



## HoloWAN High Precision WAN Emulators

Exceptional Performance, Easy to Use, cost-effective.

Emulates: Bandwidth, Latency, Packet loss,  
jitter, Other impairments.

Recruit global agency



# HoloWAN Ultra WAN Emulator Product Data Sheets

Jiangmen Yunzheng Technology Co., Ltd

<http://msytest.com>

Copyright © 2025 Jiangmen Yunzheng Technology Co., Ltd

## HoloWAN Ultra Simulating High-Performance Networks :

HoloWAN Ultra is an advanced wide area network simulator with ultra-high performance, ultra-high precision, and a wealth of damage functions. It can provide up to 100Gbps line speed forwarding performance, nanosecond-level delay, and delay jitter settings.

HoloWAN Ultra can simulate up to 15 independent virtual links in a single simulation engine, meeting the concurrent testing needs of various high-bandwidth and complex network scenarios. By using the IP address range, TCP/UDP port number, VLAN, application port number, or other packet features, you can easily assign different packets to the corresponding links for independent testing. Each virtual link can independently construct damage such as bandwidth restrictions, delay and jitter, packet loss, bit errors, and reordering, allowing you to carry out comprehensive and in-depth testing of your product.

HoloWAN Ultra adopts an intuitive and easy-to-use browser interface, making device configuration and management extremely simple and quick. At the same time, the extremely open API allows HoloWAN Ultra to be integrated with various automated testing tools to improve testing efficiency.

## HoloWAN Ultra Features :

- **Easy to use** : Plug and play, no need to install any applications, quickly issue damage configurations through a simple and easy-to-use Web GUI.
- **Multiple Links** : A single simulation engine can simulate up to 15 independent virtual links, meeting the needs of multitasking parallel testing.
- **Ultra-high-performance link** : Supports simulation of virtual links from 1bps to 100Gbps, compatible with 40G/25G/10G, bandwidth limit control granularity is accurate to 1bps, and can forward small packets of 64 bytes at line speed.

- **Nanosecond-level delay** : Can construct up to 10 seconds of delay and delay jitter in one direction, delay control granularity can be as low as 1ns, and delay precision can be as accurate as  $\pm 4$ ns. It also supports uniform distribution, normal distribution, custom normal distribution and other delay jitter modes.
- **More comprehensive packet loss** : Supports multiple packet loss modes such as single, random, periodic, burst, and dual-channel. The packet loss range is 0-100%, and the packet loss accuracy can be as low as 0.000001%.
- **More comprehensive bit errors** : Supports bit errors in the CRC and preamble fields of the packet, with a bit error range of 0-100%. Also supports random error coding, multi-range error coding, and packet error damage modes.
- **More comprehensive packet classifier** : Packets can be classified by IPv4 address, IPv6 address, MAC address, TCP/UDP/SCTP protocol port number, MPLS, PPPoE, packet offset, combination classification rules, etc., and assigned to the specified virtual link for precise damage.
- **More comprehensive comprehensive impairment functionality** : HoloWAN Ultra also supports packet modify, reordering, duplication, queue limit, frame overhead, background utilization, and MTU damage.
- **Packet Capture Analysis** : During the test process, it captures packets and displays the delay, packet loss, and error coding that each packet has suffered in real-time in the form of a Gantt chart. It can compare packets before and after damage online, or export packets before and after damage as pcap files.
- **Open API** : Every atomic function can be controlled through Python API or Restful API, integrated with various automated testing tools to improve testing efficiency and productivity.

- **Statistics list and charts :** The statistical list provides real-time tallies of damaged packets and supports the saving and downloading of all damage statistics data since the device was powered on. Furthermore, statistical charts present the real-time fluctuations of the packet rate in the form of a line graph, helping users to more intuitively understand the changes in packet rate before and after damage occurs.

