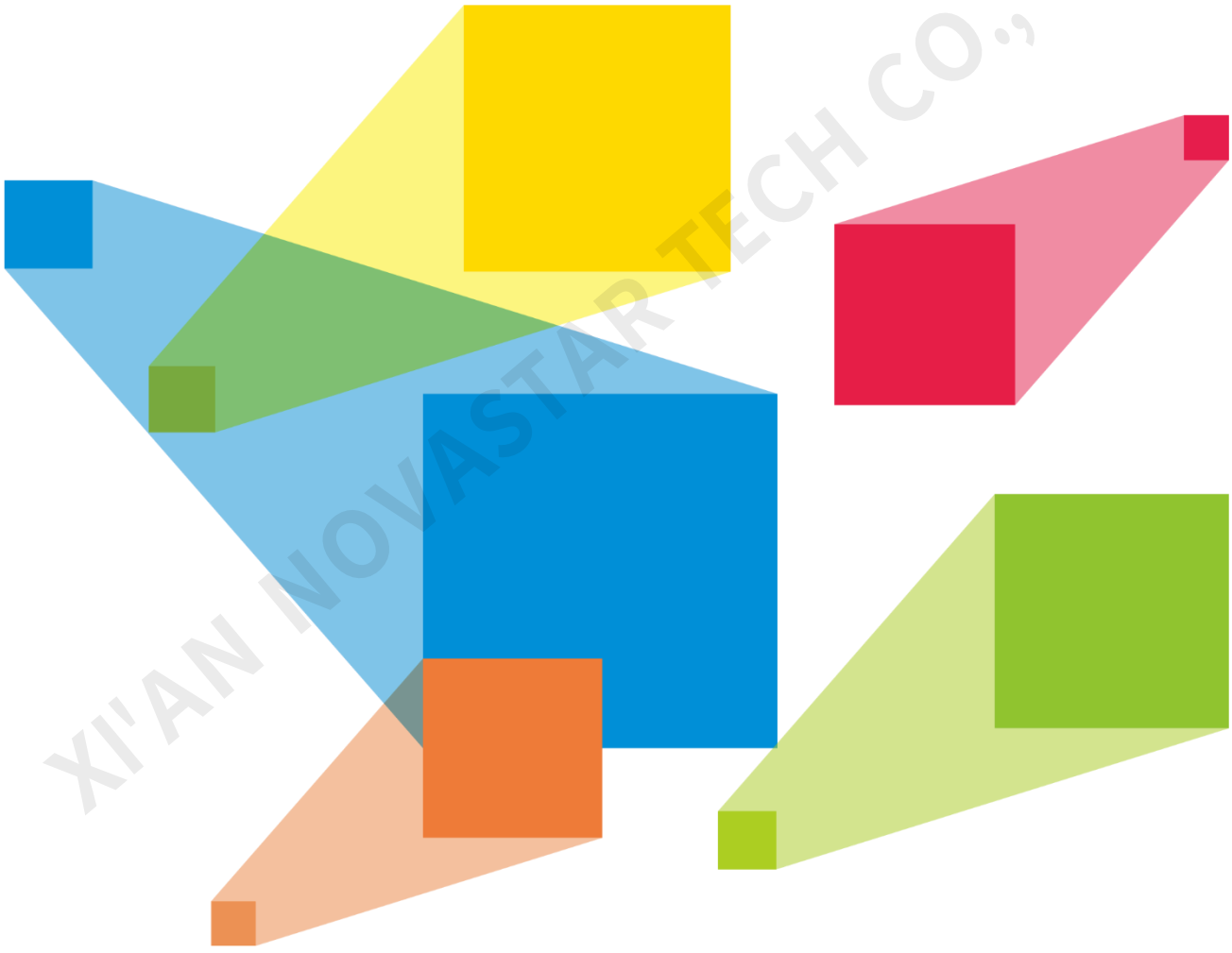
H15

Video Wall Splicer

V1.3.2



Specifications

Change History

Document Version	Release Date	Description
V1.3.2	2021-06-10	Added the description of ordering or purchasing the optical module for the H_16xRJ45+2xfiber sending card.
V1.3.1	2021-05-21	Update the power connector descriptions in Specifications.
V1.3.0	2021-04-30	• Added the descriptions for the following cards: – H_2xHDMI2.0 input card – H_1xHDMI2.0 input card • Added H15 enhanced version and its relevant features in Specifications.
V1.2.0	2021-03-31	• Added the descriptions for the H_1x12G SDI input card. • Added the descriptions for the following new features: – XR scenario control – Device backup and LED 4K sending card backup
V1.1.0	2020-01-29	Added one HDMI cable to the product accessories.
V1.0.0	2020-11-30	First release

