Rejection	Suppresses signals below 100 kHz
	Noise Rejection	Trigger hysteresis to turn on or off
	DC	DC-coupled trigger
	AC	AC-coupled trigger
Holdoff Range	6.4ns ~ 10s	

Trigger Sensitivity	Internal Trigger: C1 ~ C4	≤5mV：1div ＞5mV： 2.25 div @ < 8 GHz 1.50 div @ < 5GHz 1.00 div @ < 3GHz 0.75 div @ < 1 GHz
	external trigger	EXT： 100mVpp DC~100MHz, 150mVpp 100~200MHz EXT/5： 500mVpp DC~100MHz, 750mVpp 100~200MHz
trigger level range	Internal	±4 grid units from the screen center
	external trigger	EXT：±1V；EXT/5：±5V
	AC Line	The line voltage is fixed at approximately 50%.
Trigger type		
Source C1–C4	source	C1-C4
	Number of Zones	Up to 2 zones supported
	attribute	Intersect, Non-Intersect
Edge Trigger	source	C1 ~ C4/EXT/EXT/5/D0 ~ D15/ mains power trigger
	Trigger Edge	Rising edge, falling edge, or any edge
Pulse Width Trigger	source	C1 ~ C4/D0~D15
	polarity	Positive pulse width, negative pulse width
	Condition	Less than, greater than, within the range
	Pulse Width Range	100ps ~ 10s
slope trigger	source	C1 ~ C4
	Slope Direction	Rising, Falling
	Condition	Less than, greater than, within the range
	Time Range	3.2ns ~ 10s
Video trigger	source	C1 ~ C4
	Supported Standards	NTSC、PAL、SECAM、525p/60、625p/50、720p/24、720p/25、720p/30、720p/50、

		720p/60、1080i/25、1080i/30、1080p/24、1080p/25、1080p/30、1080Psf/24
	Trigger condition	All Lines, Specified Line, Odd Field, Even Field
Pattern Trigger	source	C1 ~ C4
	Pattern Settings	High, Low, Any, Rising Edge, Falling Edge
Timeout Trigger	source	C1 ~ C4/D0~D15
	Edge type	Rising edge, falling edge, or any edge
	Time Range	3.2ns ~ 10s
Runt Trigger	source	C1 ~ C4
	polarity	Positive pulse width, negative pulse width
	Condition	Less than, greater than, within range, outside range
	Time Range	3.2ns ~ 10s
Setup/Hold Trigger	clock source	C1 ~ C4
	Clock edge	Rising edge, falling edge
	data source	C1 ~ C4
	condition	Setup, Hold, Setup & Hold
	Time Range	3.2ns ~ 10s
Delay Trigger	source	C1 ~ C4
	Edge type	rising edge, falling edge
	Delay type	Greater than, less than, within range, outside range
	Delay Time Range	3.2 ns to 10s
Duration Trigger	source	C1 ~ C4
	Pattern Settings	H、L、X
	Condition	Greater than, less than, within the range
	Duration Range	3.2 ns to 10s
N-Edge Trigger	source	C1 ~ C4/D0~D15
	Edge type	rising edge, falling edge

	Idle Time	3.2ns to 10s
	edge count	1 to 65535
RS-232/422/485/UART trigger	Trigger method	Start bit, parity bit, data bit, stop bit
I²C Trigger	Trigger method	Start Condition, Restart, Stop, Acknowledge Failure, Address, Data, Address & Data
SPI Trigger	Trigger method	Chip Select Active, Data
CAN Trigger	Trigger method	Frame start, frame type, ID, data, ID and data, frame end, error
LIN Trigger	Trigger method	Frame start, ID, data, ID and data, wake-up frame, sleep frame, synchronization error, ID check error, checksum error
CAN FD Trigger (Optional)	Trigger method	Frame start, frame type, ID, data, ID and data, frame end, loss confirmation, bit stuffing error, CRC error, all errors
SENT Trigger (Optional)	Trigger method	Synchronization bit, frame start, data, and CRC error
AudioBus Trigger (Optional)	Trigger method	Data, sync bit
FlexRay Trigger (Optional)	Trigger method	Frame header, indicator bit, ID, period count, data, ID and data, frame end, error
MIL-STD-1553 trigger （optional）	Trigger method	Command frame, data frame, status frame, and CRC error
ARINC 429 trigger （optional）	Trigger method	Frame start, tag, source or destination identifier, data, flags and status bits, and checksum
Advanced protocol trigger (optional)	Trigger method	Protocol-Specific Conditions

Waveform Measurement	
cursor measurement	
Signal 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). The horizontal cursor measures the voltage (Y) and its change (▵Y). Supports auto-cursor tracking;
Automatic Measurement	
Vertical 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 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 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

