JHM8000HDP Series Mixed-Signal Oscilloscope

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

Introduction to the JHM8000HDP Series

Welcome to learn about the brand-new JHM8000HDP Series high-resolution oscilloscopes. The JHM8000HDP Series includes two models: the JHM8804HDP with an 8 GHz bandwidth and the JHM8604HDP with a 6 GHz bandwidth. All models in the series come standard with a 20 GSa/s sampling rate per channel and 12-bit vertical resolution.

Equipped with 4 analog channels and 16 digital channels, the series offers selectable memory depth of 1 Gpts or 2 Gpts per channel. In addition, a diverse range of hardware and software analysis functions are available for flexible configuration, fully meeting 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 tackle more industrial electronics and scientific research tasks, the JHM8000HDP Series is your optimal solution.

Parameter	Specification
Bandwidth	8 GHz (per channel), 6 GHz (per channel)
Sampling Rate	20 GSa/s (per channel)
Input Channel Count	4 analog + 16 digital channels
Vertical Resolution	12 bit (16 bit with ERES technology)
ENOB	> 7 bit (full system bandwidth, 50 Ω, 50 mV/div, -3 dBFS)
Intrinsic Jitter	≤ 150 fs RMS
SFDR (Typical Value)	≥ 50 dBc
Background Noise (Typical Value)	≤ 800 µV (at 50 mV/div, 8 GHz bandwidth)
Memory Depth	1 Gpts/CH (standard), 2 Gpts/CH (optional)
Waveform Capture Rate	Up to 1,000,000 wfms/s
Trigger Types	Advanced Trigger + Protocol Trigger + Zone Trigger
Cross-platform Access	WebServer instrument access and control; supports mobile devices

Parameter	Specification
Advanced Analysis Tools	Power Analysis Suite, Jitter Analysis & Eye Diagram Suite, Limit Mask Test Suite, Serial Protocol Analysis Suite, Ethernet Compliance Test Suite
Display	15.6-inch HD capacitive touchscreen
Connectivity	USB 3.0 Host × 4, USB 3.0 Device × 1, Type-C × 1, 10 MHz Reference IN/OUT, HDMI, AUX IN/OUT, 10/100/1000 Base-T Ethernet

Integrated Tools	Standard/Optional
Spectrum Analyzer	Standard
Digital Voltmeter	Standard
Frequency Counter	Standard
Function/Arbitrary Waveform Generator	Optional (JHM8000HDP-AWG)
Logic Analyzer	Optional (JHM8000HDP-LA)
Limit Mask Test Suite	Standard
Protocol Analysis Suite	Standard: RS232/422/485/UART, I2C, SPI, CAN, LIN
Protocol Analysis Suite	Optional: CAN-FD, FlexRay, SENT, I3C, PSI5, USB2.0, PCIe2.0, 10/100 Mb/s Ethernet, NRZ, Manchester, 8b/10b, SMBUS, SPMI, AudioBus (I2S, LJ, RJ, TDM), MIL-STD-1553, ARINC429
Jitter Analysis & Eye Diagram Suite	Optional (JHM8000HDP-JITTER)
100Base-Tx Ethernet Compliance Analysis	Optional (JHM8000HDP-CTS100)
USB2.0 Compliance Analysis	Optional (JHM8000HDP-CTSUSB20)
Power Analysis Suite	Optional (JHM8000HDP-PWR)
Upgrade Bundle	Optional (JHM8000HDP-BND)

Exceptional Performance with Pinpoint Precision

The all-new JHM8000HDP high-resolution mixed-signal oscilloscope is available in two models with 8 GHz and 6 GHz bandwidths. Equipped with a 20 GSa/s sampling rate across all channels, a 12-bit ADC, and up to 16-bit resolution in ERES mode, it boasts ultra-low intrinsic noise and outstanding ENOB. Powered by a high-performance AFE ASIC analog front-end chipset and the seventh-generation oscilloscope platform, the instrument achieves unprecedented breakthroughs in both data accuracy and complex signal processing capabilities.

High-Performance Analog Front-End Chipset: Lower Noise, Higher ENOB

The JHM8000HDP integrates multiple low-noise conditioning chips, significantly enhancing the oscilloscope's performance and key specifications to deliver more insightful and accurate measurements.

- Intrinsic Noise: As low as 800 µV (typical) at full bandwidth, 50 mV/div range

- ENOB:>7 bits (system full bandwidth: 50Ω,50mV/div, -3dBFS)

- SFDR: ≥50dBc (typical value)

- Low Intrinsic Jitter: ≤ 150 fs RMS

- Precision BNC Ports: Bandwidth > 10 GHz

12-bit ADC: Capture Fine Details and Clearly Discriminate Weak Signals

All models of the JHM8000HDP series integrate 12-bit ADCs, which can enhance resolution to 16-bit in high-resolution mode, with a 20 GSa/s real-time sampling rate standard across all channels. Compared to standard 8-bit oscilloscopes, the advantage of high-resolution ADCs lies in their ability to support 16 times more quantization levels when paired with the low-noise front-end. This provides a distinct advantage in high-dynamic-range applications—such as the precise measurement of weak voltage signals superimposed on large DC signals in power analysis, or easier discrimination between true jitter and noise components in jitter analysis.

- Vertical resolution is 16 times that of 8-bit oscilloscopes.
- Up to 16-bit in enhanced resolution mode
- 0 GSa/s real-time sampling rate across all channels
- 8 GHz bandwidth across all channels
- Maintain 12-bit vertical resolution at full bandwidth and full sampling rate without any performance compromise
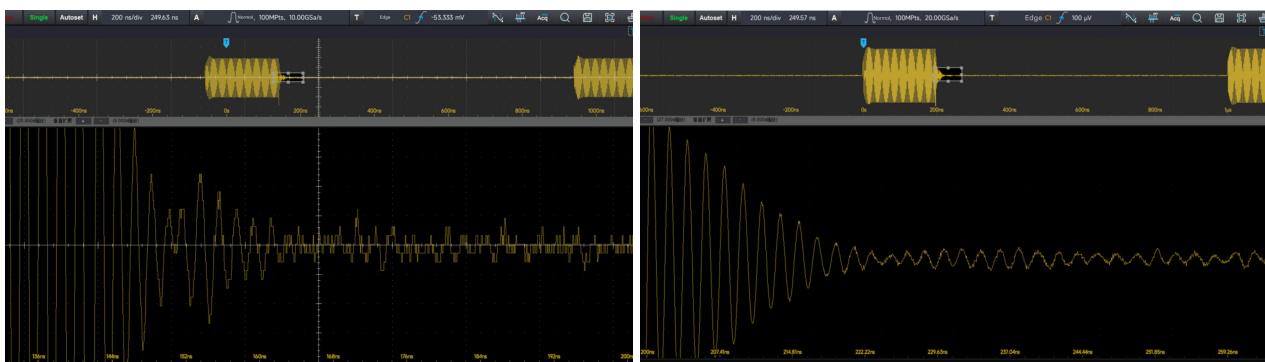
The 8-bit image (left) shows 25x vertical magnification at 1V dynamic range, resulting in blurring, while the 12-bit image (right) maintains sharp detail resolution for small signals during high dynamic range testing.

High-Performance All-in-One Standalone Instrument Capabilities, Effortlessly Handling All Types of Measurement Tasks

The JHM8000HDP series is more than just an ordinary oscilloscope—it integrates a variety of the most widely used measurement instrument functions in the industry. Even if you don't need these functions currently, they can prepare you for future testing requirements. The series supports online upgrades and optional individual purchases, allowing you to activate the corresponding functions anytime or when needed..

Digital Oscilloscope Core Specifications

- Bandwidth up to 8GHz and 6GHz
- Each channel has a sampling rate of 20 GSa/s.
- Maximum memory depth of 2 Gpts
- Maximum waveform capture rate of 1,000,000 wfms/s
- 4 analog channels + 1 external trigger channel

Function/Arbitrary Waveform Generator (Optional)

- Dual Channels with Consistent 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 Multiple Signal Modulation Modes and Frequency Sweep Function

Spectrum Analyzer

- Standard Enhanced FFT with up to 1Mpts signal analysis
- Frequency analysis range: Oscilloscope analog bandwidth
- Supports Multiple Spectrum Display Modes: Amplitude Spectrum, Power Spectrum, Power Spectral Density, Real Part, Imaginary Part, Phase Spectrum
- Up to 2 spectrum analysis windows can be added simultaneously to meet visualization comparison needs under different window functions

Digital Voltmeter (Standard)

- 4-digit accuracy for DC/AC RMS/DC+AC RMS voltage measurement
- Supports trend chart and histogram display

Digital Frequency Counter (Standard)

- 8-digit high-precision frequency measurement
- Provides parameter display toolkit: Statistics, Trend Chart, Tracking Chart, Histogram

Logic Analyzer (Optional)

- 16-channel logic analysis function
- Equipped with 16-channel logic analysis probe (UT-M15)
- 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 adopts separate 8-bit high and 8-bit low signal input interfaces, simplifying connection with the Device Under Test (DUT). When matched with square pins, the UT-M15 can directly connect to 2.54 mm 8×2 square pin headers.
- The UT-M15 features excellent electrical performance with an input impedance of 101 kΩ±2%

Protocol Analyzer (Optional)

The JHM8000HDP supports a wide range of serial bus analysis functions and abundant protocol triggering modes, enabling precise triggering of specific packet content, polarity identification, chip select signals, and more. Trigger events are displayed in a list format, with protocol search functionality available to quickly and accurately locate target protocol frames.

