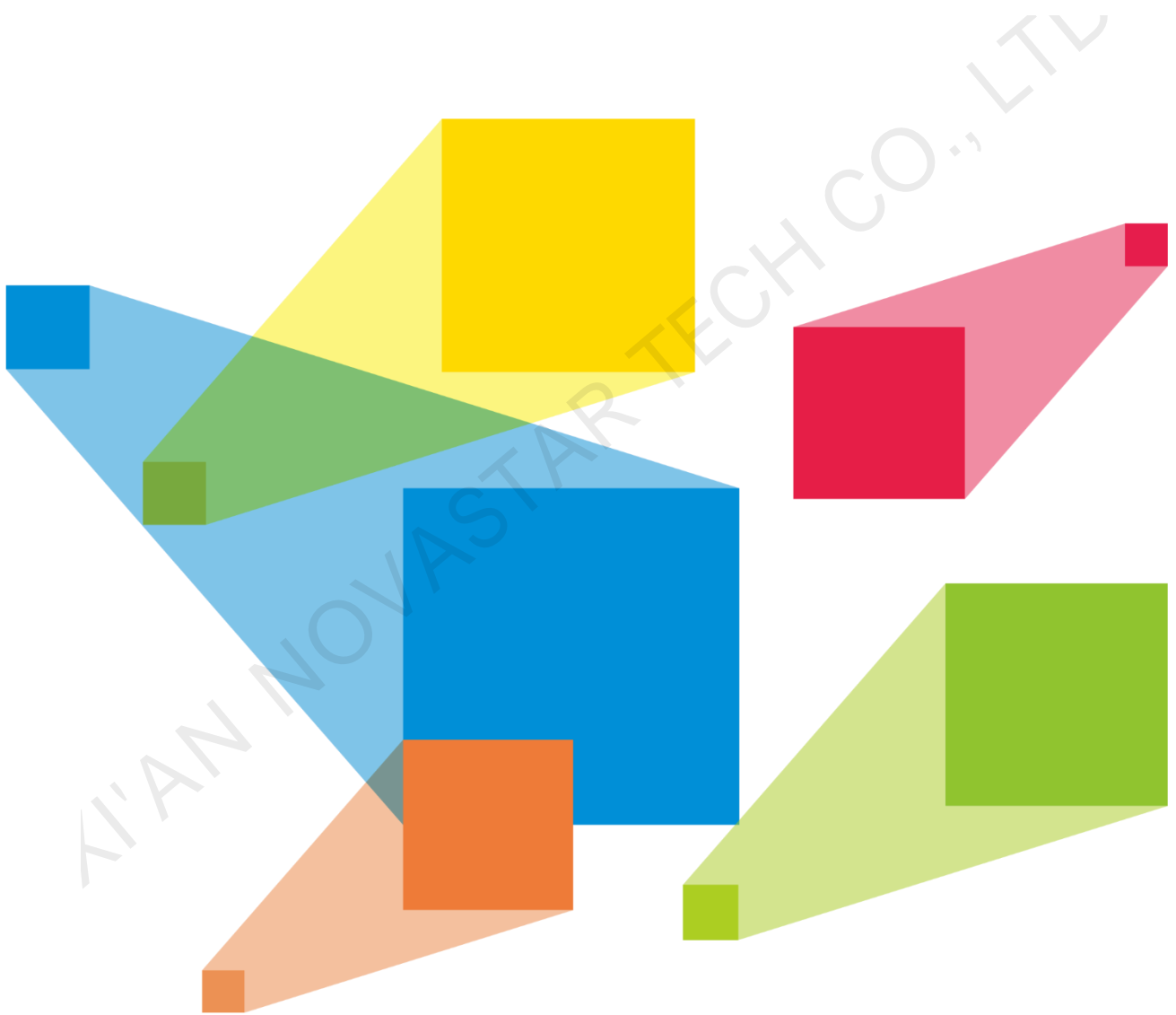


# H Series

## Video Wall Splicers

V1.1.1



Specifications

## Change History

Document Version	Release Date	Description
V1.1.1	2020-08-20	Updated the maximum height supported by the H_16xRJ45+2xfiber sending card to 10240 pixels.
V1.1.0	2020-07-31	<ul style="list-style-type: none"> <li>• Added the descriptions for the following new functions:               <ul style="list-style-type: none"> <li>- Eye saver mode on Web page</li> <li>- 3D function</li> <li>- Input source grouping</li> <li>- App control on the pad device</li> </ul> </li> <li>• Added the descriptions for the following input cards:               <ul style="list-style-type: none"> <li>- H_4x3G SDI input card</li> <li>- H_2xCVBS+2xVGA input card</li> <li>- H_4xVGA input card</li> </ul> </li> </ul>
V1.0.1	2020-06-02	Updated the descriptions of the H_2xRJ45 IP input card.
V1.0.0	2020-05-15	First release

