

VC16 Pro

All-in-One Controller



Specifications

Change History

Document Version	Release Date	Description
V1.0.0	2025-12-12	First release

Introduction

The VC16 Pro is an all-in-one controller combining video processing and video control functionalities into a single device. Capable of managing up to 10.4 million pixels, the VC16 Pro can output at a maximum width of 16,384 pixels and a height of 8,192 pixels, making it perfectly suited for controlling ultra-wide and ultra-high LED screens on-site.

The VC16 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, and pixel-level brightness and chroma calibration. These functions combine to deliver outstanding image display quality.

With various control options available, the VC16 Pro can be operated via the front panel knob, NovaLCT and Unico, providing you with a convenient and effortless control experience.

The VC16 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 VC16 Pro is a perfect fit for medium and high-end rental, stage control systems and fine-pitch LED screens.

Certifications

None

If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact NovaStar to confirm or address the problem.

Otherwise, the customer shall be responsible for the legal risks caused or NovaStar has the right to claim compensation.

Features

Multiple connectors, free input and output

- A comprehensive range of input connectors
 - 1x HDMI 2.0
 - 1x DP 1.2
 - 4x HDMI 1.3
 - 1x 3G-SDI (IN & LOOP, optional)
 - 1x USB 3.0 (Play images or videos saved in a USB drive.)
- Output connectors
 - 16x Gigabit Ethernet ports

A single device supports up to 10.4 million pixels, delivering a maximum width of 16,384 pixels and a maximum height of 8192 pixels.
 - 1x HDMI 1.3

For monitoring display.
- Audio input and output
 - Audio input accompanied with HDMI and DP sources
 - 3.5 mm independent audio input and output
 - Adjustable output volume
- Free topology

Flexible screen configuration without rectangle restriction on a single Ethernet port. The maximum circumscribed rectangle of the large screen loaded by the device must be within the device loading capacity.

*Specific receiving cards are required.
- Output synchronization

An input source connected to the device's video connector 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.

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.
- Multiple layer display
 - Supports 12*2K×1K layer resources.

Users can create layers in three different specifications - 4K×2K, 4K×1K, and 2K×1K. These layers will use 4x, 2x, and 1x 2K 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 function
 - Supports the text OSD and image OSD. For the text OSD, four components are available, including static text OSD, dynamic text OSD, weather OSD and time OSD.
 - Supports customization of the text content, font, font color, size, opacity and background color.
 - Supports configuration of the scrolling direction, initial position and speed for the dynamic text OSD.
- 3D function

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

Note: When the 3D function is enabled and the video source format is **Side-by-Side** or **Top-and-Bottom**, the device output capacity will be halved.
- 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

- User mode selection supported
 - Standard: Only some LCD menu options are displayed, including screen brightness, layer settings, preset settings, display control, USB playback, audio settings, user mode and about us.
 - Professional: Display all LCD menu options.
- Multiple control options
 - Device front panel knob
 - Unico
 - Both client software and web page control are supported.
 - NovaLCT

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
 - Dual receiving card backup

- Ethernet port backup test

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

- Data saving after power failure

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

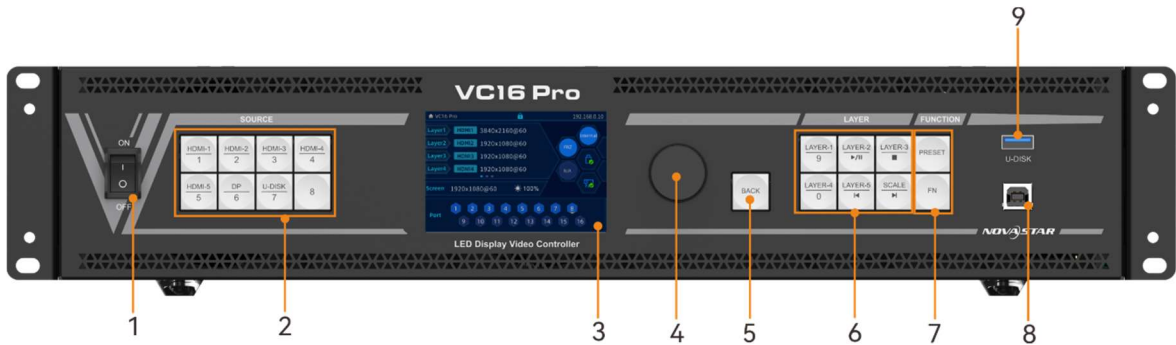
- 24/7 rigorous stability test under extreme high and low temperatures proved robust stability and reliability.