- 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 & Communications: 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: Capture More Signal Details, Effortlessly Review Historical Waveforms and Capture Upcoming Events

The JHM8000HDP comes standard with a full-channel memory depth of 1 Gpts, with an optional upgrade to 2 Gpts across all channels. Optimized for fast response with deep memory depth, sequence mode allows you to review historical waveform events or capture upcoming ones.

The 2 Gpts segmented memory effectively stores a large volume of trigger events while eliminating long-interval blind spots between events. After acquisition, you can either view or play back captured waveforms frame by frame, or conduct global observation of up to 40 waveform segments in 45° display, overlay, superposition, or splicing modes.

Operating at peak performance, sequence mode supports the acquisition and playback of up to 520,000 frames of waveforms, enabling you to effortlessly locate all target waveforms of interest.
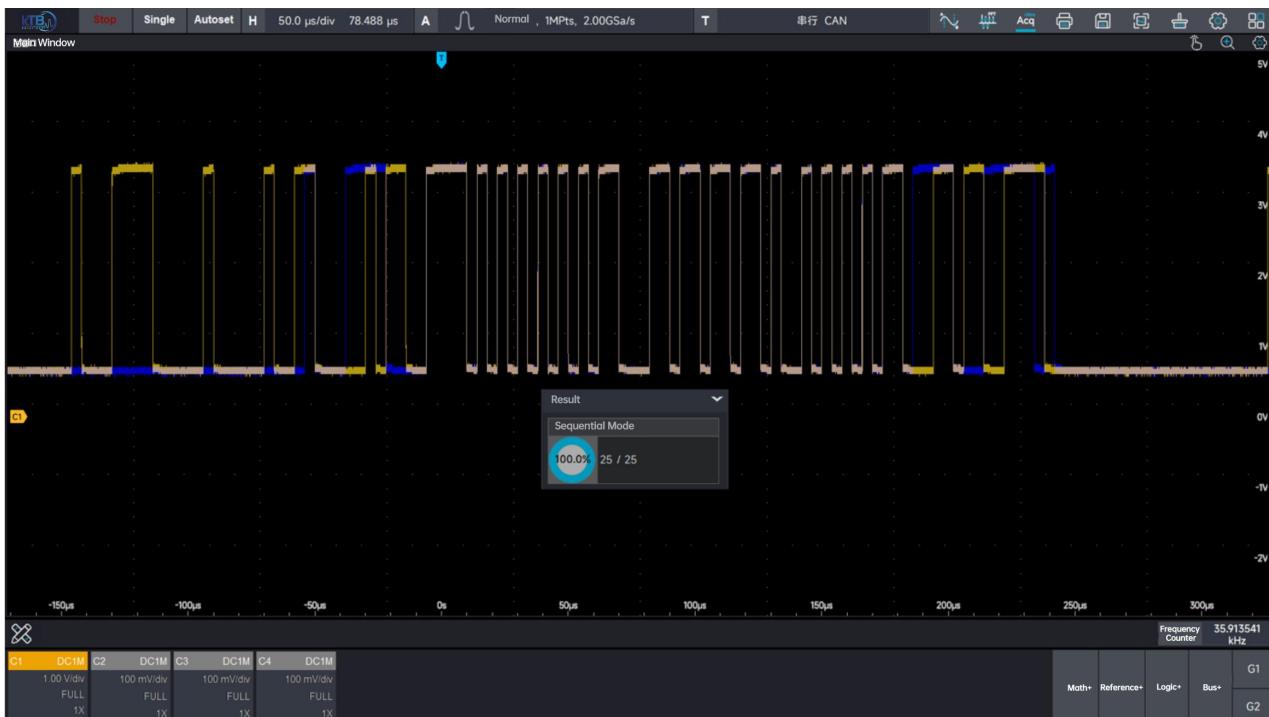
Leveraging the high capture efficiency of Sequence Mode, 25 complete CAN protocol frames are successfully captured, with each frame subjected to comparative analysis..

A timing error is detected in the transmission bits. In the diagram, the blue section represents the reference frame, the tan section indicates complete overlap, and the yellow section denotes a deviation.

Ultimate User-Friendly Experience, Defining the Extraordinary Standard of Next-Generation Oscilloscopes

Flexible Multi-Window Layout & Intuitive Interaction Modes

The JHM8000HDP is equipped with a 15.6-inch HD capacitive touchscreen, allowing you to control the oscilloscope with the same ease as a smartphone or tablet. It also retains the dedicated knobs and shortcut keys unique to benchtop instruments, striking a perfect balance between modern touch operation and traditional test instrument usability.

In addition, the oscilloscope supports external Bluetooth mice and keyboards as a third interaction method. Its UI design is tailored to match the logical workflow of engineers, while the expandable multi-window functionality enables more efficient handling of complex measurement tasks.

Waveform Touch Control:

- Move and zoom waveforms within individual windows
- Drag the waveform up, down, left, or right to adjust its horizontal and vertical positions.
- Use zoom gestures to magnify or shrink waveforms horizontally or vertically

Flexible Multi-Window Function:

- Drag the window to change its layout or adjust its size by dragging the edge.
- Configure pop-up pinning, event list hovering and embedding
- Drag the window outside the screen to expand it.
- Full-screen or split-window independent window for maximum waveform display
- Adjust waveform brightness and contrast in individual windows
- Perform cursor measurements on waveforms in independent windows
- Adjust the backlight intensity of front-panel keys

Quick Access Button Area

High-frequency user keys are placed in the top-priority position

Quick Trigger Control Zone
One-click trigger mode switching
One-click trigger polarity switching

Quick Function Control Zone
One-click cursor activation
One-click parameter measurement activation
One-click parameter snapshot capture
One-click UltraAcq mode switching
One-click Start menu access
One-click common function customization
One-click screenshot
One-click measurement value clearing
One-click coarse/fine adjustment switching
One-click DVM activation
One-click signal source activation
One-click touchscreen lock
One-click factory settings restoration

Vertical/Horizontal Control Area
One-click Math function activation
One-click digital channel activation
One-click reference waveform recall
One-click protocol analysis activation
Horizontal scale & position adjustment knob
Vertical scale & position adjustment knob
Channel selection keys

Flexible Zone Trigger & Advanced Trigger Functions

The JHM8000HDP series is equipped with over 22 advanced trigger types, enabling you to effortlessly identify anomalies in large-volume data streams during complex system debugging. Its serial trigger functions, which are fully integrated with standard protocol signals, facilitate rapid debugging in complex bus analysis scenarios and deliver unprecedented insight into signal details.

The configurable zone trigger function allows waveforms to be captured only within predefined areas, effectively isolating irrelevant signals. This reduces the workload of waveform capture and manual searching, enabling you to quickly locate critical events in minimal time and complete debugging and analysis tasks efficiently.

Leverage zone triggering to quickly isolate irrelevant signals and pinpoint key information—no need to spend excessive time learning complex advanced trigger logic.

Search and Navigation

Without proper search tools, locating specific events in 2 Gpts long-record waveforms can be extremely time-consuming. The JHM8000HDP is equipped with comprehensive search and navigation capabilities.

All detected search events are highlighted with color-coded markers. When the oscilloscope is paused, users can easily navigate through events using the Previous (←) and Next (→) buttons on the search panel, or directly via the search markers displayed on the screen. Multiple distinct search criteria can be defined concurrently; the event table will display the occurrence time and corresponding measurement parameters for each detected event, with support for up to 10 simultaneous search configurations.
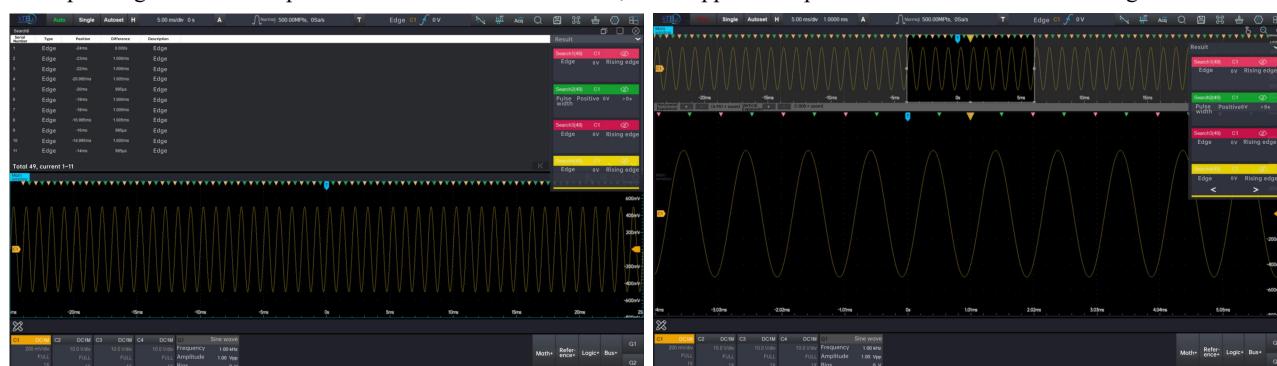
Execute a search based on defined criteria—such as pulse width search—to locate all pulse widths that meet the specified conditions. Color-coded triangular markers indicate their positions, with the length of each detected pulse width displayed accordingly. If you wish to analyze pulse widths with substantial deviations, you can pause the acquisition and navigate to their respective positions for in-depth examination..

Powerful and User-Friendly Mathematical Waveform Operations
Digital Filters & User-Defined Filters

Any signal processing system can be regarded as a filter. A traditional analog filter—such as the 20 MHz bandwidth limitation of an oscilloscope—acts as a low-pass filter for eliminating high-frequency noise from signals. Digital oscilloscopes offer distinct advantages over analog oscilloscopes. For example, analog oscilloscopes are constrained by circuit components, which makes high-order filter design expensive and difficult to implement. By contrast, high-order filtering can be easily achieved with digital filters, which are available in two types: Infinite Impulse Response (IIR) and Finite Impulse Response (FIR). You can select the appropriate filter designer according to your specific design requirements.