Parameter snapshot	Display 38 measurement items for the current channel, with switchable signal sources
Measurement statistics	Current Value, Average, Maximum, Minimum, Standard Deviation, Measurement Count, Histogram, Trend Plot, Tracking Plot

waveform operation		
Function count	Supports 8 functions, which can be displayed simultaneously	
Source Signals	C1 ~ C4，R1 ~ R4	
Advanced Operations	Support Matlab embedded programming and data presentation	
Basic Math 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 Analysis	functions	Amplitude spectrum, power spectrum, PSD, real part, imaginary part, and phase spectrum
	Window types	Rectangular, Hann, Blackman, Hamming, Flat-top
	Display Modes	Full Screen (Spectrum View), Multi-Window
	Vertical units	Vrms/dBrms
digital filtering	Filter types	Low-pass, high-pass, band-pass, band-stop, and user-defined filters
	Custom Filter Design Methods	FIR、IIR
	Custom Filter Algorithms	Sampling method, window function, Lemez, Bartworth, Chebyshev type, Chebyshev II type, ellipse

	Response types	Low-pass, High-pass, Band-pass, Band-stop
	filter orders	FIR order: 2-1000 IIR order: 2-50
	filter characteristics	Amplitude-Frequency Response, Phase-Frequency Response, Impulse Response
MATH-ERes	Enhancement levels: 0.5, 1, 1.5, 2, 2.5, 3 bits	

measurement analysis		
digital voltmeter	source	C1 ~ C4
	Measurement Modes	DC、AC RMS、DC+AC RMS
	voltage resolution	4-digit
Frequency Counter (Standard)	frequency resolution	8-digit
Pass/Fail Testing	source	C1 ~ C4
	Test Templates	User-customizable templates or preloaded standard templates supported
	Fail Actions	Stop, Save, Alarm, Pulse, Hard Copy
Histogram Analysis	source	P1 ~ P10
	Analysis Types	Horizontal, Vertical, and Measurement
	Measurable Parameters	μ±1σ, μ±2σ, μ±3σ, mode, mean, standard deviation, maximum, minimum, median, peak-to-peak, number of peaks, total sample size
jitter analysis and eye diagram （optional）	source	C1 ~ C4, Ref
	clock recovery	Fixed frequency: automatic or user-specified PLL: first-order phase-locked loop; second-order phase-locked loop;
	Display Views	TIE histogram, TIE trend chart, TIE spectrum, and bathtub curve
	Measurable Parameters	TIE，TJ@BER，RJ，DJ，PJ，DDJ，DCD
	Measurable Parameters	eye area, eye height, eye width, 1 level, 0 level, Q factor, eye crossover ratio, extinction ratio
Power Analysis (Optional) Only for JHM8504HD	Analysis items	Input analysis: power quality, harmonic analysis, surge current Output analysis: ripple analysis, modulation analysis, efficiency, Start/Stop Time Frequency response analysis: Control Loop Response (Bode Plot), Power Supply Rejection Ratio (PSRR) Switching analysis: switching losses, safe

operating range, di/dt, dv/dt, RDS (on)

Function/Arbitrary Waveform Generator (Optional)	
Channel count	2
sampling rate	625MSa/s
vertical resolution	16bits
Maximum Output Frequency	60MHz
standard waveforms	Sinusoidal wave, Square wave, Pulse, Sine wave, Noise, DC
Operating Modes	Continuous Wave, Modulation, Frequency Sweep
Built-in waveform	
sinusoidal wave	Frequency range: 1μHz to 60MHz
	Flatness: Typical value (sine wave, 0dBm) ≤30MHz:±0.5dB ≤60MHz:± 0.8dB
	Harmonic distortion: -40dBc
	Spurious Emissions (Non-harmonic): -40dBc
	Total harmonic distortion: 1% (DC to 20kHz, 1Vpp)
	Signal-to-noise ratio: 40dB
Square wave/pulse	Frequency range: Square wave: 1μHz to 25 MHz; Pulse: 1μHz to 25 MHz
	Rise/Fall Time: <7ns
	Overshoot: <2% (1kHz, 1Vpp, 50Ω)
	Duty Cycle: 0.01% to 99.99%, adjustable
	Minimum pulse width: 20ns
	Jitter: 2ns
Ramp Wave	Frequency range: 1μHz to 1MHz
	Symmetry: 0.01%～99.99%