## **HoloWAN Ultra can be used in :**

- **Telecom Network Simulation**

Telecommunication operators use HoloWAN HPP to simulate nanosecond-level network latency and high-precision packet loss in order to test and optimize high-speed network technologies such as 5G. Moreover, HoloWAN HPP can construct a bandwidth of up to 100Gbps, simulating complex backbone networks. This allows operators to analyze the performance of their products in high-speed backbone networks and optimize product performance to ensure stable and efficient operation.

- **Development and Testing of Network Equipment and Protocols**

HoloWAN HPP can accurately simulate ultra-high bandwidth and precise latency in a laboratory environment, helping to test the performance of network devices and protocols in high-speed network environments. HoloWAN HPP can also accurately simulate key damages such as packet tampering, packet loss, and bit errors, allowing developers to optimize algorithms against these damages and ensure the stability of products and protocols in actual use.

- **AI System Testing**

I When testing systems such as distributed AI and machine learning, cloud computing and edge computing, IoT and smart devices, autonomous driving and AI technology, remote medicine and teleoperated surgery, HoloWAN HPP can construct a bandwidth of up to 100Gbps and introduce

nanosecond-level delay, high-precision packet loss, and bit errors in high-speed networks to ensure that AI systems can run stably in real high-speed networks.

- **Big Data Application Testing**

HoloWAN HPP has ultra-high data stream processing capabilities, capable of accurately simulating key network issues such as changing network latency and packet loss, enabling big data analytics, cloud computing, and other big data transmission applications to undergo comprehensive testing under nearly real network conditions, ensuring the performance of applications in actual network environments.

- **Financial System Testing**

Financial markets such as stocks and foreign exchanges are highly dynamic and rapidly changing. High-frequency trading algorithms can automatically execute massive orders at the microsecond level, and minimal delay can significantly affect trading results. Using HoloWAN HPP to simulate bandwidth limitations, latency, packet loss, and bit errors, the financial system can be tested. This ensures that the financial system can operate efficiently and stably in any network environment, safeguarding customer assets.

- **Military and Defense System Testing**

In modern military communication and control systems, high-precision time synchronization and accurate network condition simulation are key elements in military system testing. By using HoloWAN HPP to simulate nanosecond-level delay, packet loss, and bit errors, a comprehensive test can be conducted on military and defense systems. This not only improves the accuracy and efficiency of tactical decision-making, but also ensures the robustness and reliability of the communication system in complex and hostile environments.

- **Disaster Recovery and Backup System Testing**

HoloWAN Ultra is used to conduct key tests on disaster recovery and backup systems by simulating different network environments. For instance, the simulation of changing network bandwidth and latency tests the backup speed and recovery time of the system; network congestion and other failures are simulated to check the fault tolerance and redundancy strategy of backup and recovery systems; the network environment in disaster situations is simulated to test and evaluate the effectiveness of disaster recovery plans.

- **Scientific Research and Large-scale Scientific Facility Testing**

Some large-scale scientific facilities, such as particle accelerators and astronomical observation facilities, require precise time synchronization and rapid data processing. HoloWAN Ultra supports simulating a bandwidth of up to 100Gbps in the laboratory and introducing nanosecond-level delay, high-precision packet loss, and bit errors in the network to ensure the accuracy of large-scale scientific facilities operating in real high-speed networks.