The JHM8000HDP allows filters to be applied to mathematical waveforms via its Math functions, supporting both standard filters and user-defined, application-centric filter designs.

JHM8000HDP supports the following filter response types:

- high pass
- low-pass
- band-pass
- Band-stop

JHM8000HDP supports the following filter types:

- Butterworth
- Chebyshev type I
- Chebyshev Type II
- Elliptic
- sampling method
- Remez
- Window function
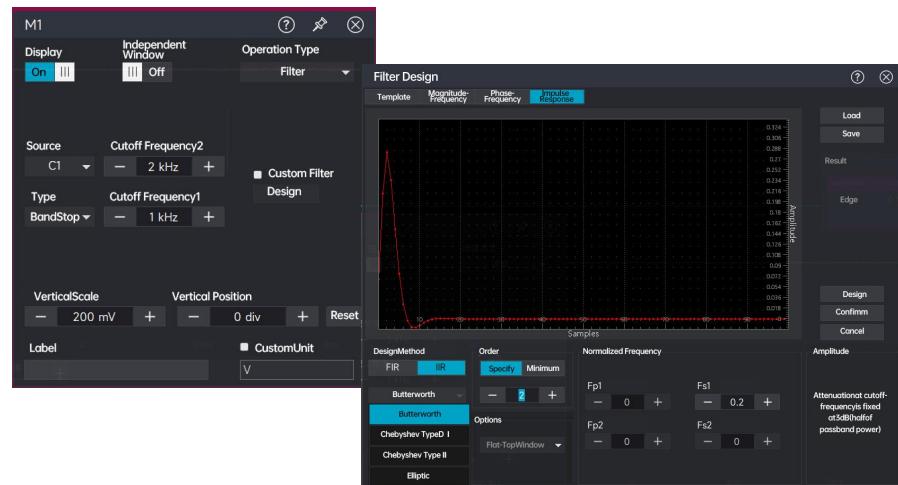
Create a dialog box with custom filters to visually display filter types, responses, and orders. Save and call filter designs.

Custom Advanced Formula Editing

The JHM8000HDP is preloaded with dozens of advanced mathematical functions. Users only need to input values as prompted by the function parameters to invoke these formulas for waveform operation and processing.
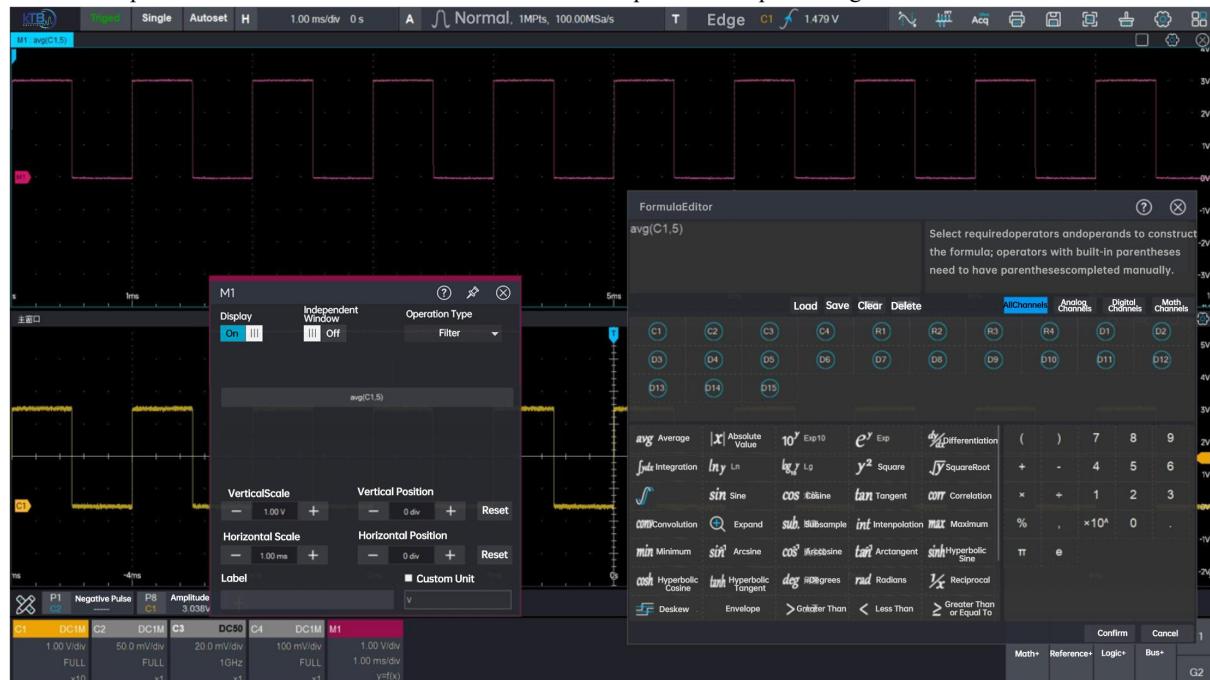
The image above uses the AVG function to average the waveform of channel 1, with 5 averaging iterations.

Embedded MATLAB Programming

The JHM8000HDP is equipped with an embedded MATLAB code compiler, enabling users to directly write and run MATLAB script code. The script execution results are returned and rendered as mathematical waveforms on the oscilloscope. If the aforementioned advanced formulas and basic operation formulas still fail to meet your requirements, you can directly write custom scripts for mathematical computations, and these scripts can also be saved for future invocation.
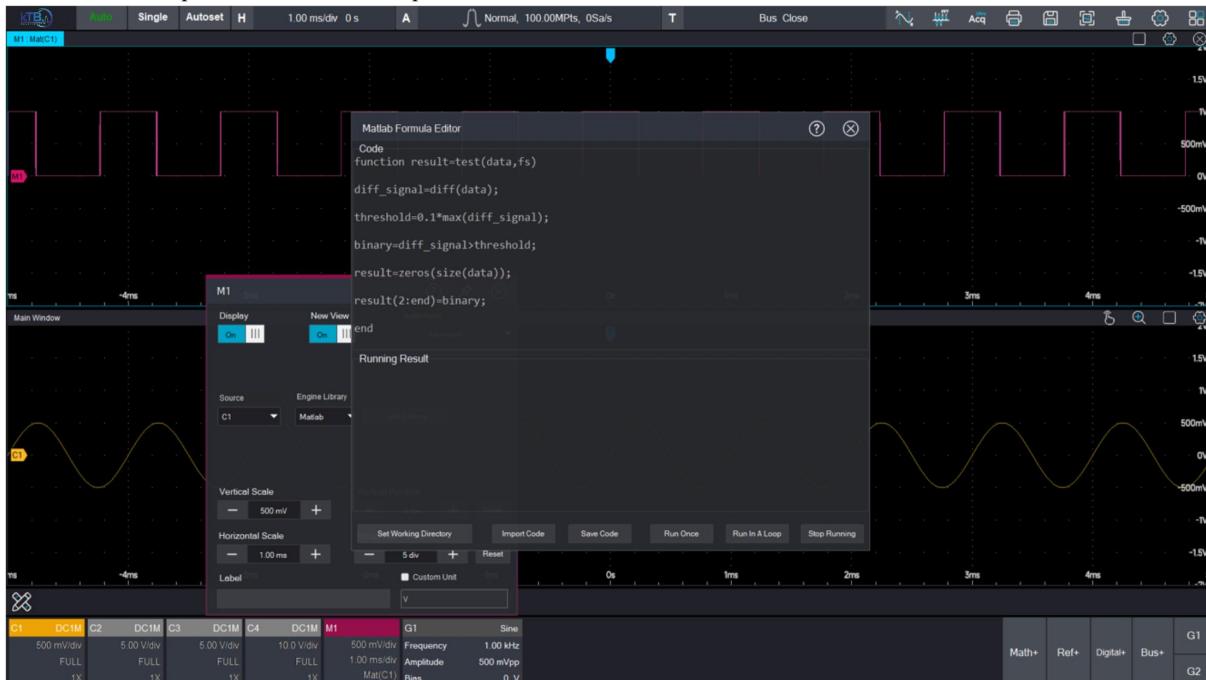
The figure above demonstrates how a Matlab script differentiates the sine wave from channel 1, then converts it into a square wave.
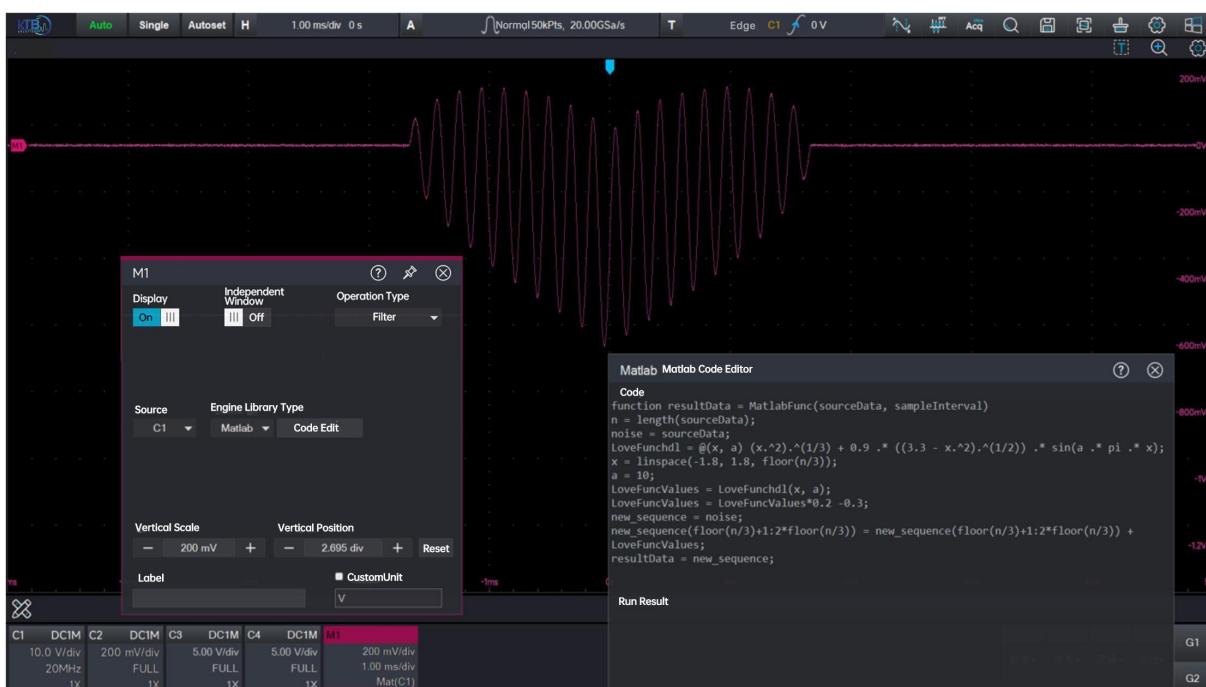
The image above displays a heart-shaped waveform generated by Matlab code, while the oscilloscope can also add a romantic touch to the summer.