Table 4-1 Function limitations


Function	Limitation	Mutually Exclusive Function
3D	<ul style="list-style-type: none"> • Work with the matched 3D glasses. • When the 3D function is enabled and the video source format is Side-by-Side or Top-and-Bottom, the device output capacity will be halved. • When the 3D function is enabled and the video source format is Frame Sequential, you need to manually set the output frame rate which must be the same as the input frame rate. 	Input crop
OSD	<ul style="list-style-type: none"> • The quantity of the text OSD components is as follows. <ul style="list-style-type: none"> – Static text OSD: 10 – Dynamic text OSD: 1 – Weather OSD: 2 – Time OSD: 2 • The text OSD and image OSD cannot be used together. • The dynamic text OSD and other text OSD components cannot be used together. 	N/A

Appearance


Front Panel



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

No.	Area	Function
1	Power switch	Power switch <ul style="list-style-type: none"> • On: Power on the device. • Off: Power off the device.
2	Input source buttons	<ul style="list-style-type: none"> • HDMI 1~5/DP: Show the input source status and switch the layer input source. <ul style="list-style-type: none"> - On (orange): The input source has a signal. - Flashing (orange): The input source has no signals, but it is used by a layer. - Off: The input source is not used, and no input signal is accessed. • U-DISK: USB source button <p>Press the button to switch to a USB source, while hold down the button to enter the Input Settings screen.</p> <div style="background-color: #f0f0f0; padding: 5px; border: 1px solid #ccc;"> <p> Note</p> <p>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.</p> </div>
3	LCD screen	Display the device status, menus, submenus and messages.
4	Knob	<ul style="list-style-type: none"> • Rotate the knob to select a menu item or adjust the parameter value. • Press the knob to confirm the setting or operation.
5	Back button	Exit the current menu or cancel the operation.
6	Layer buttons	Layer button description:

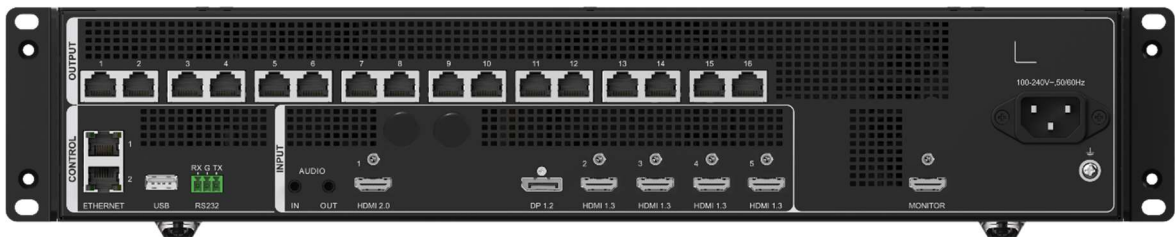
No.	Area	Function
		<ul style="list-style-type: none"> • LAYER 1~5: Open or close a layer, and show the layer status. <ul style="list-style-type: none"> – On (orange): The layer is opened. – Flashing (orange): The layer is being edited. – Off: The layer is closed. • When you play media files saved in a USB drive, the layer buttons are used to control the playback. <ul style="list-style-type: none"> – LAYER-2: This button is used to play or pause the files. – LAYER-3: This button is used to stop the playback. – LAYER-5: This button is used to play the previous file. <hr/> <ul style="list-style-type: none"> • SCALE: A shortcut button for the full screen function. Press the button to make the layer of the lowest priority fill the entire screen. <ul style="list-style-type: none"> – On (orange): Full screen scaling is turned on. – Off: Full screen scaling is turned off. • When you play media files saved in a USB drive, this button is used to play the next file.
7	Function buttons	<ul style="list-style-type: none"> • PRESET: Access the preset settings menu. • FN: A custom function button
8	USB	Connect to the PC installed with NovaLCT for device control.
9	U-DISK	1x USB 3.0 <ul style="list-style-type: none"> • Supports USB playback. <ul style="list-style-type: none"> – Single-partition USB drive supported – File system: NTFS, FAT32 and exFAT – Max. width and height of media files Width: 3840 pixels, height: 2160 pixels – Picture format: jpg, jpeg, png and bmp – Decoded image resolution: 3840×2160 or lower – Video format: mp4, mkv, mov, avi, flv, m4v, mpg, mpeg, ts – Video coding: H.264, H.265, MPEG-2, MPEG-4 – Max. video frame rate: H.264: 3840×2160@30fps, H.265: 3840×2160@60fps MPEG-2/MPEG-4: 1920×1080@60fps – Max. bitrate: H.264/H.265: 100Mbps MPEG-2/MPEG-4: 50Mbps – Audio coding: AAC, AC3, DTS, MP3, DVD, DVD_LPCM, MP2, OPUS