Introduction

The H15 is NovaStar's newest generation of video wall splicer, featuring excellent image quality and designed especially for fine-pitch LED screens. The H15 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 H15 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 H15 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 H15 provides 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 H15 also provides two kinds of LED 4K sending cards, allowing for the backup between the OPT ports and Ethernet ports as well as ultra-long distance transmission. Moreover, the H15 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 H15 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 H15 supports online firmware update, allowing for easy hardware update on a PC.

Features

Modular and plug-in design, free combination at your will

- Two kinds of LED 4K sending cards
  - H_20xRJ45 sending card loads up to 13,000,000 pixels.
  - H_16xRJ45+2xfiber sending card loads up to 10,400,000 pixels and provides two OPT ports that copy the outputs on Ethernet ports.
- Multi-capacity configuration on a single card slot
  - 4x 2K×1K@60Hz
  - 2x 4K×1K@60Hz

  - 2x 4K×2K@60Hz
  - 1x 4K×2K@60Hz
- Simple screen configuration using a single card and connector
- Online status monitoring of all input and output cards

Multi-screen management for centralized control

- Each screen can have its output resolution.
- Output mosaic

  Adopts the frame synchronization technology, ensuring all the output connectors output the image synchronously. 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
- Eye saver mode

  Display the image in a warmer but less bright way to relieve eye strain.
- LCD bezel compensation

Diverse display possibilities for flexible configuration

- Multi-layer display
  - H15: A single card supports 16x 2K layers, 8x DL layers or 4x 4K layers.
  - H15 Enhanced: A single card supports 10x 2K layers, 5x DL layers or 2x 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
- XR scenario control
- 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
- Ark Visualized Management and Control Platform 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.
- Backup design
  - Backup between devices
  - Backup between LED 4K sending cards

Appearance

Front Panel

*The picture shown is for illustration purpose only. Actual product may vary due to product enhancement.

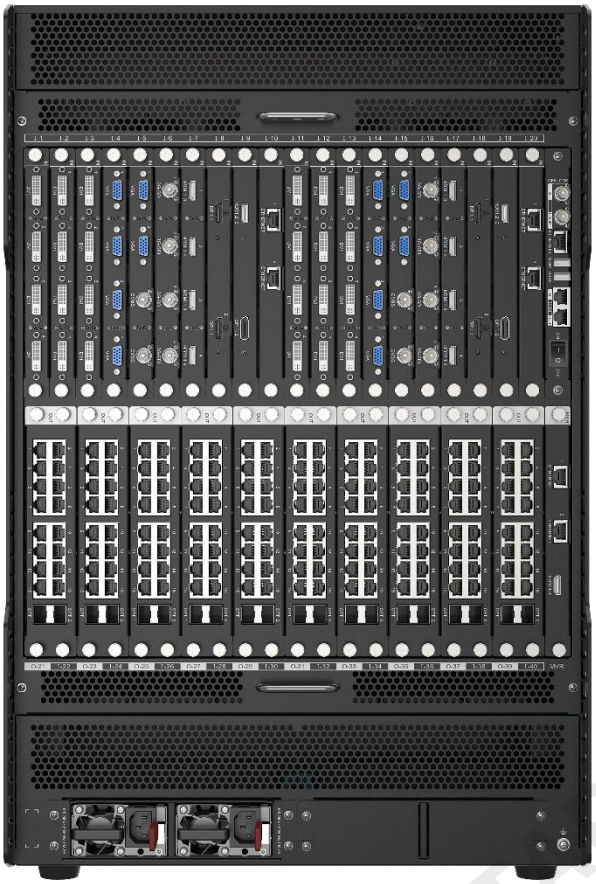
Notes:

- This product can only be placed horizontally. Do not mount vertically or upside-down.
- The product can be mounted in a standard 19-inch rack capable of withstanding at least four times the total weight of the mounted equipment. Twelve M5 screws should be used to fix the product.

