VX2000 Pro

All-in-One Controller
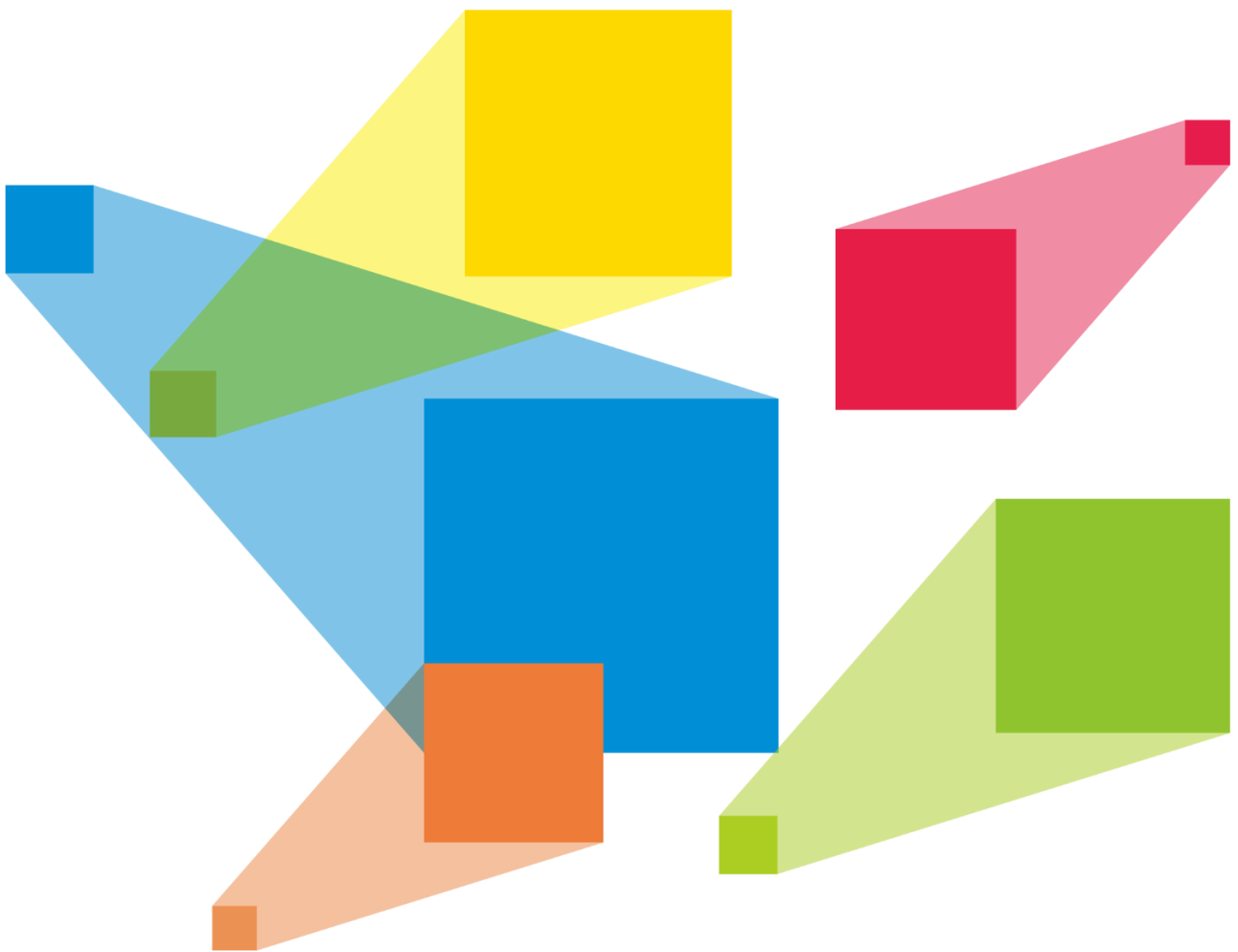
Specifications

Change History

Document Version	Release Date	Description
V1.0.0	2024-05-20	First release

Introduction

The VX2000 Pro is an all-in-one controller combining video processing and video control functionalities into a single device. Equipped with 20 Ethernet ports, it supports three working modes: video controller, fiber converter, and ByPass. Capable of managing up to 13 million pixels, the VX2000 Pro can output at a maximum width of 16,384 pixels and a height of 8,192 pixels, making it perfectly suited for controlling exceptionally wide and tall LED screens on-site.