No.	Area	Function
		<ul style="list-style-type: none"> Audio sampling rate: opus: 24kHz, 48kHz Other formats: 22.05kHz to 94kHz Transition effect of image switching: Ripple, zoom in, cut out, flip, blinds, H wipe, V wipe, cube, dissolve, grid, swapping, scroll, fade in/out, twirl, heart trans, doorway, perspective triangle, disappear, bounce, pinwheel, random <div style="background-color: #f0f0f0; padding: 5px; margin-top: 10px;"> <p> Note</p> <p>The resolution of a USB source is fixed at 3840×2160@60Hz.</p> </div>

 **Note**

Hold down the knob and **BACK** 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.

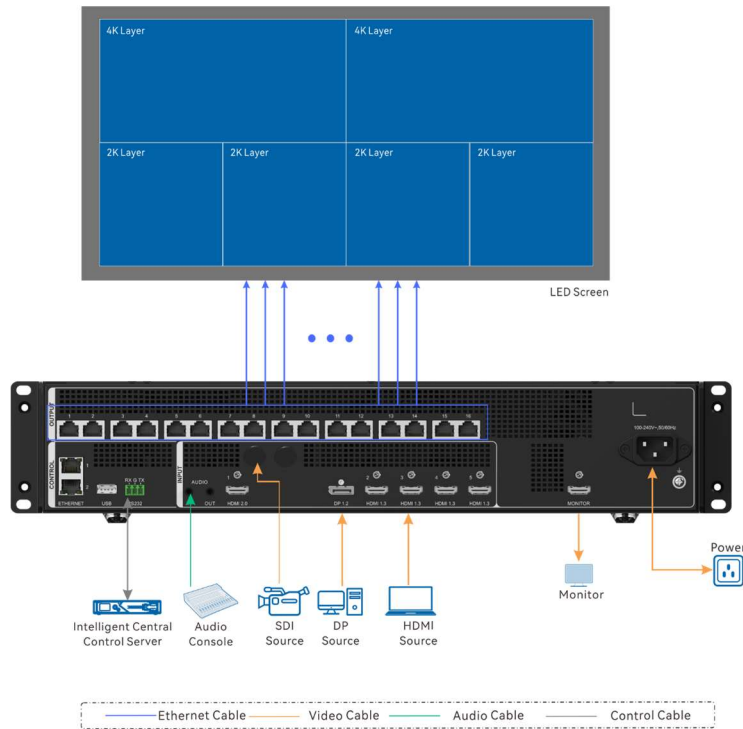
Input Connectors		
Connector	Qty	Description
HDMI 2.0	1	1x HDMI 2.0 <ul style="list-style-type: none"> Max. input resolution: 4096×2160@60Hz Supported frame rate: 23.98/24/25/29.97/30/47.95/48/50/56/59.94/60/70/71.93/72/75/85/100 /119.88/120/144 Compatible with HDMI 1.4 and HDMI 1.3 video inputs Custom resolutions supported <ul style="list-style-type: none"> Max. width: 8192 pixels (8192×1080@60Hz) Max. height: 8188 pixels (1080×8188@60Hz) Supports 8-bit/10-bit/12-bit video inputs.

		<ul style="list-style-type: none"> • Supported color space/sampling rate: RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2/YCbCr 4:2:0. • HDCP 1.4 and HDCP 2.2 supported • Accompanied audio supported • Does not support interlaced signal inputs.
DP 1.2	1	1x DP 1.2 <ul style="list-style-type: none"> • Max. input resolution: 4096×2160@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 • Custom resolutions supported <ul style="list-style-type: none"> – 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 1.3	4	4x HDMI 1.3 <ul style="list-style-type: none"> • Max. input resolution: 1920×1080@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 • Custom resolutions supported <ul style="list-style-type: none"> – Max. width: 2048 pixels (2048×1080@60Hz) – Max. height: 2048 pixels (1080×2048@60Hz) • Supports 8-bit video inputs. • HDCP 1.4 supported • Supported color space/sampling rate: RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:2 • Accompanied audio supported • Does not support interlaced signal inputs.
3G-SDI (Optional)	1	1x 3G-SDI <ul style="list-style-type: none"> • ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs supported • Supported protocols: SMPTE 259M, SMPTE 274M, SMPTE 296M, SMPTE