	Linearity: < 1% of peak output (Typical, 1 kHz, 1 Vpp, 100% symmetry)	
noise	Bandwidth: 60 MHz (Typical)	
Arbitrary Waveform	Frequency range: 100 MHz to 5MHz	
	Waveform length: 8 to 512k points (output point by point)	
	Waveform Library: Supports over 200 arbitrary waveforms including Sinc, rising index, falling index, ECG, Gaussian, Lorentz, and half positive vector.	
Modulation		
AM Modulation	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
	source	interior
	modulation wave	sinusoidal, square, ramp, noise, arbitrary wave
	Modulation Frequency	2mHz ~ 200kHz
	Modulation Depth	0% ~ 120%
FM Modulation	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
	source	Internal
	modulation wave	sinusoidal, square, ramp, noise, arbitrary wave
	Modulation Frequency	2mHz ~ 200kHz
	frequency deviation	DC ~ 30MHz
PM Modulation	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
	source	Internal
	modulation wave	sinusoidal, square, ramp, noise, arbitrary wave
	Modulation Frequency	2mHz ~ 200kHz
	Frequency Deviation	0° ~ 360°
Frequency Sweep		
Frequency Sweep	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
	Sweep Type	Linear, logarithmic
	Sweep Time	1ms ~ 500s
	trigger source	Internal, external, manual
frequency characteristics		

signal frequency	Accuracy: ±0.5 ppm; annual aging rate at 25℃: ±1 ppm; temperature coefficient: <±0.5 ppm/℃	
	Frequency Resolution: 1μHz	
output characteristics		
Signal Amplitude	Range (50Ω load):	≤30MHz:10mVpp ~ 3Vpp
		≤60MHz:10mVpp ~ 1.5Vpp
	Range (high-impedance load):	≤30MHz:20mVpp ~ 6Vpp
		≤60MHz:20mVpp ~ 3Vpp
	Amplitude Resolution: 1mV	
	Amplitude Accuracy: Typical value (1kHz sine wave, 0V offset,>20mVpp) ± (2% of set value + 2mVpp)	
DC offset	Range (Peak AC + DC):	±1.5V（50Ω）
		±3V (high impedance)
	Offset Resolution: 1mV	
	Offset accuracy: ±2% of the offset setting value ± 2% of the amplitude setting value ± 2mV	
waveform output	Output Impedance: 50Ω (typical value) Protection: Overvoltage protection (waveform output is disabled during overvoltage, and the user is prompted on the main interface)	
Display		
display type	15.6-inch FHD capacitive touch screen	
Resolution	1920*1080（H*V）	
Zoom Function	All waveform views support horizontal and vertical zooming and gesture control zooming	
Graticule	10 horizontal divisions × 8 vertical divisions	
brightness level	256	
Display Modes	Dot, Vector	
Waveform color	Customize waveform colors	
Persistence Time	Off afterglow, Auto afterglow, Infinite afterglow	

Host System	
processor	Inter® core™ i5-8400H（2.5GHz，64-bit）
operating system	Windows 10 IoT Ent LTSC (64-bit)
Memory	8GB
Solid State Drive (SSD)	128 GB (factory-installed optional upgrade available)

interfaces and protocols	
HD audio and video output	1×HDMI port (rear panel)
USB Ports	5 ports in total (2×front panel; 3×rear panel: 1×Type-C + 2×Type-A)
USB Device	1×port (rear panel)
LAN Interface	1×Gigabit Ethernet port (10/100/1000 Mbps, rear panel)
probe compensation source	1kHz, 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.
Aux output	BNC connector on the back panel 1. Trigger the synchronous output; 2. Based on the test results; 3.AWG trigger output
Aux import	1.Trigger synchronous input 2.AWG external trigger input
External Trigger (EXT Trig)	1×BNC connector (rear panel)
Security	Standard Kensington lock slot
Remote Control	Built-in WebServer: Supports accessing the web interface via the oscilloscope's IP address in a web browser. Features include: Check instrument status; view and modify network status; access help manuals and programming manuals; download drivers; save settings, export waveforms, and take screenshots; perform real-time remote control of the instrument through keyboard and mouse
USBTMC	Supports the USBTMC interface protocol
SCPI	Supports standard SCPI command set

Power Supply	
supply voltage	100V to 240VAC (±10% fluctuation) at 50Hz or 60Hz

power	Maximum 300W

Environmental Specifications	
temperature range	Operating: 0℃ to +40℃ Non-operating: -20℃ to +70℃
Humidity range	Operating: ≤ 90% relative humidity (below +35℃) Non-operating: ≤ 60% relative humidity (+35℃ to +40℃)
Altitude Range	Operating: Below 2000 meters Non-operating: Below 15000 meters

Mechanical Specifications	
Dimensions (W×H×D)	445mm×311.3mm×189.7mm
weight	＜12kg
Rack Mount	8U