## Introduction

The H series is NovaStar's newest generation of video wall splicers, featuring excellent image quality and designed especially for fine-pitch LED screens. The H series products can work as splicing processors that integrate both video processing and video control capabilities, or work as pure splicing processors. The whole unit adopts a modular and plug-in design, and allows for flexible configuration and hot swapping of input and output cards. Thanks to excellent features and stable performance, the H series products can be widely used in a variety of applications, such as energy and power, judicial departments and prisons, military command, water conservancy and hydrology, meteorologic earthquake prediction, enterprise management, metallurgy of steel, banking and finance, national defense, public security traffic management, exhibitions and presentations, production scheduling, radio and television, educational and scientific research, as well as stage rental applications.

Based on the powerful hardware FPGA system architecture, with a modular and plug-in design, the H series features a stable and highly efficient pure hardware architecture, and provides a variety of connector modules for flexible and personalized configuration, allowing for easy maintenance and low failure rate. The H series provides the industry-standard input connectors, including HDMI, DVI, DP, VGA, CVBS, SDI and IP, and supports 10-bit video source input and processing, as well as 4K high-definition inputs and outputs. The H series also provides an LED 4K sending card with sixteen Ethernet ports and two OPT ports, allowing for the backup between the OPT ports and Ethernet ports as well as ultra-long distance transmission. Moreover, the H series supports multi-screen and multi-layer management, input and output EDID management and monitoring, input source renaming, BKG and OSD settings and more, bringing you a rich image construction experience.

In addition, the H series adopts the B/S architecture and supports cross-platform, cross-system access and control without the need to install an application program. On a Windows, Mac, iOS, Android or Linux platform, online collaboration of multiple users is supported and the Web page response speed is very fast, which greatly improves on-site setup efficiency. What's more, the H series supports online firmware update, allowing for easy hardware update on a PC.

## Features

### Modular and plug-in design, for flexible configuration

- A single LED 4K sending card loads up to 10,400,000 pixels.
- A single LED 4K sending card provides two OPT output ports, allowing for ultra-long distance transmission and simplified system connection.
- Multi-capacity configuration on a single card slot
  - 4x 1920x1080@60Hz
  - 2x 3840x1080@60Hz
- 1x 4096x2160@60Hz
- Simple screen configuration using a single card and connector
- Online status monitoring of all input and output cards
- Hot-swappable input and output cards
- Up to 3840x2160@30Hz IP camera inputs and input mosaic

### Multi-screen management, for centralized control

- Each screen can have its own output resolution.
- Output mosaic
  - Adopts the frame synchronization technology, which ensures all the output connectors output the image synchronously, and the image is complete and played smoothly, without any stuck, frame loss, tearing or piecing.
- Irregular screen configuration
  - Supports irregular rectangle mosaic without any limitations.
- Input source grouping management

### Diverse display possibilities, for richer visual experience

- Multi-layer display
  - A single card supports 16x 2K layers, 8x DL layers or 4x 4K layers.
  - All layers support cross-connector output and the layer quantity is not reduced for cross-connector output.
- High-definition scrolling text
  - Customize the scrolling text content, such as slogans or notification messages, and set the text style, scrolling direction and speed.
- Up to 2,000 presets
  - Fade effect and seamless switching supported, less than 60ms preset switching duration
- Scheduled playback of preset playlist

- Set whether to add the presets to playlist, which is ideal for monitoring, exhibitions, presentations, and other applications.
- OSD settings on a single screen and adjustable OSD transparency
- BKG settings  
BKG images do not occupy the layer resources. The max. width and height of a BKG image is up to 15K and 8K respectively.
- Channel logo management  
Set a text or image logo for identifying the input source.
- Input source cropping and renaming after cropping

Crop any input source image and form a new input source after cropping.