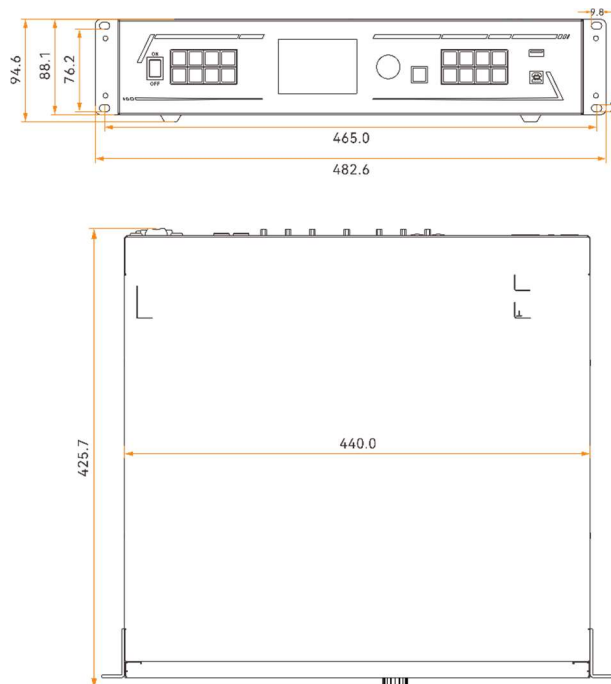
		425M-A and SMPTE 425M-B <ul style="list-style-type: none"> • Max. input resolution: 1920×1080@60Hz • 3G-SDI loop output supported • Deinterlacing processing supported • 10-bit video inputs supported • Does not support input resolution and bit depth settings.
*Connector capacity limitations		<ul style="list-style-type: none"> • SL <ul style="list-style-type: none"> – Standard resolution: 1920×1080@60Hz – Custom max width: 2048 (2048×1080@60Hz) – Custom max height: 2048 (1080×2048@60Hz) • DL <ul style="list-style-type: none"> – Standard resolution: 3840×1080@60Hz/3840×2160@30Hz – Custom max width: 4096 (4096×1080@60Hz) – Custom max height: 3840 (1080×3840@60Hz) • 4K <ul style="list-style-type: none"> – Standard resolution: 4096×2160@60Hz/8192×2160@30Hz – Custom max width: 8192 (8192×1080@60Hz) – Custom max height: 8188 (1080×8188@60Hz) <div style="background-color: #f0f0f0; padding: 5px;"> <p> Note</p> <p>If the resolution of an input source is larger than the max width limit of the connector capacity, you need to switch the connector capacity to ensure that the input source can be processed normally.</p> </div>
Output Connectors		
Connector	Qty	Description
Ethernet ports	16	<ul style="list-style-type: none"> • 16x Gigabit Ethernet ports, max device loading capacity: 10.4 million pixels • Max. width: 16,384 pixels, max. height: 8192 pixels • Maximum capacity of a single port: <ul style="list-style-type: none"> 8bit: 650,000 pixels • Supported frame rate: <ul style="list-style-type: none"> 23.98/24/25/29.97/30/47/48/50/59.94/60/71.93/72/75/85/95/100/119.88/120/144
HDMI 1.3	1	For monitoring display Output resolution: 1920×1080@60Hz (fixed)

Audio Connectors		
Connector	Qty	Description
AUDIO	2	1x AUDIO input, 1x AUDIO output <ul style="list-style-type: none"> • 3.5 mm standard audio input and output connectors • Audio sampling rate up to 48 kHz
Control Connectors		
Connector	Qty	Description
ETHERNET	2	<ul style="list-style-type: none"> • Connect to the control PC for device control and firmware upgrade via Unico. Status LEDs: <ul style="list-style-type: none"> • The top left one indicates the connection status. <ul style="list-style-type: none"> – 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. <ul style="list-style-type: none"> – On: No data communication. – Flashing: The communication is good and data is being transmitted. – Off: No data transmission
USB	1	1x USB 2.0 <ul style="list-style-type: none"> • Cascade the devices via the USB port and Ethernet port. Up to 5 devices can be cascaded. • Update the firmware via the USB drive. • Import or export device logs and EDID files.
RS232	1	3-pin connectors <ul style="list-style-type: none"> • RX: Receive signals. • TX: Send signals. • G: Ground