The VX2000 Pro boasts powerful video signal reception and processing capabilities, supporting a maximum resolution of 4K×2K@60Hz for video input. It can handle multiple video signal inputs and includes features like 12 layers, output scaling, low latency, 3D, and pixel-level brightness and chroma calibration. These functions combine to deliver outstanding image display quality.

With various control options available, the VX2000 Pro can be operated via the front panel knob, NovaLCT, Unico, VICP app, as well as remote control menu, providing you with a convenient and effortless control experience.

The VX2000 Pro is housed in an industrial-grade casing, which, combined with its powerful video processing and transmission capabilities, makes it robust and well-suited for complex operational environments. The VX2000 Pro is a perfect fit for medium and high-end rental, stage control systems and fine-pitch LED screens.

Features

Multiple connectors, free input and output

- A comprehensive range of input connectors
    - 1x DP 1.2
    - 1x HDMI 2.0 (IN & LOOP)
    - 4x HDMI 1.3
    - 1x 3G-SDI (IN & LOOP)
    - 2x 10G optical fiber port (OPT 1/2)
    - 1x USB 3.0
    - 1x Genlock (IN & LOOP)
- Output connectors
    - 20x Gigabit Ethernet ports

A single device supports up to 13 million pixels, delivering a maximum width of 16,384 pixels and a maximum height of 8192 pixels.

- 2x Fiber outputs

  Each optical port supports the transmission of data from 10 Ethernet ports.

- 1x HDMI 1.3

  For monitoring display. The output resolution is fixed at 1920×1080@60Hz.

- 1x 3D connector

  Directly connect a third-party 3D emitter.

- Self-adaptive OPT 1/2 for either video input or sending card output

  Thanks to the self-adaptive design, OPT 1/2 can be used as either an input or output connector, depending on its connected device.

- HDMI mosaic

  An input source can be made up of at most 4 HDMI input sources.

- Fiber input mosaic

  The input source connected through OPT 1/2 can be used either independently or combined to create a mosaic input source.

- Audio input and output

  - Audio input accompanied with HDMI and DP sources

  - 3.5 mm independent audio input and output

  - Adjustable output volume

- Image mosaic

  Up to 4x VX2000 Pro can be connected through cascading.

- Free layout

  The maximum resolution of the rectangles loaded by the VX2000 Pro is up to 13 million pixels.

  When calculating the load capacity, blank spaces that are not loaded by receiving cards are not taken into account, ensuring the optimal utilization of network port bandwidth.

  *Please contact our technical support staff for the list of receiving card models that support this function.

- Low latency output

  By enabling the low latency feature and ByPass mode, the delay from the input source to the receiving card can be reduced to less than 1ms.

- Output synchronization

  An internal input source or external Genlock can be used as the sync source to ensure the output images of all cascaded units in sync.

- EDID management

  Import and export EDID files.

- Remote control menu

  You can use the remote control menu to adjust screen brightness, volume, preset settings, USB playback, and output image quality.

Diverse display possibilities for flexible configuration

- Easy preset saving and loading

  - Up to 256 user-defined presets supported

  - Load a preset by simply pressing one button.

  - Save, overwrite and delete a preset.

  - Preview the layer layout saved in the preset.

  - Synchronize presets to Unico.

- Multiple layer display

  - Supports 12x SL layer resources.

    Users can create layers in three different specifications - 4K, DL, and SL. These layers will use 4, 2, and 1 layer resources respectively, depending on the capacity of the input source connector used to open the layers.

  - Adjustable layer size and position

  - Adjustable layer priority

  - Adjustable aspect ratio

- OSD settings

  - Supports one OSD display.

  - Up to 6 OSD can be imported and saved.