- HDR and 10-bit video processing, allowing for a more exquisite and clear image
- Color adjustment  
Input, output and layer color adjustable, including the brightness, contrast, saturation, hue and Gamma
- Eye saver mode  
Display the image in a warmer but less bright way to relieve eye strain.
- 3D function  
Work with NovaStar’s 3D emitter – EMT200 to enjoy the 3D visual effect.

### Web-page control, easy, friendly and convenient

- Web control  
Real-time response and 1000M/100M self-adaptive network control, allowing for multi-user collaboration
- Monitoring of inputs and outputs on Web page
- Firmware update on Web page
- APP control on pad device

### Status monitoring and redundant power supply, for better stability and reliability

- Self-test for fault detection
- Auto monitoring and alarms  
Supports hardware monitoring, such as fan rotation speed, module temperature and voltage, running status, and sends fault alarms if necessary.
- Supports an optional power supply for higher system reliability.

## Appearance

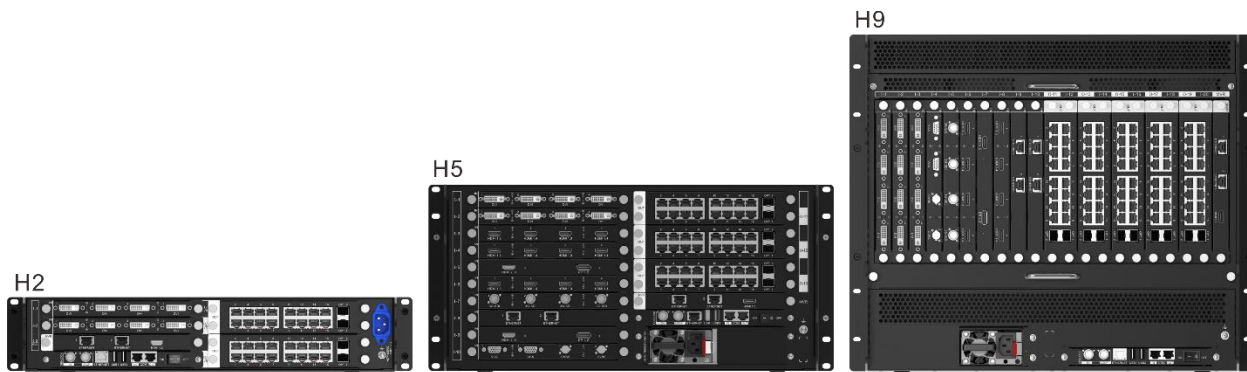
### Front Panel



\*The pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

Name	Description
LCD screen	<p>Touchscreen displays the menus, submenus and messages, as well as device status and monitoring information, and allows you to perform all the operations at your fingertips.</p> <p>Note: The H2 does not support touch control and menu operations. The front panel screen is used for status display only.</p>

Rear Panel



\*The pictures shown are for illustration purpose only. Actual product may vary due to product enhancement.

**Note:**

The silkscreen marking "I-x" or "I/x" indicates the slot is dedicated for the input card, and the silkscreen marking "O-x" or "O/x" indicates the slot is dedicated for the output card. "I" stands for input, "O" stands for output and "x" stands for the slot number. For example, "I-1" indicates this slot is the 1<sup>st</sup> input slot and for installing an input card only. "O-10" indicates this slot is the 10<sup>th</sup> output slot and for installing an output card only.

The silkscreen marking "MVR" indicates the slot is dedicated for the preview card only.

The silkscreen marking "I-x / MVR" indicates the slot can accept an input card or preview card.

**Input Card**

H\_4xDVI input card



Support for single link and dual link input modes, and 10-bit input source  
HDCP 1.4 compliant

DOES NOT support interlaced signal input.

- Single link mode:
  - Four DVI connectors are all used for input.
  - Each connector supports the maximum resolution of 2048x1152@60Hz and the minimum resolution of 800x600@60Hz.
  - Custom resolutions:
    - Max. width: 2560 pixels (2560x972@60Hz)
    - Max. height: 2560 pixels (884x2560@60Hz)
- Dual link mode:
  - Connectors 2 and 4 are used for input, and connectors 1 and 3 are unavailable.
  - Each connector supports the maximum resolution of 3840x1080@60Hz and the minimum resolution of 800x600@60Hz.
  - Custom resolutions:
    - Max. width: 3840 pixels (3840x1198@60Hz)
    - Max. height: 3840 pixels (1092x3840@60Hz)

Status LEDs:

- On: The input source is accessed normally.
- Off: No input source is accessed or the input source is abnormal.