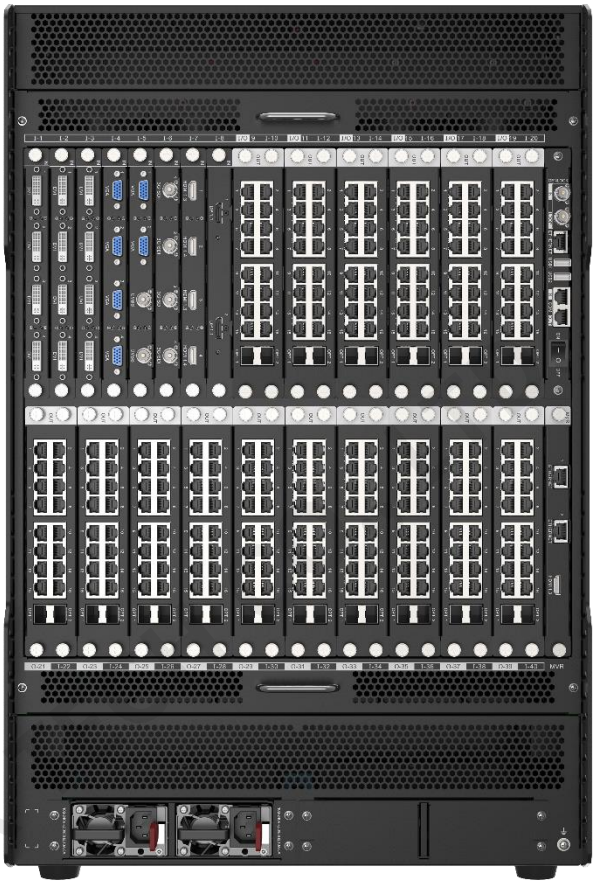
Name	Description
LCD screen	Touchscreen displays the menus, submenus and messages, device status and monitoring information, and allows you to perform all the operations at your fingertips.

Rear Panel

H15



H15 Enhanced



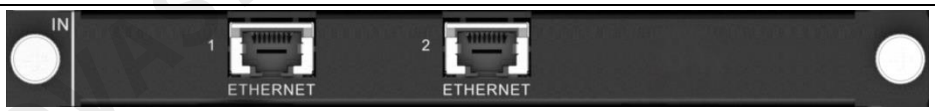
*The picture shown is for illustration purpose only. Actual product may vary due to product enhancement.

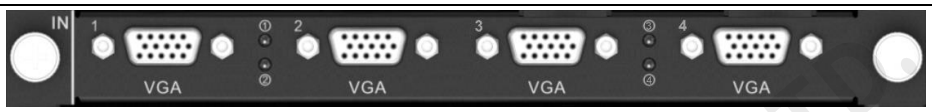
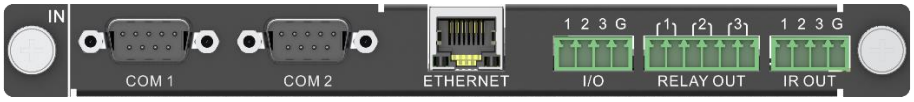
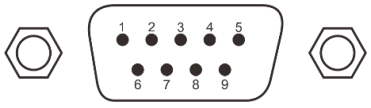
Notes:

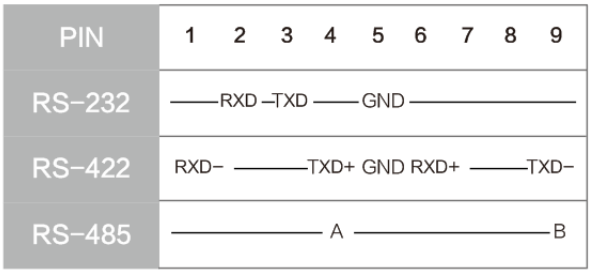
- The silkscreen marking "I-x" indicates the slot is dedicated for the input card. "I" stands for input and "x" stands for the slot number. For example, "I-1" indicates this slot is the 1st input slot and for installing an input card only.
- The silkscreen marking "O-x" indicates the slot is dedicated for the output card. "O" stands for output and "x" stands for the slot number. For example, "O-10" indicates this slot is the 10th output slot and for installing an output card only.
- The silkscreen marking "I/O-x" indicates the slot accepts both input and output cards.
- The silkscreen marking "MVR" indicates the slot is dedicated for the preview card only.