  - Supported OSD type: text OSD, image OSD, digital clock OSD, weather OSD and table OSD

- BKG settings

  Supported BKG type: pure color or image

- 3D function

  - Connect the EMT200 3D emitter to the device's Ethernet port, and use the compatible 3D glasses to enjoy a 3D visual experience.

  - Connect the third-party 3D emitter to the device 3D connector and use the compatible 3D glasses to enjoy a 3D visual experience

  Note: Enabling 3D function will halve the device output capacity.

- Personalized image scaling

  Supports three kinds of image scaling modes, including full screen, pixel to pixel and custom.

- Powerful video processing

  - Based on SuperView III image quality processing technologies to provide stepless output scaling.

  - One-click full screen display

- Free input cropping

- Color adjustment

  Supports output color management, including brightness, saturation, contrast and hue.

- Pixel level brightness and chroma calibration

  Work with NovaLCT and NovaStar calibration software to support brightness and chroma calibration on each LED, which can effectively remove color discrepancies and greatly improve LED display brightness and chroma consistency, allowing for better image quality. The function of displaying image on screen for test is also supported.

USB playback, timesaving and effortless

- Supports USB playback for instant plug-and-play convenience.

Multiple device modes and operation modes, convenient and efficient

- Three working modes

  - Video Controller

  - Fiber Converter

  - Bypass

- Multiple control options

  - Device front panel knob

  - NovaLCT

  - Unico

  - VICP

  - Remote Control menu

Data saving after power failure and backup design, stable and reliable

- End-to-End backup

  - Backup between devices

  - Backup between input sources

  - Backup between Ethernet ports

  - Backup between optical fiber ports

- Ethernet port backup test

  Test whether the pre-stored images, backup Ethernet ports and devices take effect without plugging and unplugging the Ethernet cables.

- Device recovery

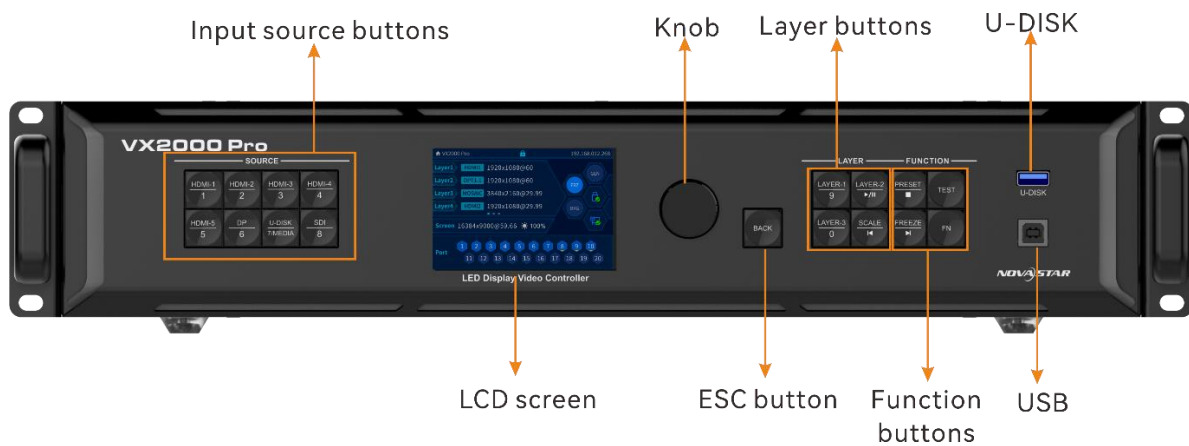 You can restore the device to a previous restore point in case of a misoperation.

  - Add, delete and change the restore point.

      −   Up to 5 restore points can be created.

- Data saving after power-off

  After a normal shutdown or unexpected power outage, reconnecting the power will automatically restore the previously saved settings on the device.

Appearance

Front Panel

| Area	Function
Input source buttons	- Show the input source status and switch the layer input source. - Status LEDs: - On (blue): An input source is accessed. - Flashing (blue): The input source is not accessed but used by the layer. - On (white): The input source is not accessed or the input source is abnormal. - U-DISK: USB playback button Hold down the button to enter the media playback control screen, while press the button to switch the layer input source. **Note:** On the home screen, when layer 1 is opened, you can press the input source button to quickly switch the input source for layer 1.
LCD screen	Display the device status, menus, submenus and messages.
Knob	- Rotate the knob to select a menu item or adjust the parameter value. - Press the knob to confirm the setting or operation.
ESC button	Exit the current menu or cancel the operation.