Feature-Rich Software: Unlock a Powerful Assistant for Your Testing Tasks

A fully-featured power analysis suite for comprehensive evaluation and verification of power supply products.

A versatile high/low-speed protocol decoding suite for effortless debugging of digital system designs

A hardware-optimized jitter analysis and eye diagram suite, delivering faster eye diagram rendering speeds and a broader range of signal analysis capabilities

A hardware-optimized template test suite that achieves 6σ standards faster.

A standards-compliant conformance analysis suite covering consistency analysis applications such as USB 2.0, 10/100/1000M Ethernet, automotive Ethernet, MIPI, and PCIe

Advanced Power Analysis

With the evolution of chip manufacturing processes, requirements for power supply systems have become increasingly stringent. The current trend in power delivery networks is low-voltage and high-current operation—especially for power networks powering chips or precision components. These systems require reliable power delivery, effective noise suppression, and seamless signal transmission between chips, posing greater challenges for power supply testing. Designers are now more focused on power efficiency and response speed to ensure stable and clean power supply performance.

The JHM8000HDP′s comprehensive advanced power analysis option enables rapid and repeatable analysis of key parameters, including power quality, inrush current, harmonics, switching losses, Safe Operating Area (SOA), startup/shutdown time, modulation, ripple, efficiency, Rdson, power sequencing, slew rate (dv/dt and di/dt), control loop response (Bode plot), and Power Supply Rejection Ratio (PSRR).
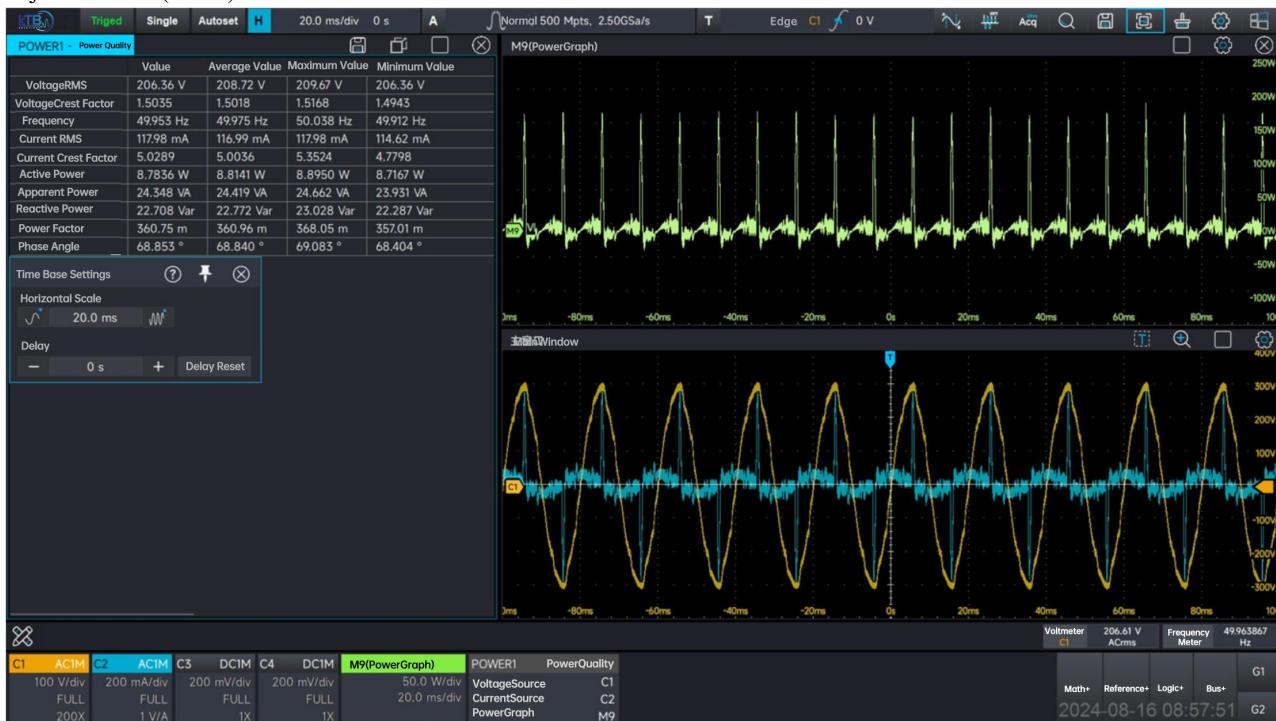
Serial Protocol Analysis

The JHM8000HDP is equipped with an industry-grade serial data bus decoding and triggering suite, supporting measurement of over 21 protocols covering both low-speed and high-speed categories, including RS232, RS422, RS485, UART, I2C, SPI, CAN, CAN-FD, LIN, AudioBus (I2S, LJ, RJ, TDM), MIL-STD-1553, ARINC 429, USB, and Ethernet.

The protocol search function allows you to search through long captured serial packet data and locate packet parameters with specific content. You can also use the standard serial trigger function to identify such events, perform search and navigation within the event list, and export a complete test report upon completion of testing.

Embedded Systems	RS232\422\485\UART、I2C、SPI、SMBUS、SPMI、AudioBus(I2S,LJ,RJ,TDM)
Automotive	CAN、CAN-FD、SENT、FlexRay、LIN、I3C、PSI5
Computer & Communications	USB2.0、PCIe2.0、Ethernet、NRZ、Manchester、8b/10b
Aerospace	MIL-STD-1553、ARINC429

Supports packet parameter triggering
-Supports protocol packet view
-Supports event list display
-Supports protocol search
-Supports protocol analysis report generation

For 100M Ethernet bus analysis, the bus waveform displays time-correlated decoded packet contents—including preamble data, start frame delimiter (SFD), destination MAC address, and source address.

The event list presents all captured packet details.

Jitter Analysis and Eye Diagram

Jitter analysis and eye diagram testing play a critical role in electronic devices and communication systems, with extremely broad application scenarios..

With the JHM8000HDP-JITTER Jitter Analysis & Eye Diagram Option, you can easily complete the following tasks:

- Evaluate clock jitter, data jitter, and eye opening of serial data communication systems
- Test signal integrity, clock synchronization, and anti-interference capability of high-speed digital signal transmission systems
- Evaluate the performance of clock and data recovery systems, including clock extraction, data demodulation, and clock reconstruction
- Evaluate the transmission performance, timing consistency, and signal integrity of high-speed interfaces
- Locate clock jitter, signal distortion, and frequency interference
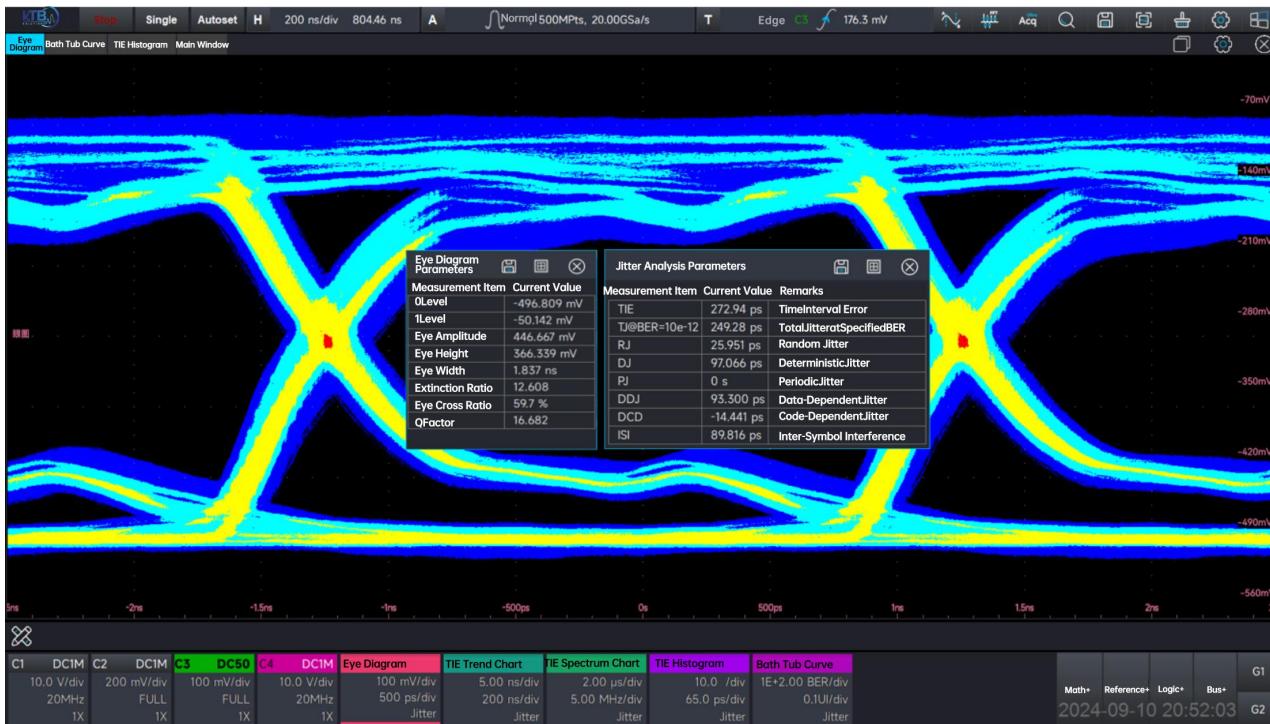
The JHM8000HDP performs eye diagram analysis on USB2.0 standard protocol signals and measures its eye diagram parameters.