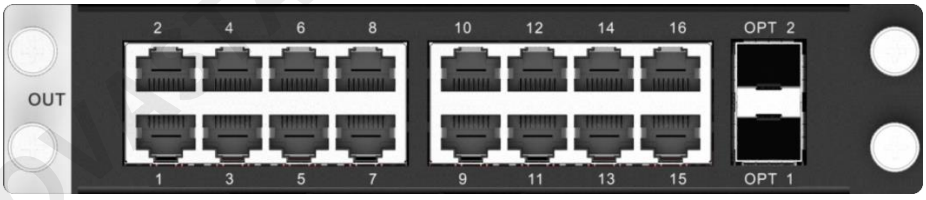
Input Card	
H_4xDVI input card	 Support for single link and dual link input modes, and 10-bit input source HDCP 1.4 compliant Does not support interlaced signal input. • Single link mode: – Four DVI connectors are all used for input. – Each connector supports the maximum resolution of 2048×1152@60Hz and the minimum resolution of 800×600@60Hz. – Custom resolutions:

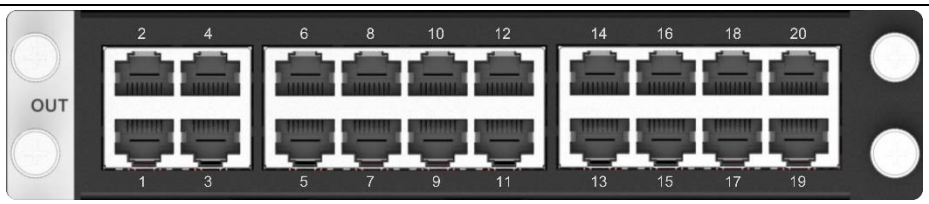
	Max. width: 2560 pixels (2560×972@60Hz) Max. height: 2560 pixels (884×2560@60Hz) • Dual link mode: – Connectors 2 and 4 are used for input, and connectors 1 and 3 are unavailable. – Each connector supports the maximum resolution of 3840×1080@60Hz and the minimum resolution of 800×600@60Hz. – Custom resolutions: Max. width: 3840 pixels (3840×1124@60Hz) Max. height: 4095 pixels (1014×4095@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. For HDMI 1.3 inputs: • 2x HDMI 1.3 – Each connector supports the maximum resolution of 2048×1152@60Hz and the minimum resolution of 800×600@60Hz. – Custom resolutions: Max. width: 2560 pixels (2560×972@60Hz) Max. height: 2560 pixels (884×2560@60Hz) – HDCP 1.4 compliant • 2x HDMI 1.4 – Each connector supports the maximum resolution of 2048×1152@60Hz and the minimum resolution of 800×600@60Hz. – Custom resolutions: Max. width: 2560 pixels (2560×972@60Hz) Max. height: 2560 pixels (884×2560@60Hz) – HDCP 1.4 compliant For HDMI 1.4 inputs: • Two HDMI 1.4 connectors are used for input, but two HDMI 1.3 connectors are unavailable. • Each connector supports the maximum resolution of 3840×1080@60Hz. • Custom resolutions: • Max. width: 3840 pixels (3840×1124@60Hz) • Max. height: 4095 pixels (1014×4095@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.

