

HOJA

# **User's Manual**

# Video Controller NovaPro HD

Rev1.4.4

## Statement

Welcome to use the product from Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as "NovaStar"). It is our great pleasure to offer this manual to help you understand and use the product. We strive for precision and reliability during the compilation of this manual, and the content of this manual are subject to change without notice. If you have any problem in use or you have any suggestion, please feel free to contact us according to the contact information provided in this manual. We will do our utmost to satisfy your needs. We would like to express our sincere thanks to your suggestions and make assessment for adoption as soon as possible.

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#### Trademark

NOVASTAR is the trademark of NovaStar.

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# **1** Safety Statement

To avoid potential hazards, please use this equipment according to the regulations. In case of damages, non-professionals are not allowed to disassemble it for maintenance without permission. Please contact the after-sales department of the company.

4	High voltage danger: The operating voltage of this product is 100-250V AC.
	Grounding: This product is grounded through grounding cord of power supply. Please keep the grounding conductor is well grounded.
	Electromagnetic interference: Keep this product far away from magnets, motors and transformers.
A	Moisture proof: Keep the equipment in a dry and clean environment. In case of liquid immersion, please pull the power plug immediately.
	Keep away from flammable and explosive hazardous substance.
	Prevent liquids or metal fragments from being immersed into the product in order to avoid safety accidents.
+"	

### 2 Overview

NovaPro HD is a professional LED display controller. Besides the function of display control, it also features in powerful front-end processing. It has integrated various professional interfaces. With excellent image quality and free image control, NovaPro HD has greatly satisfied the requirements of display industry.

Product features:

- NovaPro HD has complete input interfaces including CVBS, VGA, SDI, DVI, HDMI and DP. These interfaces support input resolution up to 1080p@60Hz, highest pixel clock up to 165 MHz and output bandwidth up to 4 Gbit.
- 2) NovaPro HD has adopted 12 Bit digital processing internally. With advanced deinterlacing motion self-adaptive processing technology adopted, images are clear and fine. Each input can be fully configured with contrast, saturation, hue, color temperature. It allows for switching between point-to-point display and point-by-point scaling of input image according to display resolution.
- 3) NovaPro HD doesn't need computer software for system configuration. System configuration can be completed only through one knob and one button. All operations can be done only by several steps. That's what we called "Touch Track".
- 4) NovaPro HD supports multiple units splicing.
- 5) NovaPro HD has integrated DMX512 and Genlock input and loop interfaces. Professional control and synchronization have been provided. With the design of dual power redundancy backup, the system is stable and reliable. Optical fiber output has guaranteed the stability of long-distance data transmission.
- 6) In addition to the operations of the controller and LCT client, you can also configure the system with browsers on your PC or PAD, namely, Web interface operation which is able to preview and assist with system settings in real time and confirm current working status of the system.
- 7) NovaPro HD is the flagship product of NovaStar new generation controllers. Being

powerful in image processing, professional in image control and friendly in user-interface, NovaPro HD has brought unprecedented ease and pleasure in LED display control.

# 3 Appearance

## 3.1 Front Panel



④ : **Knob**: Enter by pressing the knob and select or adjust by turning the knob.

(5) : ESC: Exit current operation or option.

6 : BLK: LED Display is blank screen. Indicator light is blue by default after power on

and it turns green when BLK is enabled;

FRZ: Images on LED Display are frozen. Indicator light is blue by default after power on

and it turns green when enabled;

PIP: Display PIP. Indicator light is blue by default after power on and it turns green when

enabled;

⑦ : Type A female interface is a reserved interface.

⑧ : Type B female interface is USB control interface to connect PC for communication.

### 3.2 Rear Panel



**Note:** In order to improve user's experience, layout of the interfaces may be adjusted a little. The picture is only for reference.