## H\_4xHDMI input card



Support for 10-bit input source

DOES NOT support interlaced signal input.

Single link mode:

- 2x HDMI 1.3

- Each connector supports the maximum resolution of 2048x1152@60Hz, and the minimum resolution of 800x600@60Hz.
- Custom resolutions:
  - Max. width: 2560 pixels (2560x972@60Hz)
  - Max. height: 2560 pixels (884x2560@60Hz)
- HDCP 1.4 compliant

- 2x HDMI 1.4a


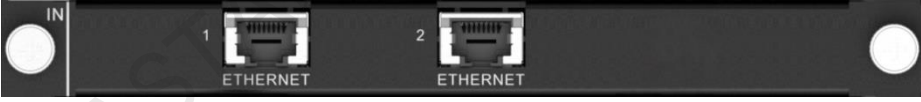

- Each connector supports the maximum resolution of 2048x1152@60Hz, and the minimum resolution of 800x600@60Hz.
- Custom resolutions:
  - Max. width: 2560 pixels (2560x972@60Hz)
  - Max. height: 2560 pixels (884x2560@60Hz)
- HDCP 1.4 compliant



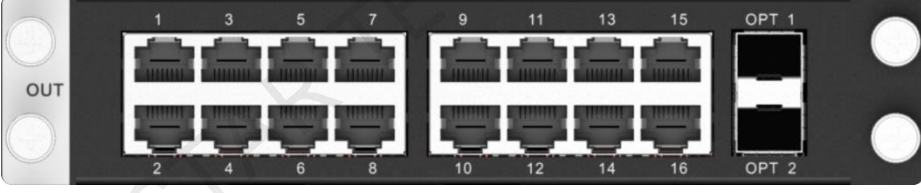

Dual link mode:

- Two HDMI 1.4a connectors are used for input, and two HDMI 1.3 connectors are unavailable.
- Each connector supports the maximum resolution of 3840x1080@60Hz.
- Custom resolutions:
  - Max. width: 3840 pixels (3840x1198@60Hz)
  - Max. height: 3840 pixels (1092x3840@60Hz)
- HDCP 1.4 compliant

Status LEDs:

- On: The input source is accessed normally.
- Off: No input source is accessed or the input source is abnormal.

<p>H_1xHDMI2.0+1xDP1.2 input card</p>	 <p>Only one connector can be used each time, which can be configured on the Web page. The default option is HDMI 2.0 connector. DOES NOT support interlaced signal input.</p> <ul style="list-style-type: none"> <li>● 1x HDMI 2.0             <ul style="list-style-type: none"> <li>- Backward compatible with HDMI 1.4a and HDMI 1.3</li> <li>- Supports the maximum resolution of 8192x1080@60Hz or 4096x2160@60Hz.</li> <li>- HDCP 2.2 compliant</li> <li>- Custom resolutions:                 <ul style="list-style-type: none"> <li>Max. width: 4092 pixels (4092 x 2261 @60Hz)</li> <li>Max. height: 4095 pixels (2188 x 4095 @60Hz)</li> </ul> </li> </ul> </li> <li>● 1x DP 1.2             <ul style="list-style-type: none"> <li>- Backward compatible with DP 1.1</li> <li>- Supports the maximum resolution of 4096x2160@60Hz or 8192x1080@60Hz (setting via NVIDIA graphics card).</li> <li>- HDCP 2.2 compliant</li> <li>- Custom resolutions:                 <ul style="list-style-type: none"> <li>Max. width: 8192 pixels (8192x1146@60Hz)</li> <li>Max. height: 4095 pixels (2188 x 4095 @60Hz)</li> </ul> </li> </ul> </li> </ul> <p>Status LEDs:</p> <ul style="list-style-type: none"> <li>● On: The input source is accessed normally.</li> <li>● Off: No input source is accessed or the input source is abnormal.</li> </ul>
<p>H_2xRJ45 IP input card</p>	 <p>2x RJ45 Gigabit Ethernet ports Support for interlaced signal input</p> <ul style="list-style-type: none"> <li>● Supported protocols: RTSP, GB28181 and ONVIF</li> <li>● Supported coding formats: H.264 and H.265</li> <li>● Single card decoding capability:             <ul style="list-style-type: none"> <li>- 4x 3840x2160@30fps</li> <li>- 16x 1920x1080@30fps</li> </ul> </li> <li>● DHCP compliant</li> </ul>
<p>H_4x3G SDI input card</p>	 <p>4x 3G-SDI</p> <ul style="list-style-type: none"> <li>● Backward compatible with HD-SDI and SD-SDI</li> <li>● Supports ST-424 (3G), ST-292 (HD) and SMPTE 259 SD.</li> <li>● Each connector supports the maximum resolution of 1920x1080@60Hz.</li> <li>● Supports 1080i/576i/480i de-interlacing processing.</li> </ul> <p>Status LEDs:</p> <ul style="list-style-type: none"> <li>● On: The input source is accessed normally.</li> <li>● Off: No input source is accessed or the input source is abnormal.</li> </ul>