H_1xHDMI2.0+1xDP1.2 input card	 **Only one connector can be used each time**. Set to use which connector on the Web page. The default option is HDMI 2.0 connector. Does not support interlaced signal input. • 1x HDMI 2.0 – Backward compatible with HDMI 1.4 and HDMI 1.3 – Supports the maximum resolution of 4096×2160@60Hz or 8192×1080@60Hz (forced). – HDCP 2.2 compliant – Custom resolutions: Max. width: 4092 pixels (4092×2261@60Hz) Max. height: 4095 pixels (2188×4095@60Hz) • 1x DP 1.2 – Backward compatible with DP 1.1 – Supports the maximum resolution of 4096×2160@60Hz or 8192×1080@60Hz. – HDCP 2.2 compliant – Custom resolutions: Max. width: 8192 pixels (8192×1146@60Hz) Max. height: 4095 pixels (2188×4095@60Hz) Status LEDs: • On: The input source is accessed normally. • Off: No input source is accessed or the input source is abnormal.
H_2xRJ45 IP input card	 2x RJ45 Gigabit Ethernet ports Support for interlaced signal input • Supported protocols: RTSP, GB28181 and ONVIF • Supported coding formats: H.264 and H.265 • Single card decoding capability: – 4x 3840×2160@30fps – 16x 1920×1080@30fps • DHCP compliant
H_4x3G SDI input card	 4x 3G-SDI • Backward compatible with HD-SDI and SD-SDI • Supports ST-424 (3G), ST-292 (HD) and SMPTE 259 SD. • Each connector supports the maximum resolution of 1920×1080@60Hz. • Supports 1080i/576i/480i de-interlacing processing. • Does not support input resolution and bit depth settings. Status LEDs: • On: The input source is accessed normally.

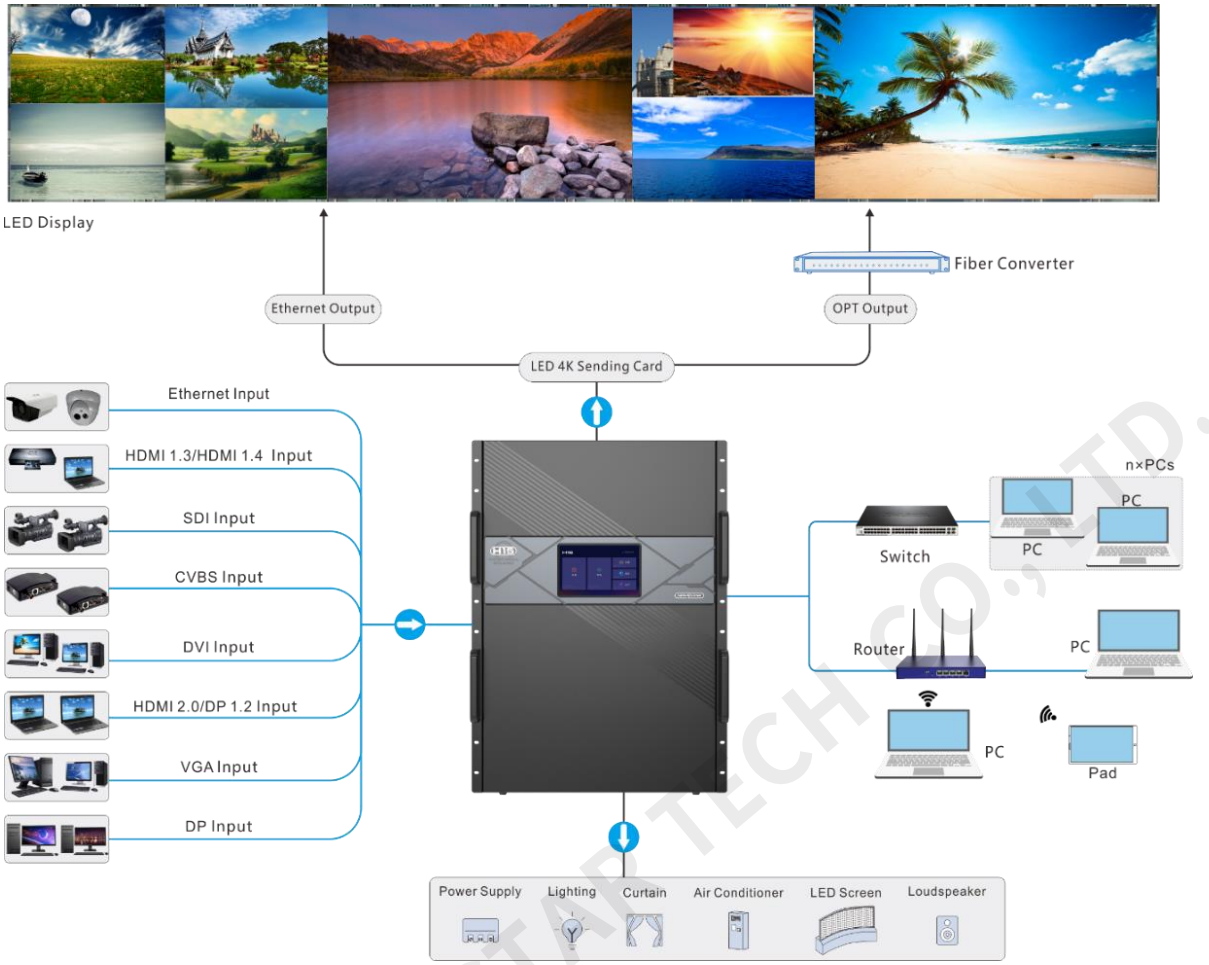
	• Off: No input source is accessed or the input source is abnormal.
H_2xCVBS+2xVGA input card	 2x VGA • Each connector supports the maximum resolution of 1920×1080@60Hz. 2x CVBS • Supports PAL and NTSC. Status LEDs: • On: The input source is accessed normally. • Off: No input source is accessed or the input source is abnormal.
H_4xVGA input card	 4x VGA • Each connector supports the maximum resolution of 1920×1200@60Hz. Status LEDs: • On: The input source is accessed normally. • Off: No input source is accessed or the input source is abnormal.
H_2xDP1.1 input card	 2x DP1.1 • Each connector supports the maximum resolution of 3840×1080@60Hz or 3840×2160@30Hz. • Custom resolutions: – Max. width: 3840 pixels (3840×1124@60Hz) – Max. height: 4095 pixels (1014×4095@60Hz) • Supports 8-bit and 10-bit inputs. • HDCP 1.3 compliant • Does not support interlaced signal input. Status LEDs: • On: The input source is accessed normally. • Off: No input source is accessed or the input source is abnormal.
H_STD I/O card	 • 2x COM Programmable RS422/RS485/RS232 ports that are used to control the devices that adopt RS422/RS485/RS232 protocol – COM port pins are shown as below:  – Pin wirings are shown as below:

	 • 1x ETHERNET – Control the device connected to this card. – 10/100Mbps self-adaptive – TCP/IP protocol and UDP/IP protocol supported • 3x I/O – Trigger the execution of the function requirements via programming. – Input and output modes supported – Pins 1, 2 and 3 can be set to either the input or output, and pin G is the common grounding pin for pins 1, 2 and 3. • 3x RELAY OUT – Connect to the relay to control the power on and off the connected device. – Voltage: 30 VDC, current: 3A at maximum – Six pins are divided into three groups, which can be connected or disconnected via programming. • 3x IR OUT – Programmable infrared control supported – Pins 1, 2 and 3 are used for infrared emission, and pin G is the common grounding pin for pins 1, 2 and 3.
H_1x12G SDI input card	 • 1x 12G-SDI IN – Backward compatible with 6G-SDI, 3G-SDI, HD-SDI and SD-SDI – Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G), ST-292 (HD) and SMPTE 259 SD. – Each connector supports the maximum resolution of 4096×2160@60Hz. – Supports 1080i/576i/480i de-interlacing processing. – Does not support input resolution and bit depth settings. • 1x 12G-SDI LOOP Loop out the 12G-SDI signal. • Status LEDs: – On: The input or loop output is connected normally. – Off: No input or loop output is connected or the input or loop output is abnormal.
H_2xHDMI2.0 input card	 **This card can be installed into the slots from I-1 to I-8 only.** 2x HDMI 2.0 • Backward compatible with HDMI 1.4 and HDMI 1.3 • Each connector supports the maximum resolution of 4096×2160@60Hz or 8192×1080@60Hz (forced).