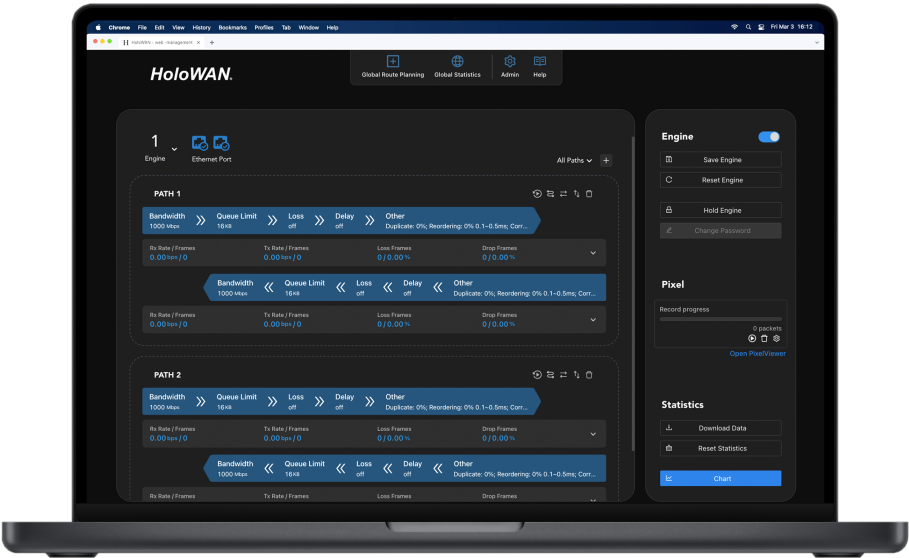
- **Distributed AI and Machine Learning Testing**

In distributed computing environments, the training and inference of AI models often rely on rapid data exchange between multiple nodes. HoloWAN Ultra is used to construct ultra-high bandwidth, nanosecond-level delay, and high-precision packet loss to test AI and machine learning models, helping to optimize the model's training and inference process, and ensuring that the model's training and deployment can be efficiently carried out in a real network environment.

- **AI Real-time Data Stream Analysis**

In specific areas such as financial market analysis and network security monitoring, AI systems need to perform fast and accurate analysis on massive real-time data, and small changes in network latency can affect this. HoloWAN Ultra is used to simulate high bandwidth and delay jitter, testing whether AI systems can run quickly and efficiently under different delays, and accurately analyze real-time data.

Web GUI :



Products :

**HoloWAN 100GEU**  
one 100 Gbps emulation engine



## Comparison of HoloWAN Ultra model :

Model	100GEU
<b>Capacity</b>	
Engine Number	1
Maximum Bandwidth	100Gbps
Path Number Of Per Engine	15
Maximum Packet Rate	300Mpps
<b>Emulation Capabilities</b>	
Bandwidth	Fixed , Jitter , Token Bucket
Queue Limit	Simple , Drop Tail , RED
Corruption	Bit Error , Bit Range Error , Packet Error
Delay	Constant , Uniform , Normal , Custom , Jitter , Gamma , Accumulate&Burst , Step
Loss	Random , Cycle , Burst , Gilbert-Elliott , Jitter , 4-State-Markov , Possion , Single
Modify	Normal , Cycle , Random
Recordering	Normal , Jitter , Cycle , Single
Duplication	Normal , Jitter , Single , Burst
Other Damage	Frame Overhead , Background Utilization , MTU Limit
Packet Classification	IPv4 address , IPv6 address , MAC address , VLAN , TCP/UDP/SCTP port number , MPLS Label , PPPoE , RAW 1-Byte offsets , RAW 4-Byte offsets , Tunnel(GRE) , Combination
Additional Parameters	<ul style="list-style-type: none"> <li>● Packet capture and analysis, comparing the message before and after the damage, Gantt chart display of the damage process ;</li> <li>● Recording and playback of network bandwidth, latency, and packet loss, with a playback parameter change frequency of 0.1s, visualization of the network scenario playback process, and updates to the network scenario database ;</li> <li>● Basic Network Data Template ;</li> <li>● GRE Tunnel.</li> </ul>
<b>Other Key Information</b>	
Size	4U
Management	1 * Gigabit Ethernet
Ethernet Ports	2 * QSFP28 100Gbps
GUI	web
<b>Support &amp; Warranty</b>	
Hardware Warranty	3 year
API	restful API , python API
Technical Support	API technical support、 Remote technical support

## **Connect us :**

Jiangmen Yunzheng Technology Co., Ltd

<http://msytest.com>

Copyright © 2025 Jiangmen Yunzheng Technology Co., Ltd