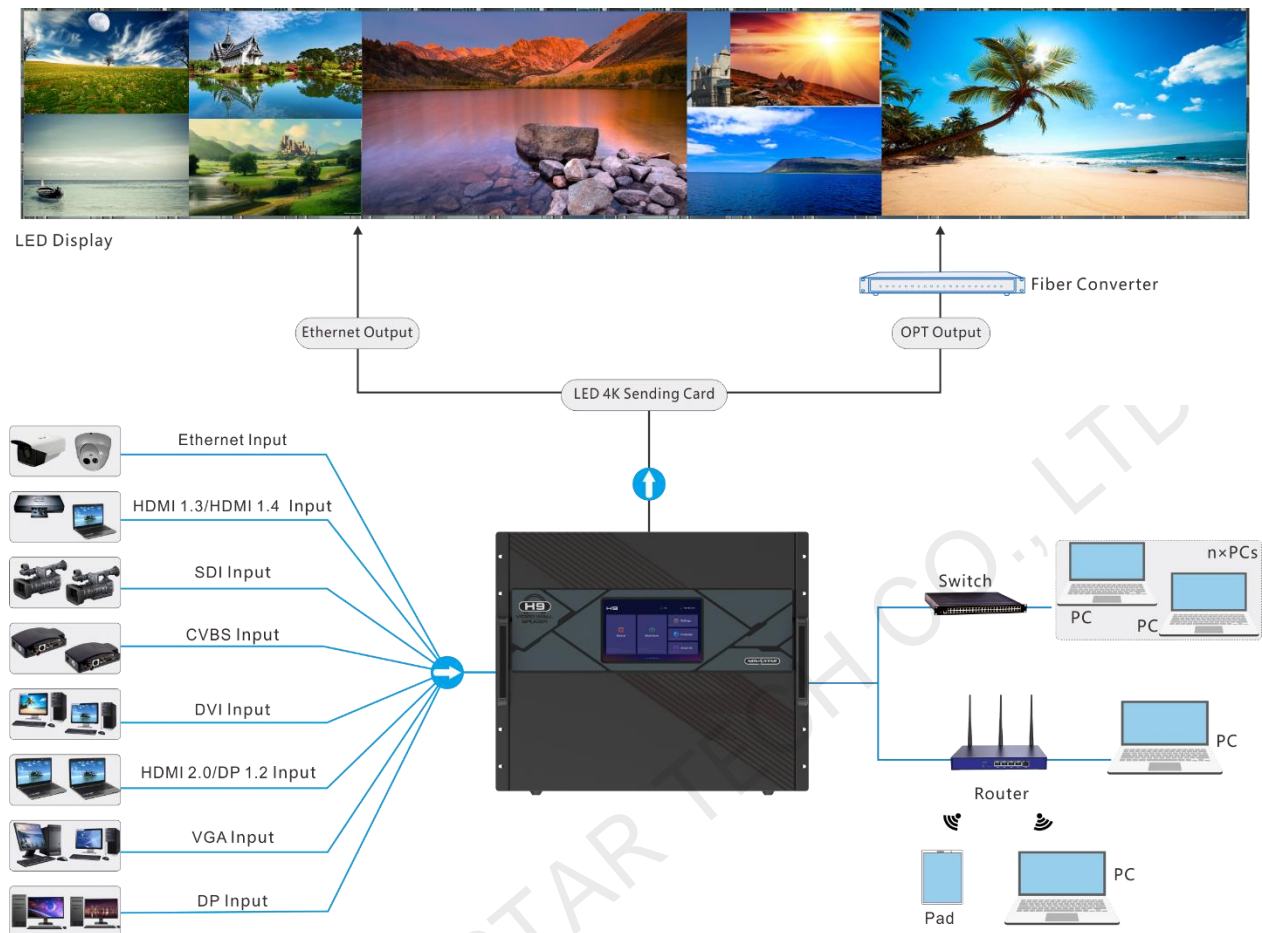
<p>H_2xCVBS+2xVGA input card</p>	 <p>2x VGA</p> <ul style="list-style-type: none"> <li>• Each connector supports the maximum resolution of 1920x1080@60Hz.</li> </ul> <p>2x CVBS</p> <ul style="list-style-type: none"> <li>• Supports PAL and NTSC.</li> </ul> <p>Status LEDs:</p> <ul style="list-style-type: none"> <li>• On: The input source is accessed normally.</li> <li>• Off: No input source is accessed or the input source is abnormal.</li> </ul>
<p>H_4xVGA input card</p>	 <p>4x VGA</p> <ul style="list-style-type: none"> <li>• Each connector supports the maximum resolution of 1920x1080@60Hz.</li> </ul> <p>Status LEDs:</p> <ul style="list-style-type: none"> <li>• On: The input source is accessed normally.</li> <li>• Off: No input source is accessed or the input source is abnormal.</li> </ul>
<p><b>Output Card</b></p>	