Applications



Dimensions



Tolerance: ± 0.5 Unit: mm

Specifications

Electrical Parameters	Power connector	100-240V~, 50/60Hz
	Rated power consumption	67 W
Operating Environment	Temperature	0°C to 50°C
	Humidity	5% RH to 85% RH, non-condensing
Storage Environment	Temperature	-10°C to 60°C
	Humidity	5% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	482.6 mm × 425.7 mm × 94.6 mm
	Net weight	6.4 kg
	Total weight	10.1 kg
Packing Information	Carrying case	625 mm × 560 mm × 195 mm
	Accessories	1x Power cord, 1x Ethernet cable, 1x HDMI cable, 1x USB cable, 1x Phoenix connector, 1x Quick Start Guide, 1x Certificate of Approval
	Packing box	645 mm × 580 mm × 215 mm
Noise Level (typical at 25°C/77°F)	45 dB (A)	

Video Source Features

Input Connectors	Common Resolutions		Color Space	Sampling Rate	Bit Depth	Integer Frame Rates (Hz)
HDMI 2.0	4K×2K	4096×2160	RGB / YCbCr	4:4:4	12bit	24/25/30
					10bit	24/25/30
			YCbCr	4:2:2	8/10/12bit	24/25/30/48/50/60
				4:2:0	8/10/12bit	
	4K×1K	3840×1080	RGB / YCbCr	4:4:4	12bit	24/25/30/48/50/60/72/85
					10bit	24/25/30/48/50/60/72/100

Input Connectors	Common Resolutions		Color Space	Sampling Rate	Bit Depth	Integer Frame Rates (Hz)	
					8bit	24/25//30/48/50/60/72/120	
			YCbCr	4:2:2	8/10/12bit		
			YCbCr	4:2:0	8/10/12bit		
	2K×1K	1920×1080	RGB / YCbCr	4:4:4	12bit	24/25/30/48/50/60/72/120/144	
					10bit		24/25/30/48/50/60/72/120/144
					8bit		24/25/30/48/50/60/72/120/144
			YCbCr	4:2:2	8/10/12bit		
			YCbCr	4:2:0	8/10/12bit		
DP 1.2	4K×2K	4096×2160	RGB / YCbCr	4:4:4	12bit	24/25/30	
					10bit		24/25/30
					8bit		24/25/30/48/50/60
					YCbCr		4:2:2
	4K×1K	3840×1080	RGB / YCbCr	4:4:4	12bit	24/25/30/48/50/60/72/85	
					10bit		24/25/30/48/50/60/72/100
					8bit		24/25/30/48/50/60/72/120
					YCbCr		4:2:2
	2K×1K	1920×1080	RGB / YCbCr	4:4:4	12bit	24/25/30/48/50/60/72/120/144	
					10bit		24/25/30/48/50/60/72/120/144
					8bit		24/25/30/48/50/60/72/120/144
					YCbCr		4:2:2
HDMI 1.3	2K×1K	1920×1080	RGB / YCbCr	4:4:4	12bit	24/25/30	
					10bit		24/25/30/48/50/60
					8bit		24/25/30/48/50/60
					YCbCr		4:2:2
3G-SDI	2K×1K	1920×1080	YCbCr	4:2:2	8/10/12bit	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.

Copyright

Copyright © 2025 Xi'an NovaStar Tech Co., Ltd. All Rights Reserved.

No part of this document may be copied, reproduced, extracted or transmitted in any form or by any means without the prior written consent of Xi'an NovaStar Tech Co., Ltd.

Trademark

 is a trademark of Xi'an NovaStar Tech Co., Ltd.

Statement

Thank you for choosing NovaStar's product. This document is intended to help you understand and use the product. For accuracy and reliability, NovaStar may make improvements and/or changes to this document at any time and without notice. If you experience any problems in use or have any suggestions, please contact us via the contact information given in this document. We will do our best to solve any issues, as well as evaluate and implement any suggestions.

| [Official website](http://www.novastar.tech)
| www.novastar.tech

| [Technical support](mailto:support@novastar.tech)
| support@novastar.tech