The JHM8000HDP-JITTER jitter analysis and eye diagram add-ons feature comprehensive jitter measurement algorithms and a wide range of jitter analysis views.

PAM-N Analysis

Pulse Amplitude Modulation (PAM) is a coding technique for digital communications. PAM signals utilize more voltage levels than Non-Return-to-Zero (NRZ) signals, enabling higher signal throughput at the same baud rate. For example, PAM-4 features four voltage levels (Level 0 to Level 3), each representing two data bits (00, 01, 10, 11). PAM-N signals are widely adopted in Ethernet, optical communications, and next-generation digital interfaces due to their higher transmission rates.

However, as the number of modulation levels increases, PAM-N signals become highly susceptible to signal noise and crosstalk. This requires oscilloscopes to accurately identify PAM voltage levels and separation thresholds in harsh signal environments, recover clocks from PAM signals, and conduct jitter and noise measurements for each level.

The JHM8000HDP's user-friendly operation extends signal analysis capabilities up to PAM-8. Equipped with a 12-bit ADC and an Effective Number of Bits (ENOB) of over 7 bits across its full bandwidth, the oscilloscope can reliably recover clocks from multiple PAM-N signals with small amplitude differences and perform real-time eye diagram measurements.
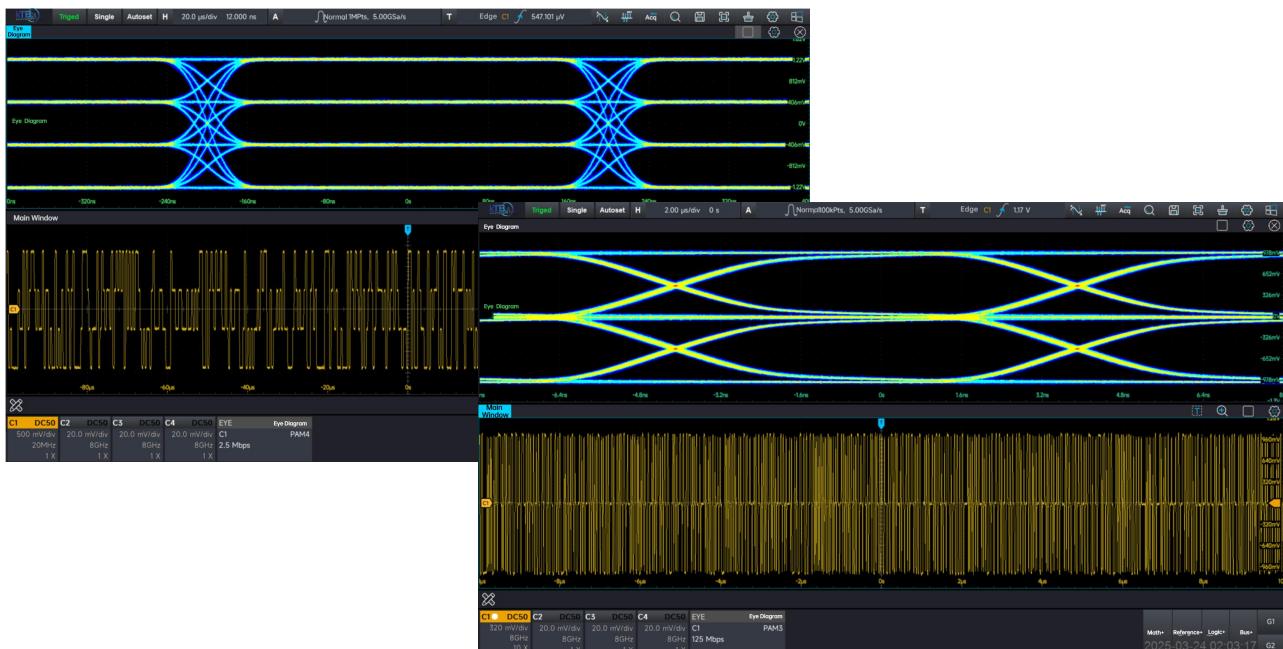
PAM3 / 4 analysis

Limit Template Testing

The JHM8000HDP allows the creation of limit templates based on standard waveforms, which can be applied to scenarios such as incoming material screening or quality control on production lines, improving the consistency and reliability of product designs. Typical applications include noise limit testing for evaluating receiver sensitivity and anti-interference performance, sensor signal-to-noise ratio (SNR) testing, audio signal clarity and quality assessment, and medical device safety validation.

You can customize the vertical and horizontal dimensions of template testing, set the total number of violations, configure the number of test waveforms or total test duration, and define actions upon test failure—such as waveform saving, alarm triggering, pulse output, or screenshot capture.
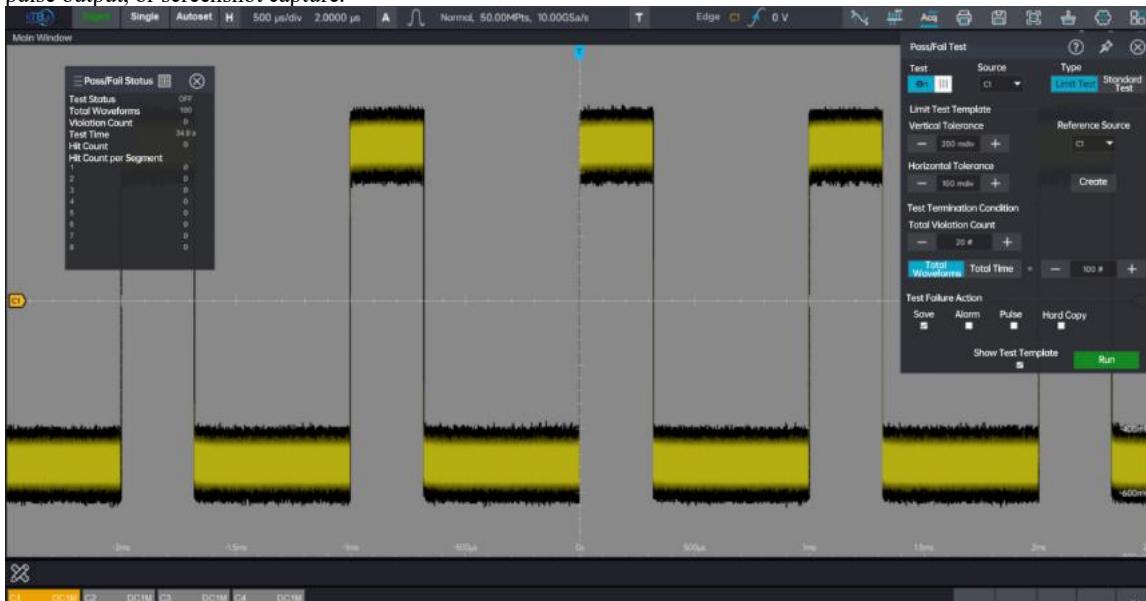
Create a test template using the worst-case noise limit. Filter compliant waveforms in seconds.