<p>H_16xRJ45+2xfiber sending card</p>	 <p>LED 4K sending card that can load up to 10,400,000 pixels (max. width: 10240 pixels, max. height: 10240 pixels)</p> <p>This card occupies two slots.</p> <ul style="list-style-type: none"> <li>• 16x RJ45 Gigabit Ethernet outputs             <ul style="list-style-type: none"> <li>- Bit depth: 8-bit A single Ethernet port loads up to 650,000 pixels.</li> <li>- Bit depth: 10-bit A single Ethernet port loads up to 320,000 pixels.</li> <li>- Backup between Ethernet ports</li> </ul> </li> <li>• 2x OPT outputs             <ul style="list-style-type: none"> <li>- Support both SMF and MMF transmission. In SMF mode, the maximum transmission distance reaches up to 10 km.</li> <li>- OPT 1 copies and outputs the data on Ethernet ports 1–8.</li> <li>- OPT 2 copies and outputs the data on Ethernet ports 9–16.</li> </ul> </li> </ul>
<p>H_2xRJ45+1xHDMI1.3 preview card</p>	 <ul style="list-style-type: none"> <li>• 2x RJ45 Gigabit Ethernet outputs Connect to the network for monitoring the inputs and outputs.</li> <li>• 1x HDMI 1.3 Connect to a monitor for displaying the monitoring information.</li> </ul>