Area	Function

Layer buttons	• Open or close a layer, and show the layer status.
	
	   – On (blue): The layer is opened.
	
	   – Flashing (blue): The layer is being edited.
	
	   – On (white): The layer is closed.
	
	• When you play the media files saved in the USB drive, this button is used to control the playback.
	
	   – LAYER-2: This button is used to play or pause the files.

	• SCALE: A shortcut button for the full screen function. Press the button to make the layer of the lowest priority fill the entire screen.
	
	   – On (blue): Full screen scaling is turned on.
	
	   – On (white): Full screen scaling is turned off.
	
	• When you play the media files saved in the USB drive, this button is used to play the previous file.

Function buttons	• PRESET: Access the preset settings menu. When you play the media files saved in the USB drive, this button is used to stop the playback. • TEST: Access the test pattern menu. • Freeze: Freeze the output image. When you play the media files saved in the USB drive, this button is used to play the next file. • FN: A custom function button
USB	• Connect to the PC installed with NovaLCT for device control. • Update the firmware via the USB drive. • Import or export BKG files.

U-DISK	1x USB 3.0
	
	• Supports USB playback.
	
	   – File system: NTFS, FAT32 and exFAT
	
	   – Picture format: jpg, jpeg, png and bmp
	
	   – Picture resolution: SL, DL and 4K
	
	   – Video format: mp4
	
	   – Video coding: H.264 and H.265
	
	   – Max. video frame rate: 60fps
	
	   – Decoded video resolution: SL, DL and 4K
	
	   – Audio coding: MPEG1/2 Layer I, MPEG1/2 Layer II, MPEG1/2 Layer III, AAC-LC, VORBIS, PCM and FLAC
	
	   – Transition effect of image switching: Ripple, zoom in, push, flip, blinds, left to right wipe, top to bottom wipe, cube rotation, dissolve, grid, swapping, scroll,

Area	Function
	fade in/out, rotation and distortion, heart-shaped transition, curtains, perspective triangle, disappear, bounce, star rotation
	• Update the firmware via the USB drive.
	• Import or export device logs.

Note:

Hold down the knob and **ESC** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

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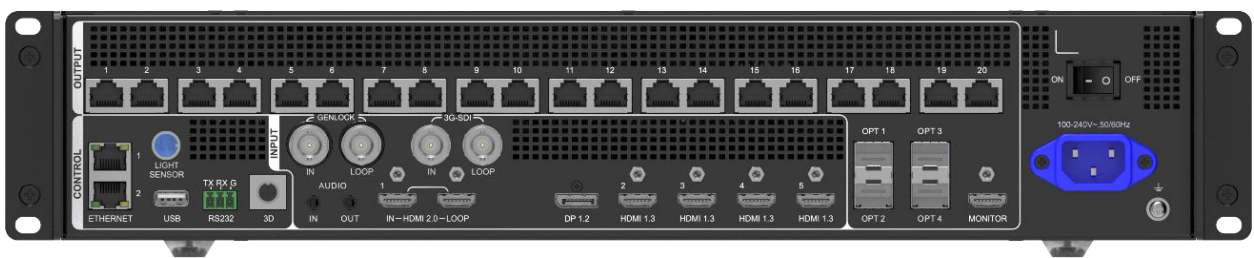
*The picture shown is for illustration purpose only. Actual product may vary due to product enhancement.