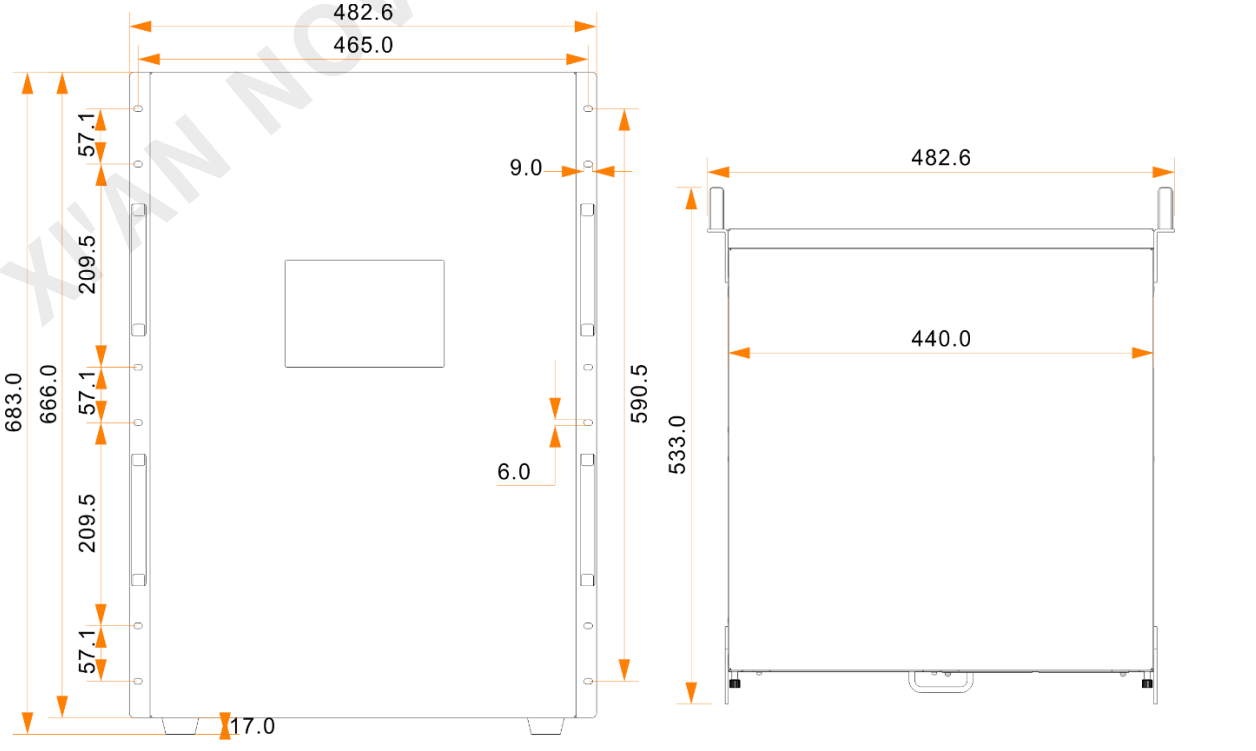
	• Two 4K inputs can be connected at the same time. • HDCP 2.2 compliant • Custom resolutions: – Max. width: 4092 pixels (4092×2261@60Hz) – Max. height: 4095 pixels (2188×4095@60Hz) • Status LEDs: – On: The input source is accessed normally. – Off: No input source is accessed or the input source is abnormal.
H_1xHDMI2.0 input card	 1x HDMI 2.0 • Backward compatible with HDMI 1.4 and HDMI 1.3 • Each connector supports the maximum resolution of 4096×2160@60Hz or 8192×1080@60Hz (forced). • HDCP 2.2 compliant • Custom resolutions: – Max. width: 4092 pixels (4092×2261@60Hz) – Max. height: 4095 pixels (2188×4095@60Hz) • Status LEDs: – On: The input source is accessed normally. – Off: No input source is accessed or the input source is abnormal.
Output Card	
H_16xRJ45+2xfiber sending card	 LED 4K sending card can load up to 10,400,000 pixels (max. width: 10,240 pixels, max. height: 10,240 pixels). This card occupies two slots. • 16x RJ45 Gigabit Ethernet outputs – Bit depth: 8-bit A single Ethernet port loads up to 650,000 pixels. – Bit depth: 10-bit A single Ethernet port loads up to 320,000 pixels. – Backup between Ethernet ports • 2x OPT outputs – Support both SMF and MMF transmission. – OPT 1 copies and outputs the data on Ethernet ports 1–8. – OPT 2 copies and outputs the data on Ethernet ports 9–16. **Note:** For the optical module connected to the OPT port, you need to order or purchase separately.