H_Control Card	
GENLOCK	Supports Bi-Level and Tri-Level. <ul style="list-style-type: none"> <li>• IN: Accept the Genlock signal</li> <li>• LOOP: Loop the Genlock signal.</li> </ul>
ETHERNET	A Gigabit Ethernet port <ul style="list-style-type: none"> <li>• Connect to the control PC for communication.</li> <li>• Connect to the router, switch or PC.</li> <li>• For Web control and NovaLCT screen configuration</li> </ul>
USB 1 & USB 2	2x USB 2.0 <ul style="list-style-type: none"> <li>• Update the device program.</li> <li>• Import or export the device configuration parameters.</li> </ul>
COM	A serial port that adopts RS232 serial protocol Support for central control system <ul style="list-style-type: none"> <li>• IN: Accept the signal from the central control system.</li> <li>• OUT: Loop the signal.</li> </ul>
Power switch	<ul style="list-style-type: none"> <li>• – / <b>ON</b>: Power on the device.</li> <li>• <b>O</b> / <b>OFF</b>: Power off the device.</li> </ul>

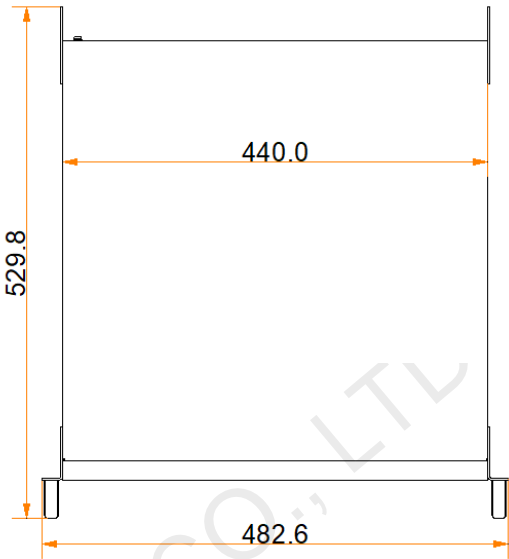
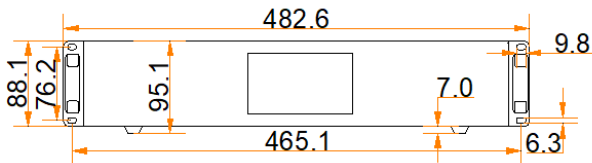
# Applications

Here is an example using the H9 to illustrate the applications.



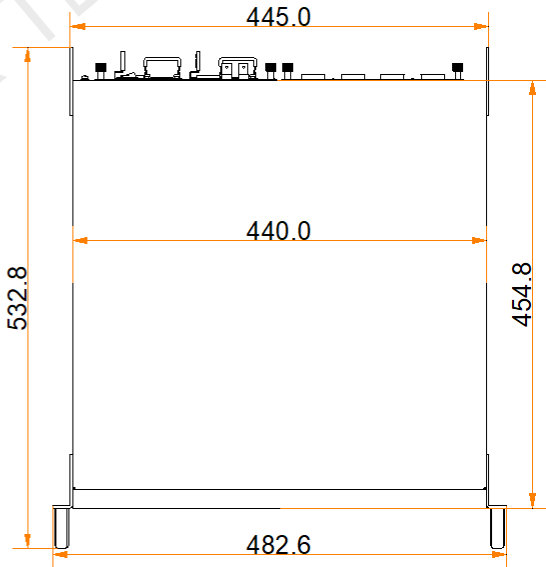
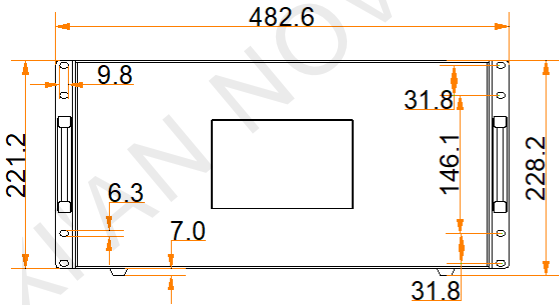
# Dimensions