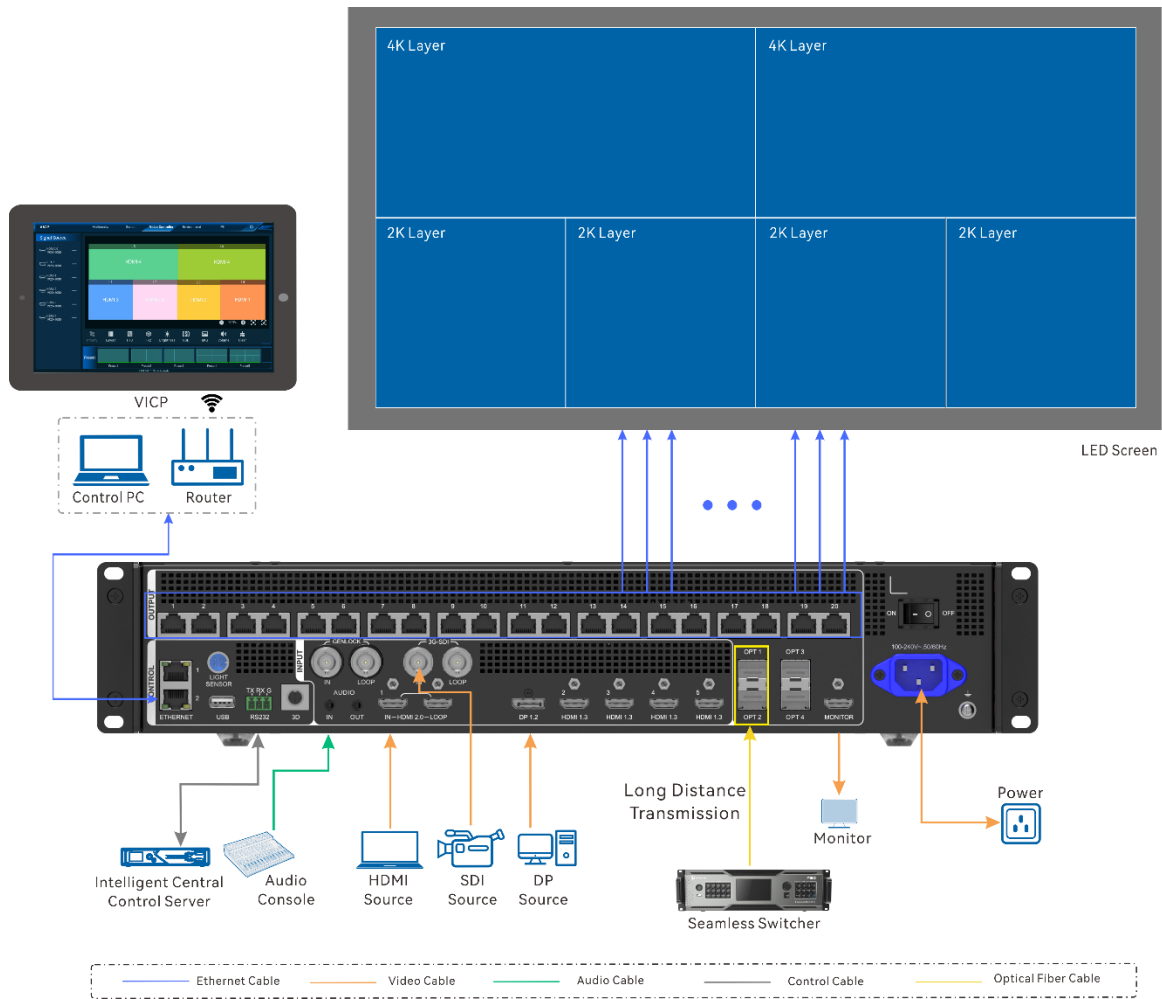| Input Connectors		
Connector	**Qty**	**Description**
DP 1.2	1	1x DP 1.2 • Max. input resolution: 4K×2K@60Hz • Supported frame rate: 23.98/24/25/29.97/30/47.95/48/50/56/59.94/60/70/71.93/72/75/85/100/119.88/120/144 Hz • Custom resolutions supported – Max. width: 8192 pixels (8192×1080@60Hz) – Max. height: 8188 pixels (1080×8188@60Hz) • Supports 8-bit/10-bit/12-bit video inputs. • Supported color space/sampling rate: RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2 • HDCP 1.3 supported • Accompanied audio supported • Does not support interlaced signal inputs.
HDMI 2.0	1	1x HDMI 2.0 (IN & LOOP) • Max. input resolution: 4K×2K@60Hz • Supported frame rate:

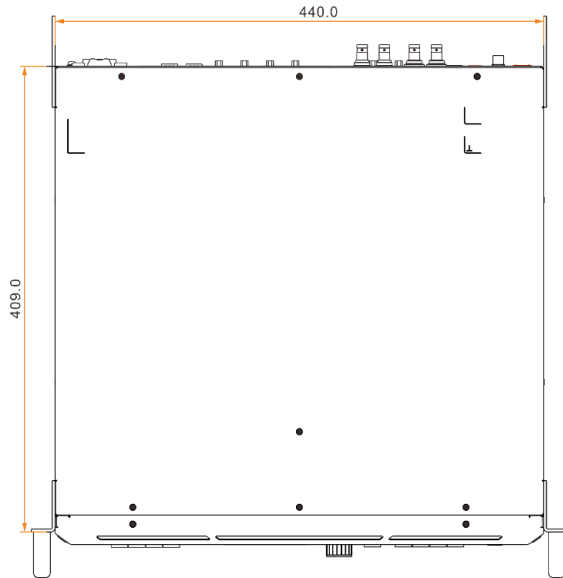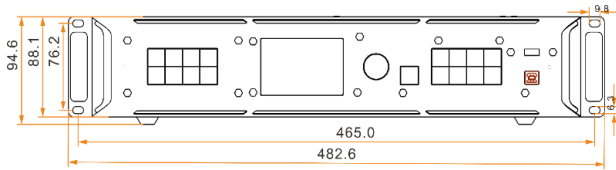|		
		23.98/24/25/29.97/30/47.95/48/50/56/59.94/60/70/71.93/72/75/85/100/119.88/ 120/144 Hz
		• Loop output supported on HDMI 2.0
		• Custom resolutions supported
		− Max. width: 8192 pixels (8192×1080@60Hz)
		− Max. height: 8188 pixels (1080×8188@60Hz)
		• Supports 8-bit/10-bit/12-bit video inputs.
		• Supported color space/sampling rate: RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2
		• HDCP 1.4 and HDCP 2.2 supported
		• Accompanied audio supported
		• Does not support interlaced signal inputs.
HDMI 1.3	4	4x HDMI 1.3
		• Max. input resolution: 2K×1K@60Hz
		• Supported frame rate: 23.98/24/25/29.97/30/47.95/48/50/56/59.94/60/70/71.93/72/75/85/100/119.88/ 120 Hz
		• Custom resolutions supported
		− Max. width: 2048 pixels (2048×1080@60Hz)
		− Max. height: 2048 pixels (1080×2048@60Hz)
		• Supports 8-bit/10-bit video inputs.
		• Supported color space/sampling rate: RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2
		• HDCP 1.4 supported
		• Accompanied audio supported
		• Does not support interlaced signal inputs.
3G-SDI	1	1x 3G-SDI
		• ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs supported
		• 3G-SDI loop output supported
		• SMPTE 259M, SMPTE 274M, SMPTE 296M, SMPTE 425M-A and SMPTE 425M-B protocols supported
		• Max. input resolution: 1920×1080@60Hz
		• Deinterlacing processing supported
		• Does not support input resolution settings.
GENLOCK	1	Connect to an external sync signal.
		Accepts bi-level and tri-level signals.
		• IN: Accept the sync signal.

		• LOOP: Loop the sync signal.

Output Connectors

Connector	Qty	Description
Ethernet ports	20	20x Gigabit Ethernet ports • Max. loading capacity: 13 million pixels • Max. width: 16,384 pixels, max. height: 8192 pixels • A single port loading capacity: 650,000 pixels (input bit depth: 8bit) • Supported frame rate: 23.98/24/25/29.97/30/47/48/50/59.94/60/71.93/72/75/85/95/100/119.88/120/144 Hz
HDMI 1.3	1	For monitoring display • Output resolution: 1920×1080@60Hz (fixed) • Supports two output scaling modes: full screen and keep aspect ratio.

OPT	4	4x 10G optical fiber ports
		
		• The function of the optical fiber port is different depending on the device working mode.
		