Regulatory standards		
electromagnetic compatibility	Complies with the EMC Directive (2014/30/EU) and meets or exceeds the IEC 61326-1:2021/EN61326-1:2021 standard. IEC 61326-2-1:2021/EN61326-2-1:2021	
	CISPR11/EN 55011	Conducted Emissions CLASS B group1，150kHz-30MHz
		Radiated Emissions CLASS B group 1，30MHz-1GHz
	IEC 61000-4-2/EN 61000-4-2	electrostatic discharge 4.0 kV (contact), 8.0 kV (air)
	IEC 61000-4-3/EN 61000-4-3	Radio frequency electromagnetic field immunity: 0V/m（80 MHz to 1 GHz）; 3V/m（1.4 GHz to 2 GHz）; 1V/m（2.0 GHz to 2.7GHz）
	IEC 61000-4-4/EN 61000-4-4	electric fast transient pulse train 2kV (AC input port)
	IEC 61000-4-5/EN 61000-4-5	surge 1kV (phase to neutral); 2kV (phase/neutral to ground)

	IEC 61000-4-6/EN 61000-4-6	Radio frequency continuous conduction immunity 3V，0.15-80MHz
	IEC 61000-4-11/EN 61000-4-11	Voltage sags: 0% UT during 1 cycle; 40% UT during 10/12 cycles; 70% UT during 25/30 cycles. Short interruption: 0% UT during 250/300 cycles
Safety Standards Compliance	EN 61010-1:2010+A1:2019 EN IEC61010-2-030:2021+A11:2021 BS EN61010-1:2010+A1:2019 BS EN IEC61010-2-030:2021+A11:2021 UL 61010-1:2012 Ed.3+ R:19 Jul2019 UL 61010-2-030:2018 Ed.2 CSA C22.2#61010-1:2012 Ed.3+U1;U2;A1 CSA C22.2#61010-2-030:2018 Ed.2	

Warranty and calibration services	
Recommended calibration interval	1 year
Warranty Period	1 year

Order Information

product models	
JHM8804HD	8GHz bandwidth with peak data rates of 20Gbps (20Gbps for half-channel configuration, 10Gbps for full-channel configuration) 4-channel oscilloscope
JHM8504HD	5GHz bandwidth with peak data rates of 20Gbps (20Gbps for half-channel configuration, 10Gbps for full-channel configuration) 4-channel oscilloscope
Standard Accessories	
--	1 USB3.0 data cable
--	2 BNC-BNC straight-through lines
--	1 front panel protective cover
--	1 power cord compliant with local standards
--	calibration certificate
Optional Add-ons	
JHM8000HD-MD2G	Extend the oscilloscope′ s maximum memory depth to 2 Gpts
JHM8000HD-LA	16-channel logic analyzer optional and logic probe
JHM8000HD-AWG	Dual-channel 60 MHz Arbitrary Wave Generator Option
JHM8000HD-JITTER	Advanced jitter and eye diagram analysis options

JHM8000HD-PWR	Advanced Power Analysis Option
JHM8000HD-CANFD	CAN FD Trigger and Analysis Option
JHM8000HD-FLEX	FlexRay: A Trigger and Analysis Option for Automotive Serial Bus
JHM8000HD-SENT	Sent for the Trigger and Analysis of the Automotive Sensor Bus
JHM8000HD-AUDIO	Audio Serial Bus Trigger and Analysis Options (I2S, LJ, RJ, TDM)
JHM8000HD-AERO	Aerospace Serial Bus Trigger and Analysis Option (MIL-STD-1553, ARINC 429)
JHM8000HD-SMBUS	Embedded Serial Bus Trigger and Analysis Option (SMBus)
JHM8000HD-SPMI	Power Management Serial Bus Trigger and Analysis Option (SPMI)
JHM8000HD-I3C	MIPI-I3C Bus Trigger and Analysis Option (I3C)
JHM8000HD-PSI5	Car Serial Bus Analysis Option (PSI5)
JHM8000HD-USB2	USB Bus Trigger and Analysis Option (USB 2.0)
JHM8000HD-PCIe2	PCIe bus trigger and analysis options (PCIe 1.0, 2.0)
JHM8000HD-NET	Ethernet Bus Analysis Option (10BASE-T, 100BASE-TX)
JHM8000HD-NRZ	NRZ Signal Analysis Option
JHM8000HD-MANCH	Manchester Signal Analysis Option
JHM8000HD-8B10B	8b/10b Signal Analysis Option (8B/10B)
JHM8000HD-EMBD	Embedded Bus Trigger and Analysis Upgrade Kit (SMBUS, SPMI, AUDIO)

JHM8000HD-AUTO	Automotive Bus Trigger and Analysis Upgrade Kit (CAN FD, SENT, FlexRay, I3C, PSI5)
JHM8000HD-COM	Computer and Communication Bus Analysis Upgrade Kit (USB2, PCIe2, NET, NRZ, MANCH, 8B10B)
JHM8000HD-FILTER	Advanced Filter Designer Option
JHM8000HD-BND	Comprehensive upgrade kit (JITTER, PWR, CANFD, FLEX, SENT, AUDIO, AERO, SMBUS, SPMI, I3C, PSI5, USB2, PCIe2, NET, NRZ, MANCH, 8B10B, FILTER)