## H2 Dimensions



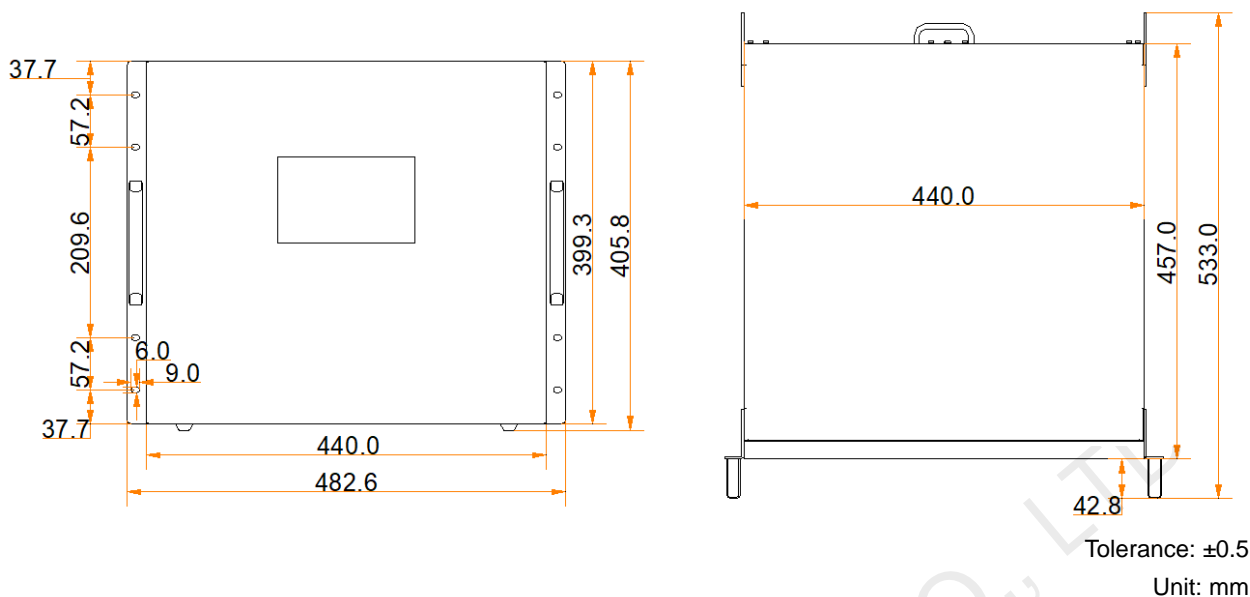
Tolerance:  $\pm 0.3$   
Unit: mm

## H5 Dimensions



Tolerance:  $\pm 0.5$   
Unit: mm

## H9 Dimensions



## Specifications

Model	H2	H5	H9	
Chassis	2U	5U	9U	
Max. Input Cards	4	10	15	
Max. Input Channels	16	40	60	
Max. Output Cards	2	3	5	
Max. Loading Capacity (LED 4K sending card)	20,800,000 pixels	31,200,000 pixels	52,000,000 pixels	
Electrical Specifications	Power connector	100–240V~, 50/60Hz, 10A–5A Note: <ul style="list-style-type: none"> <li>The H2 comes with a single power supply.</li> <li>The H5 and H9 come with a single power supply. A redundant power supply is optional.</li> </ul>		
	Power consumption	210 W	400 W	450 W
Operating Environment	Temperature	0°C to 45°C		
	Humidity	0% RH to 80% RH, non-condensing		
Storage Environment	Temperature	–10°C to +60°C		
	Humidity	0% RH to 95% RH, non-condensing		
Physical	Dimensions	482.6 mm × 88.1 mm	482.6 mm × 532.8 mm	482.6 mm × 533.0 mm

Model		H2	H5	H9
Specifications		x 455 mm	x 228.2 mm	x 405.8 mm
	Net weight	15.6 kg	25 kg	35 kg
	Gross weight	18 kg	28 kg	49 kg
Packing Information	Packing box	660 mm x 570 mm x 210 mm	780 mm x 615 mm x 345 mm	780 mm x 680 mm x 590 mm
	Accessories	1x Power cord 1x RJ45 Ethernet cable 1x Grounding cable 1x Quick Start Guide 1x Certificate of Approval 1x Safety Manual 1x Custom Letter		
Certifications		CCC		

## Video Source Features

Input Connector	Color Depth		Max. Input Resolution
HDMI 2.0	8-bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
		YCbCr 4:2:0	4096x2160@60Hz
	10-bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
		YCbCr 4:2:0	
	12-bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
		YCbCr 4:2:0	
DP 1.2	8-bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported

Input Connector	Color Depth		Max. Input Resolution
	10-bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
		YCbCr 4:2:0	Not supported
HDMI 1.4a	8-bit	RGB 4:4:4	4096x1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	10-bit	RGB 4:4:4	2048x1152@60Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	2048x1152@60Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
HDMI 1.3	8-bit	RGB 4:4:4	2048x1152@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	10-bit	RGB 4:4:4	2048x1152@60Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	2048x1152@60Hz
		YCbCr 4:4:4	4096x1080@60Hz


Input Connector	Color Depth		Max. Input Resolution
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
SL-DVI	8-bit	RGB 4:4:4	2048×1152@60Hz
DL-DVI	8-bit	RGB 4:4:4	3840×1080@60Hz
VGA CVBS	-	RGB 4:4:4	1920×1080@60Hz
3G-SDI	<ul style="list-style-type: none"> <li>• Supports up to 1920×1080@60Hz video inputs.</li> <li>• Input resolution and bit depth settings are not allowed.</li> <li>• Supports ST-424 (3G) and ST-292 (HD).</li> </ul>		

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