		  – OPT 1/2: Self-adaptive, either for video input or for output
		
		  – OPT 3/4: For output
		
		    OPT 3 sends the output on Ethernet ports 1~10.
		
		    OPT 4 sends the output on Ethernet ports 11~20.
		
		• Supports the following three modes:
		
		  – Input+send: OPT 1/2 for video input, while OPT 3/4 copies or backs up the output on Ethernet ports
		
		  – Input+loop+send: OPT 1 for video input, OPT 2 for loop output, while OPT 3/4 copies or backs up the output on Ethernet ports
		
		  – Send: OPT 1/2 sends the output on Ethernet ports, while OPT 3/4 copies or backs up the output on Ethernet ports.

3D	1	1x 3D connector Connect the 3D emitter and use the compatible 3D glasses to enjoy a 3D visual experience. **Note:** Enabling 3D function will halve the device output capacity.

Audio Connectors

Connector	Qty	Description
AUDIO	2	1x AUDIO input, 1×AUDIO output • 3.5 mm standard audio input and output connectors • Audio sampling rate up to 48 kHz

Control Connectors		
Connector	**Qty**	**Description**

ETHERNET	2	• Connect to the PC installed with Unico for device control.
		
		• Input or output connector for device cascading
		
		Status LEDs:
		
		• The top left one indicates the connection status.
		
		    – On: The port is properly connected.
		
		    – Flashing: The port is not properly connected, such as loose connection.
		
		    – Off: The port is not connected.
		
		• The top right one indicates the communication status.
		
		    – On: No data communication.
		
		    – Flashing: The communication is good and data is being transmitted.
		
		    – No data transmission

LIGHT SENSOR	1	Connect to a light sensor to collect the ambient brightness, allowing for automatic screen brightness adjustment.
USB	1	1x USB 2.0 • Update the firmware via the USB drive. • Import or export device logs, EDID and BKG files.
RS232	1	Central control connector

Applications

Dimensions

Tolerance: ±0.3   Unit: mm

Specifications

Electrical Parameters	Power connector	To be continued
	Rated power consumption	To be continued
Operating Environment	Temperature	0℃ to 50℃
	Humidity	5% RH to 85% RH, non-condensing
Storage Environment	Temperature	−10℃ to +60℃
	Humidity	5% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	482.6mm × 409.0mm × 94.6mm
	Net weight	7 kg
	Total weight	9.9 kg

Packing Information	Packing size	660.0mm × 570.0mm × 210.0mm
	Accessories	1x Power cord, 1x CAT5E Ethernet cable, 1x HDMI cable, 1x USB cable, 1x Phoenix connector, 1x Quick Start Guide, 1x Certificate of Approval
Noise Level (typical at 25℃/77℉)		45 dB (A)

Video Source Features

Input Connectors	Common Resolutions		Color Space	Sampling Rate	Bit Depth	Integer Frame Rates (Hz)
HDMI 2.0/DP 1.2	4K	3840×2160	RGB / YCbCr	4:4:4	12bit	24/25
					10bit	24/25/30
					8bit	24/25/30/48/50/60
			YCbCr	4:2:2	8/10/12bit	
	DL	3840×1080	RGB / YCbCr	4:4:4	12bit	24/25
					10bit	24/25/30
					8bit	24/25/30/48/50/60/72/75
			YCbCr	4:2:2	8/10/12bit	
	2K	1920×1080	RGB / YCbCr	4:4:4	12bit	24/25/30/48/50/60/72/75
					10bit	
					8bit	
			YCbCr	4:2:2	8/10/12bit	
HDMI 1.3	2K	1920×1080	RGB / YCbCr	4:4:4	12bit	24/25/30
					10bit	
					8bit	24/25/30/48/50/60
			YCbCr	4:2:2	8/10/12bit	
3G-SDI	2K	1920×1080	YCbCr	4:2:2	10bit	24/25/30/48/50/60

Note:

The table above shows some common resolutions and integer frame rates only. The adaptation to decimal frame rates is also supported, including 23.98/29.97/59.94/71.93/119.88Hz.

Notes and Cautions

In a domestic environment, this product may cause radio interference.

Official website
www.novastar.tech

Technical support
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