Standard Template Testing

For signal integrity testing that requires strict compliance verification, the JHM8000HDP also provides industry-standard templates as judgment criteria. These templates can be used to determine eye diagram opening or conduct standard evaluations of time-domain signals.
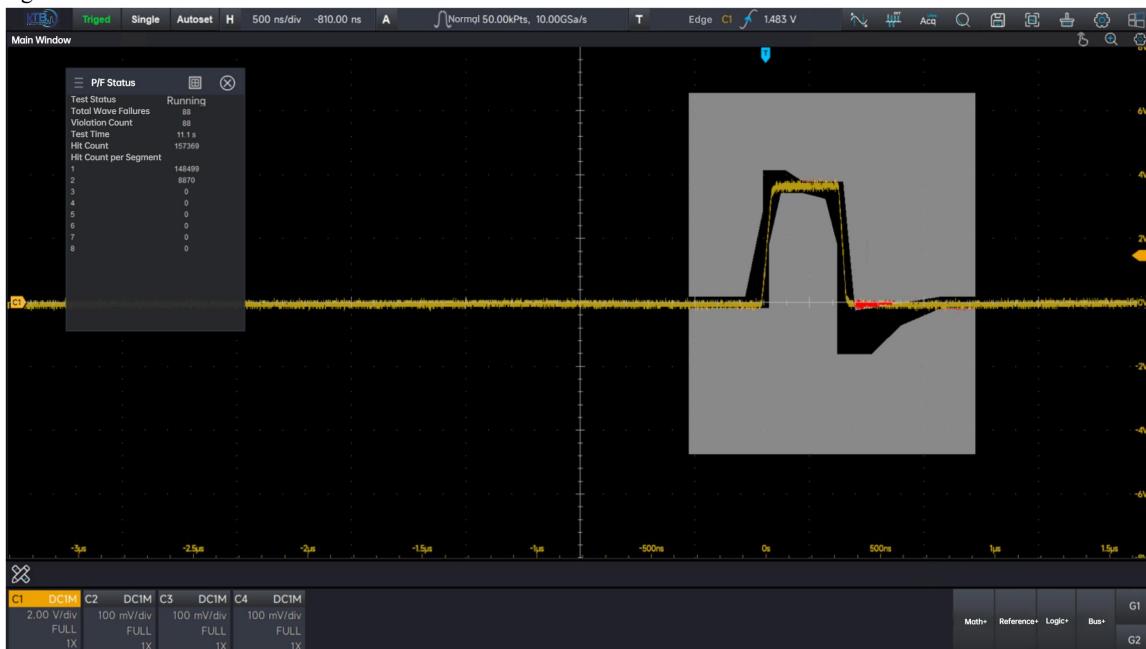
The carrier system uses the standard network transmission rate of 1.544Mb to test signal edges, ensuring the bit transmission rate meets the standard.

Conformance Analysis

The purpose of conformance testing for high-speed serial interfaces is to ensure the uniformity of interface and protocol technologies among products from different manufacturers, enabling successful interoperability when interconnecting the same type of interfaces produced by different vendors. However, conformance testing specifications for different interfaces are formulated by respective industry associations or organizations. For example, USB interfaces are governed by the USB-IF Association, Ethernet complies with the IEEE 802.3 standard, and similar governance applies to standards such as HDMI, PCIe, and MIPI Alliance specifications. Manual conformance testing against protocol standards is extremely time-consuming and cannot guarantee sufficient fault tolerance. By continuously updating and aligning with the latest industry standards, KTB has launched a high-speed protocol conformance testing solution based on the combination of oscilloscopes, active probes, and test fixtures. Currently, the supported protocol types include USB 2.0 and 10/100/1000 Mbps Ethernet. With continuous protocol updates and iterations, the solution will cover conformance testing for more mainstream interfaces such as automotive Ethernet, MIPI, and PCIe in the future.

KTB's conformance analysis software includes the following features:

■ Single or multiple tests that allow users to perform;

■ Features a highly optimized, intuitive user interface that visualizes the connection process between the oscilloscope and the device under test (DUT), enabling rapid test configuration and electrical performance verification

■ A fully automated oscilloscope testing workflow that automatically configures oscilloscope software for each test item.

■ Generates detailed test reports containing results, pass/fail status, test margins, and test waveform images

■ Allows users to customize test standards or execute conformance tests in accordance with association-defined specifications

■ Supports multiple test iterations for result verification and in-depth analysis
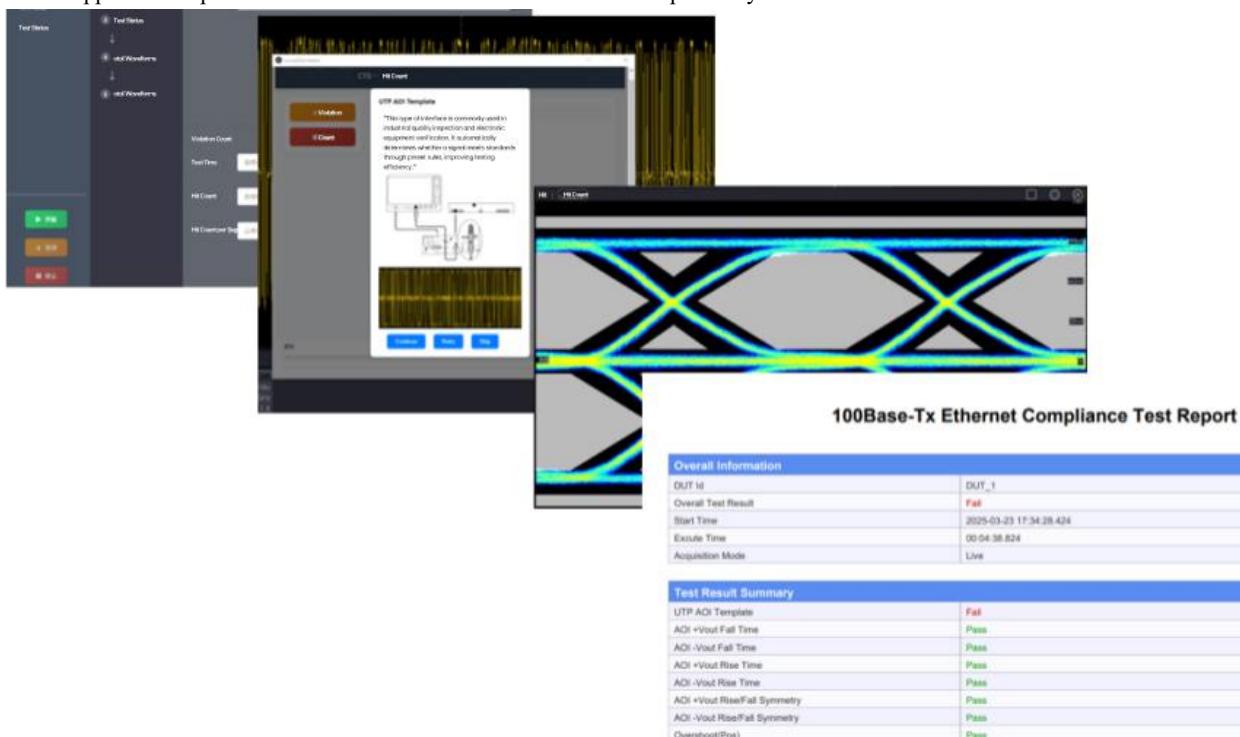
The conformance testing software enables automated test execution and test report generation through standardized connections between signals and test instruments, reducing user test time and operational error rates.

Technical Specifications

All specifications are guaranteed except those marked as Typical. The instrument must be operated continuously for more than 30 minutes at the specified operating temperature before testing.

Key Specifications	JHM8804HDP	JHM8604HDP
Bandwidth (-3dB) @50Ω	8GHz	6GHz
Bandwidth (-3dB) @1MΩ	500MHz	
Rise time @50Ω (typical value)	55ps	67ps
number of analog channels	4+EXT	
Number of Digital Channels (Optional)	16 (requires JHM8000HDP-LA accessory)	
analog channel sampling rate	20 GSa/s (all channels)	
vertical resolution	12-bit	
ERes Mode	Up to 16-bit	
Memory Depth	Standard: 1 Gbps/CH (full-channel); Optional: 2 Gbps/CH (full-channel)	
Maximum Waveform Capture Rate ★1	≥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 Counterr	8-digit	
serial protocol analysis	Standard features: RS-232/422/485/UART, SPI, I2C, CAN, and LIN. Optional: CAN-FD, SENT, FlexRay, SPMI, I3C, PSI5, NRZ AudioBus（I2S\LJ\RJ\TDM）、MIL-STD-1553、ARINC429、SMBUS、USB1.0/2.0、PCIe1.0/2.0、Ethernet、Manchester、8b/10b	
Measurement Functions	Supports over 58 types of automatic parameter measurements and snapshots, as well as statistical analysis, histograms, trend charts, and tracking charts.	
Math Operations	Supports 8 mathematical waveforms Enhanced FFT, basic arithmetic, filtering, advanced formula editing, Matlab embedded programming operations and rendering (optional), and advanced filter designer (optional).	
Analysis Tools	Histogram, Area Histogram, Trend Chart, Tracker	

Advanced Analysis Functions	Power analysis (optional), jitter and eye diagram analysis (optional), limit template test, sequential 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 capacitive touchscreen (1920×1080) with gesture recognition

analog channel	JHM8804HDP	JHM8604HDP
number of channels	4+EXT	
Bandwidth limit @50Ω (typical value)	8GHz, 6GHz, 4GHz, 2GHz, 500MHz, 20MHz	6GHz, 4GHz, 2GHz, 500MHz, 20MHz
Bandwidth limit @1MΩ (typical value)	500MHz, 20MHz	
Vertical input sensitivity range	50Ω: 1mV/div ～ 1V/div	
	1MΩ: 1mV/div ～ 10V/div	
input coupling	50Ω: DC, GND	
	1MΩ: AC, DC, GND	
input resistance	50Ω ± 2%, 1MΩ ± 1% (15 ± 3pF)	
dynamic range	±4div from the screen center	
DC gain accuracy ★2	50Ω:>5mV: ±1% of full scale, ≤5mV/div: ±1.5% of full scale	
	1MΩ: ±1.2% of input signal amplitude (±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 1MΩ: 1mV/div-100mV/div: ±2V; 200mV/div-500mV/div: ±10V; 1V/div-2V/div: ±40V; 5V/div-10V/div:±100V	
DC offset accuracy ★2	>200mV/div:±0.1div±2mV±1.5% offset ≤ 200mV/div:±0.1div±2mV±2.0% offset	
SFDR (Typical)	≥50dBc	
Probe Attenuation Ratio	1X,10X,100X, Custom: 0.001X~1000X	
maximum input voltage	50Ω: ≤5Vrms ; 1MΩ: ≤300Vrms, CAT I;	

channel isolation	≥75dB（DC～2GHz），≥65dB（2~4GHz），≥60dB（4~8GHz）

8GHz, 50Ω input: RMS background noise (VAC RMS) ★3	
1、2、5mV/div	330μV
10mV/div	390μV
20mV/div	430μV
50mV/div	790μV
100mV/div	1.05mV
200mV/div	3.91mV
500mV/div	5.89mV
1V/div	12.5mV

★1: Maximum waveform capture rate applies when sequential mode is enabled.