H_20xRJ45 sending card	 LED 4K sending card can load up to 13,000,000 pixels (max. width: 10,752 pixels, max. height: 10,752 pixels). This card occupies two slots. • 20x RJ45 Gigabit Ethernet outputs – Bit depth: 8-bit A single Ethernet port loads up to 650,000 pixels. – Bit depth: 10-bit A single Ethernet port loads up to 320,000 pixels. • Backup between Ethernet ports
H_2xRJ45+1xHDMI 1.3 preview card	 • 2x RJ45 Gigabit Ethernet outputs Connect to the network for monitoring the inputs and outputs. • 1x HDMI 1.3 Connect to a monitor for displaying the monitoring information. Note: The monitoring of the first output card on the H15 enhanced version is unavailable.
H_Control Card	
	
GENLOCK	Supports bi-level and tri-level. • IN: Accept the Genlock signal • LOOP: Loop the Genlock signal.
ETHERNET	A Gigabit Ethernet port • Connect to the control PC for communication. • Connect to the router, switch or PC. • For Web control and NovaLCT screen configuration
USB 1 & USB 2	2x USB 2.0 • Update the device program. • Import or export the device configuration parameters.
COM	A serial port that adopts RS232 serial protocol Support for central control system • IN: Accept the signal from the central control system. • OUT: Loop the signal.
Power switch	• **–** / **ON**: Power on the device. • **O** / **OFF**: Power off the device.

Applications



Dimensions



Tolerance: ±0.5 Unit: mm

Specifications

Model		H15	
Chassis		H15	H15 Enhanced
Rack Unit		15U	
Max. Input Cards		30	
Max. Input Channels		120	
Max. Output Cards		10	16
Max. Layers		160 (Up to 16 layers per card)	160 (Up to 10 layers per card)
Max. Loading Capacity (LED 4K sending card)		130,000,000 pixels	208,000,000 pixels
Electrical Specifications	**Power connector**	100–240V~, 50/60Hz, 10A–5A Notes: • The H15 comes with dual power supplies. Connect both power connectors when you use the device. • Two redundant power supplies are optional.	
	Power consumption	900 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 Specifications	**Dimensions**	482.6 mm × 683.0 mm × 533.0 mm	
	Net weight	61.8 kg	
	Gross weight	75.5 kg	
Packing Information	**Packing box**	775 mm × 675 mm × 845 mm	
	Accessories	2x Power cords 1x RJ45 Ethernet cable 1x Grounding cable 1x HDMI cable 1x Quick Start Guide 1x Certificate of Approval 1x Safety Manual 1x Custom Letter	
Certifications		TBD Note: If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please apply for the certifications yourself or contact NovaStar to apply for them.	

Video Source Features

Input Connector	Color Depth		Max. Input Resolution
HDMI 2.0	8-bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	4096×2160@60Hz
	10-bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×2160@60Hz
		YCbCr 4:2:0	
	12-bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×2160@60Hz
		YCbCr 4:2:0	
DP 1.2	8-bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	10-bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×2160@60Hz
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×2160@60Hz
		YCbCr 4:2:0	Not supported
HDMI 1.4 DP 1.1	8-bit	RGB 4:4:4	4096×1080@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	10-bit	RGB 4:4:4	2048×1152@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×1080@60Hz
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	2048×1152@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	4096×1080@60Hz
		YCbCr 4:2:0	Not supported
HDMI 1.3	8-bit	RGB 4:4:4	2048×1152@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported

Input Connector	Color Depth		Max. Input Resolution
	10-bit	RGB 4:4:4	2048×1152@60Hz
		YCbCr 4:4:4	
		YCbCr 4:2:2	
		YCbCr 4:2:0	Not supported
	12-bit	RGB 4:4:4	2048×1152@60Hz
		YCbCr 4:4:4	
		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	• Supports up to 1920×1080@60Hz video inputs. • Input resolution and bit depth settings are not allowed. • Supports ST-424 (3G) and ST-292 (HD).		
12G-SDI	• Supports up to 4096×2160@60Hz video inputs. • Input resolution and bit depth settings are not allowed. • Supports ST-2082-1 (12G), ST-2081-1 (6G), ST-424 (3G) and ST-292 (HD).		

Trademark

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Statement

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