★2: 1mV/div and 2mV/div settings are digital magnifications of 5mV/div. For vertical accuracy calculations, the vertical sensitivity of 1mV/div and 2mV/div should be calculated based on the 5mV/div full scale of 40mV.

★3: Test conditions: Time base = 1ms/div, memory depth = 100kpts, high-resolution/ERes mode disabled, measured with oscilloscope's "standard deviation" parameter.

Digital Channel (Optional)

number of channels	16
sampling rate	1.25GSa/s
Memory Depth	Standard: 62.5Mpts Optional: 125MB (requires purchase of the JHM8000HDP-MD2G storage deep upgrade option)
maximum input switching rate	500MHz
Minimum Detectable Pulse Width	3.2ns
Threshold Groups	4 adjustable groups, 4 channels per group
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,10mV 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±2%
vertical resolution	1bit
Inter-channel Skew*	1.6ns (typical value)

Note: * Indicates specifications measured after connecting the digital probe to the oscilloscope.

horizontal system	
time base range	50ps/div-1000s/div
Horizontal scale range	10div
time base resolution	0.5ps
time base accuracy	±0.5ppm ±1* calibrated years (ppm)
time base delay range	Pre-trigger: ≥0.5 screen width; Post-trigger: ≤5000 seconds
Inter-channel Skew Adjustment Range	±100ns, minimum step: 1ps
Inter-channel Synchronization Accuracy (Typical)	≤10ps
Inter-channel Jitter	< 5ps RMS
Time Interval (△T) Measurement Accuracy	Same channel: ± (time base accuracy * reading) ± (0.002 * screen width) ± 10ps Between channels: ± (time base accuracy * reading) ± (0.002 * screen width) ± 50ps
Horizontal modes	Y-T\X-Y\ROLL

Acquisition System	
Peak Detect Mode	Captures narrowest glitch: 100 ps
Averaging	2 ~ 65536
UltraAcq®	Waveform capture rate up to 300,000 wfms/s in ultra-fast acquisition mode
High Resolution Mode (Typical)	

resolution bits	12bit		13bit		14bit		15bit		16bit
Bandwidth ★4	8/6GHz		2.2GHz		444MHz		89MHz		23MHz
sampling rate	20GSa/s		5GSa/s		1GSa/s		200MSa/s		50MSa/s

ERes Mode (Typical) ★5								
Enhanced Bits	0.5	1	1.5	2	2.5	3	3.5	4
Bandwidth	4GHz	1.92GHz	960MHz	460MHz	230MHz	120MHz	56MHz	28MHz

★4: High-resolution mode initial bandwidth: 8 GHz for JHM8804HDP, 6 GHz for JHM8604HDP.

★5: ERes mode does not affect the sampling rate; it only impacts the bandwidth.

Trigger System

trigger modes	Automatic, Normal, Single	
trigger coupling	High-Frequency Rejection	Suppresses high-frequency signals above 100 kHz
	Low-Frequency Rejection	Suppresses low-frequency signals below 100 kHz
	Noise Rejection	Adds hysteresis to the trigger circuit; select OFF or ON to reduce sensitivity by 2x
	DC	DC-coupled triggering
	AC	AC-coupled triggering
Holdoff Range	6.4ns ~ 10s	
Trigger Sensitivity	Internal Trigger: C1 ~ C4	≤5mV：1div ＞5mV： 2.25 div @ < 8GHz 1.50 div @ < 5GHz 1.00 div @ < 3GHz 0.5 div @ < 1GHz
	external trigger	EXT： 100mVpp DC~100MHz, 150mVpp 100~200MHz 200mVpp 200~300MHz EXT/5： 500mVpp DC~100MHz, 750mVpp 100~200MHz 1V 200~300MHz
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 jitter	C1~C4	≤5ps（RMS）
	EXT	< 30ps RMS

Trigger type

Region Trigger	source	C1-C4
	Number of Supported Regions	Supports up to two regions
	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
	Condition	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
-Edge Trigger	source	C1 ~ C4/D0~D15
	Edge type	rising edge, falling edge
	Idle Time Range	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 condition, ACK failure, Address, Data, Address + Data
SPI detonate by contact	Trigger method	Start, Data
CAN detonate by contact	Trigger method	Frame start, frame type, ID, data, ID and data, frame end, error
LIN detonate by contact	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, error

SENT Trigger (Optional)	Trigger method	Fast path: synchronization, status, data, CRC, status+data, status+data+CRC, error Slow channel: ID, data, CRC, ID+data, slow channel CRC error
AudioBus Trigger (Optional)	Trigger method	Data, Sync Bits, Channel + Data
FlexRay Trigger (Optional)	Trigger method	Frame header, indicator bit, ID, loop count, header fields, Data, ID, data, frame end, error
MIL-STD-1553 trigger （option）	Trigger method	Command/Status Word, Data, Error, Synchronization
ARINC 429 trigger （option）	Trigger method	Frame start, frame end, label, SDI, data, SSM, label and data, error
Advanced protocol trigger (optional)	Trigger method	Protocol-dependent

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). 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, Absolute Area, Positive Area, Negative Area, Periodic Absolute Area, Periodic Positive Area, Periodic Negative 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	58 automatic measurements, displaying up to 10 measurements simultaneously

measuring range	Screen or cursor
Parameter snapshot	Display 43 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 Math

Number of Simultaneous 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 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 type	Low-pass, High-pass, Band-pass, Band-stop
	filter order	FIR order: 2-1000 IIR order: 2-50
	filter characteristics	Amplitude-Frequency Response, Phase-Frequency Response, Impulse Response

measurement analysis

digital voltmeter	source	C1 ~ C4
	Measurement Modes	DC、AC RMS、DC+AC RMS
	voltage resolution	4-digit

Frequency Counter	frequency resolution	8-Digit Parameter display toolkit: Statistics, Trend Plot, Tracking Plot, Histogram
Pass/Fail Testing	source	C1 ~ C4
	Test Templates	Users can customize test templates or read standard test templates
	Fail Actions	Stop, Save, Alarm, Pulse, Screenshot
Histogram Analysis	source	P1 ~ P10
	Histogram Types	Horizontal, Vertical, and Measurement
	Measured Items	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
	Jitter Measurement Parameters	TIE, TJ@BER, RJ, DJ, PJ, DDJ, DCD, Cycle-Cycle, cycle jitter
	Eye Diagram Measurement Parameters	Eye Amplitude, Eye Height, Eye Width, Logic 1 Level, Logic 0 Level, Q Factor, Eye Crossing Ratio, Extinction Ratio
power analysis	Analysis item	Power Quality, Harmonic Analysis, Surge Current Ripple Analysis, Modulation Analysis, Efficiency, Turn-On/Off Time, Switching Loss, Safe Operating Area (SOA), di/dt, dv/dt, RDS(on), Control Loop Response (Bode Plot), Power Supply Rejection Ratio (PSRR)

serial bus decoding		
Decoded count	Route 2	
RS-232/422/485/ UART decoding	source	C1 ~ C4, R1-R4
	Data Bit Width	5bit, 6bit, 7bit, 8bit
	Parity	Odd parity, even parity, or no parity
	stop bits	1bit, 2bit
	polarity	Positive polarity, negative polarity
	Bit Order	Least Significant Bit (LSB), Most Significant Bit (MSB)

	Baud rate	2400bps, 4800bps, 9600bps, 19200bps, 38400bps, 57600bps, 115200bps, Custom
I2C decoding	source	C1～C4，R1-R4
	signals	SCL，SDA
	Address length	7bit，10bit
SPI decoding	source	C1～C4，R1-R4
	Trigger Mode	TIMEOUT，CS
	signals	Clock, Chip Select, Data
	clock edge	Rising edge, falling edge
	Chip Select Polarity	High level, low level
	data polarity	Positive polarity, negative polarity
	data bit width	4-32
	Bit Order	Least Significant Bit (LSB), Most Significant Bit (MSB)
CAN decoding	source	C1～C4，R1-R4
	Signal type	CAN_H, CAN_L, differential
	sampling point	30%-90%
	signal rate	Customizable, 10kbps,19.2kbps,20kbps,33.3kbps,38.4kbps,50kbps,57.6kbps,62.5kbps,83.3kbps,100kbps,115.2kbps,125kbps,230.4kbps,250kbps,490.8kbps 500kbps，800kbps，921.6kbps，1Mbps 2Mbps，3Mbps，4Mbps，5Mbps
LIN decoding	LIN signal standard	1.0，2.0，Both
	source	C1～C4，R1-R4
	Baud rate	2400bps, 4800bps, 9600bps, 19200bps, Custom
	polarity	Positive polarity, negative polarity
	sampling point	50%-90%
	ID with Parity Bit	Yes/No
CAN FD Decoding (Optional)	source	C1～C4，R1-R4

	Signal type	CAN-FD_H, CAN-FD_L, differential
	Arbitration Field Sampling Point	30-90%
	Data field sampling points	30-90%
	SD signal rate	Customizable, 10kbps,19.2kbps, 20kbps, 33.3kbps, 38.4kbps, 50kbps, 57.6kbps, 62.5kbps, 83.3bps, 100kbps, 115.2kbps, 125kbps, 230.4kbps, 250kbps, 490.8kbps, 500kbps, 800kbps, 921.6kbps, 1Mbps, 2Mbps, 3Mbps, 4Mbps, 5Mbps
	FD signal rate	Customizable, 250kbps,500kbps,800kbps,1Mbps,1.5Mbps, 2Mbps, 3Mbps, 4Mbps, 5Mbps, 6Mbps, 7Mbps, 8Mbps
SENT decoding （optional）	source	C1～C4，R1-R4
	polarity	Positive polarity, negative polarity
	clock cycle	Custom, 1us, 3us, 10us, 30us, 100us, 300us
	clock tolerance	1%-30%
	Mode	fast channel slow channel
	pause bit	No/Yes
	data segment format	Nibble, Fast Channel
	Data Length	1Nibbles，2Nibbles，3Nibbles，4Nibbles，5Nibbles，6Nibbles
AudioBus decoding （optional）	source	C1-C4，R1-R4
	protocol type	I2S，LJ，RJ，TDM
	Word Select Polarity	Positive polarity, negative polarity
	Clock edge	Rising edge, falling edge
	data polarity	Positive polarity, negative polarity
	Bit Order	MSB，LSB
	channel type	Left channel/Left channel/Right channel
	Data Bits per Channel	2-64bit
	Channels per Frame	4-32
	Clock Bits per Channel	4-32 bits

	bit delay	0-31 bits
FlexRay decoding（optional）	source	C1～C4，R1-R4
	Signal type	BP、BM
	signal rate	Custom, 1Mbps, 5Mbps, 10Mbps
	channel type	A/B
MIL-STD-1553 decoding (optional)	source	C1～C4，R1-R4
	Baud rate	1Mbps, 10Mbps, Custom
	polarity	positive/negative polarity
ARINC429 decoding（optional）	source	C1～C4，R1-R4
	signal rate	12.5kbps, 100kbps, custom
	polarity	positive/negative polarity
	data format	19bit，21bit，23bit

Function/Arbitrary Waveform Generator (Optional)	
Number of Channels	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, sweep frequency
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 (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: less than 1% of peak output (typical value, 1kHz, 1Vpp, symmetry 100%)
noise	Bandwidth: 60MHz (typical value)
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 Functions

AM Modulation	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
	source	Internal
	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
	Phase Deviation	0° ~ 360°

Frequency Sweep

	Carrier Wave	Sine, Square Wave, Sine Wave, Any Wave
Frequency Sweep	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/℃
	Resolution: 1μHz

output characteristic

Output Amplitude	Range (50Ω load):	≤30MHz:10mVpp ~ 3Vpp
		≤60MHz:10mVpp ~ 1.5Vpp
	Range (high-impedance load):	≤30MHz:20mVpp ~ 6Vpp
		≤60MHz:20mVpp ~ 3Vpp
	Resolution: 1mV	
	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
display 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 levels	256
Waveform Display Modes	Dot, Vector
Waveform color	User-customizable color for each waveform
Persistence Time	Persistence Off, Infinite Persistence

host system	
processor	Inter® core™ i5-8400H（2.5GHz，64-bit)
operating system	Windows 10 IoT Ent LTSC （64bit)
Memory	8GB
Solid State Drive (SSD)	128GB

interfaces and protocols	
HD audio and video output	1 HDMI port on the back panel
USB host ports	5 ports total: 2×front panel, 3×rear panel (1×Type-C, 2×Type-A)
USB Device Port	1×USB Device port, rear panel
LAN Interface	One Ethernet interface (10/100/1000Mbps) on the rear panel
probe compensation source	1kHz, 3Vpp square wave
10MHz reference clock Input/Output	IN/OUT can be opened individually or simultaneously IN: The rear panel BNC connector provides the oscilloscope with a sampling reference clock (50Ω, amplitude 200mVpp to 7Vpp, frequency 10MHz ± 2ppm). OUT: Rear panel BNC connector, which can output its own 10MHz reference clock for other external instruments to do instrument clock synchronization (50 Ω,1.65Vpp, square wave)
Aux output	BNC connector on the back panel 3.3V CMOS 1. Trigger the synchronous output; 2. Based on the test results; 3.AWG trigger output
Aux import	3.3V CMOS 1.Trigger synchronous input

	2.AWG external trigger input
EXT Trig	BNC connector on the rear panel (refer to the trigger chapter for relevant specifications)
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

Input Voltage	100V to 240VAC (±10% fluctuation) at 50Hz, 60Hz, or 400Hz
Maximum Power Consumption	Maximum 300W

Environmental Requirements

temperature range	Working: 0℃ ~ +50℃; Non-working: -20℃ ~ +60℃
Humidity range	Working conditions: below +35℃ with relative humidity ≤90%; non-working conditions: +35℃ to +40℃ with relative humidity ≤60%
Altitude Range	Work: below 2000 meters; non-work: below 15000 meters

Mechanical Specifications

Dimensions (W×H×D)	445mm×311.3mm×205mm
weight	< 12.5kg
Rack Mount Compatibility	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 Emission CLASS B group1，150kHz-30MHz
		Radiated Emission 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
Warranty & Calibration Services	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

JHM8804HDP	8GHz bandwidth, 20GSa/s (all channels), 4-channel oscilloscope

JHM8604HDP	6GHz bandwidth, 20GSa/s (all channels), 4-channel oscilloscope
Standard Accessories	
UT-D30	1 USB3.0 data cable
UT-L45	2 BNC-BNC straight-through lines
UT-KJG12	2 precision BNC-to-SMA adapters (50Ω)
UT-JLC12	2 precision SMA cables, 12GHz, 1m
UT-P07	4 high impedance passive probes 500MHz
--	1 front panel protective cover
--	1 power cord compliant with local standards
--	calibration certificate
Standard software	
RS-232/422/485/UART	Embedded Serial Bus Trigger and Analysis (RS-232/422/485/UART)
SPI	Embedded Serial Interface Trigger and Analysis
I2C	Embedded Serial Bus Trigger and Analysis (I2C)
CAN	CAN Trigger and Analysis
LIN	Car Serial Bus Trigger and Analysis (LIN)
Limit & Mask Test	Extreme test, standard template test
spectrum analyzer	enhancement mode FFT
digital voltmeter	4 digits, DC, AC RMS, DC+AC RMS, supports trend chart and histogram
Frequency Counter	8-bit, provides parameter display toolkit: statistics, trend chart, tracking chart, histogram
Trigger software	Edge, Pulse Width, Slope, Video, Code Type, Timeout, Underframe, Set/Hold, Delay, Duration, N Edge, Area Trigger
WebServer	SCPI remote control, remote viewing and control, export waveform files, and online browsing manual
Advanced Analysis	Statistical histogram, trend chart, tracking, and area histogram

option

Option-Bandwidth Upgrade

JHM8000HDP-60T80	JHM8000HDP Series: 6GHz to 8GHz Bandwidth Upgrade

Options - Memory Depth Upgrade

JHM8000HDP-MD2G	Extend the oscilloscope's maximum storage depth to 1Gpts/CH (full channel) and 2Gpts/CH (half channel).

Options - Logic Analyzer

JHM8000HDP-LA	16-channel logic analyzer option

Options - Waveform Generator

JHM8000HDP-AWG	Dual-channel 60MHz Arbitrary Wave Generator Option

Options - Advanced Analysis

JHM8000HDP-JITTER	Advanced jitter and eye diagram analysis options

Option-Advanced Power Analysis

JHM8000HDP-PWR	Advanced Power Analysis Option

Option-Protocol Trigger and Analysis

JHM8000HDP-CANFD	CAN FD Trigger and Analysis Option
JHM8000HDP-FLEX	FlexRay: A Trigger and Analysis Option for Automotive Serial Bus
JHM8000HDP-SENT	Sent for the Trigger and Analysis of the Automotive Sensor Bus
JHM8000HDP-AUDIO	Audio Serial Bus Trigger and Analysis Options (I2S, LJ, RJ, TDM)
JHM8000HDP-AERO	Aerospace Serial Bus Trigger and Analysis Option (MIL-STD-1553, ARINC 429)
JHM8000HDP-SMBUS	Embedded Serial Bus Trigger and Analysis Option (SMBus)
JHM8000HDP-SPMI	Power Management Serial Bus Trigger and Analysis Option (SPMI)
JHM8000HDP-I3C	MIPI-I3C Bus Trigger and Analysis Option (I3C)
JHM8000HDP-PSI5	Car Serial Bus Analysis Option (PSI5)
JHM8000HDP-USB2	USB Bus Trigger and Analysis Option (USB 2.0)
JHM8000HDP-PCIe2	PCIe bus trigger and analysis options (PCIe 1.0, 2.0)
JHM8000HDP-NET	Ethernet Bus Analysis Option (10BASE-T, 100BASE-TX)
JHM8000HDP-NRZ	NRZ Signal Analysis Option
JHM8000HDP-MANCH	Manchester Signal Analysis Option
JHM8000HDP-8B10B	8b/10b Signal Analysis Option (8B/10B)

Option-Advanced Filter Designer

JHM8000HDP-FILTER	Advanced Filter Designer Option

Option-Matlab Embedded Programming

JHM8000HDP-MAT	The Matlab Embedded Programming add-on allows users to create Matlab code for custom mathematical functions.

Options - Compliance Analysis

JHM8000HDP-CTS100	100BASE-Tx Ethernet compliance analysis option
JHM8000HDP-CTSUSB20	USB 2.0 compliance analysis option

Upgrade Suite

JHM8000HDP-BND	Upgrade package (includes: advanced jitter & eye diagram analysis, protocol trigger & analysis)

Note: All hosts, accessories and options must be ordered from KTB.