Inputs	
Audio	Audio Input
DP	DP Input
HDMI	HDMI Input

DVI	DVI Input
VGA	VGA Input
CVBS	PAL/NTSC TV Composite Video Inputs
3G-SDI IN	3G-SDI Input
	Synchronizing signal to guarantee the images on display is
Geniock IN	synchronous with external Genlock source.
Outputs	
3G-SDI LOOP	3G-SDI loop output
GenLock LOOP	Genlock loop output
DVI LOOP	DVI loop output
Monitor -DVI	
Monitor -HDMI	Monitoring connector
	4 Ethernet port outputs
	Only Ethernet port 1 supports audio output. When the
LED Out 1, 2, 3, 4	multifunction card is connected for audio decoding, the
	multifunction card must be connected to the Ethernet port 1.
OPT Output 1, 2, 3, 4	4 optical fiber outputs
Control Interface	
+	Ethernet Control (connecting PC for communication or
ETHERNET	accessing Network)
	IN: connecting PC for communication or cascade input;
USB Control	connecting USB OUT of last NovaPro HD
	OUT: cascade output, Cascading USB IN of next NovaPro

	HD
	IN: connecting all consoles that support DMX512 interface
DMX Control	protocol.
	LOOP: DMX512 signal Loop output

# **4** Signal Connection

#### **Signal Connection**

Connect the required hardware devices referring to the interface descriptions in previous chapters.

Note: Please turn OFF POWER before signal connection.



Fig. 4-1 Signal Connection

#### **Multiple Units Connection Sketch**

#### **Video Source Connection**



Fig. 4-2 Oversized Video Source Loading Scheme (4K)

#### **Cascade Control Signal Connection**



# **5** Description of Operation Modes

NovaPro HD is not only powerful in functions but also easy to use. It supports three operating modes for users to choose in different occasions.

**Mode 1**: Machine operation. All operations can be completed by a knob and a button on NovaPro HD without PC.

**Mode 2**: Web operation. Suitable for the situation when NovaPro HD and control computer are in the same LAN. Open up a browser on control computer and enter the IP of NovaPro

HD to log in control page.

**Mode 3**: NovaLCT client operation. Connect NovaPro HD to control computer and all configurations can be completed on NovaLCT-Mars client. Then send to NovaPro HD.

Note: Interlace operation of machine, LCT and Web is not allowed.

Please refer to the following chapter for detailed operation steps.

## 6 Machine Operation

LED display can be started with moderate brightness and used normally through five simple steps.

Menus of Display Control, Advanced Settings, Communication Settings and Language can help users to better control LED display.

## 6.1 Description of operation action

**Knob**: Press the knob to enter into menu and turn it to adjust values or select submenus. At this time, enter into the submenus or confirm adjusted values by pressing the knob.

**[ESC]** : Return key, exit from current menu or operation.

**Option buttons of six input sources**: Short press a button to set it as the input source of main screen while long press to set as the source of PIP.

**Lock:** simultaneously press the knob and ESC button for more than three seconds to lock the controller.

**Unlock:** simultaneously press the knob and ESC button for more than three seconds to unlock the controller.

## 6.2 Main Interface

After starting the controller, the main interface of LCD display is as follows:

NOVAPro		192.168.6.10
INPUT	$\langle \rangle$	
MAIN	DVI	1080P@60Hz
PIP	VGA	1024×768@60Hz
OUTPUT	. /	
Scree	en	1080P@60Hz
Port		1 2 3 4
STATUS	/	
Primar	y O	80% 🚺 37°C 🕖 5.0V
5 5	GEN	
× ×	Conception of the local division of the loca	

First row: product model, local IP/ device name (custom)

#### INPUT:

Main screen, signal source, input source signal format.

PIP, signal source, input source signal format.

#### OUTPUT:

Output signal format of LED display.

LED Output, Currently it is Port2 output.

#### STATE:

Status bar, meanings of each icon are described as below:

Primary	It denotes that the controller is in primary control mode.
Backup	It denotes that the controller is in backup mode.
<u>0</u> 80%	Current brightness is 80%.
<mark></mark> ∦37°C	When the temperature of NovaPro HD exceeds threshold value (able to be
	changed by users), the temperature value will turn red and blinks.
<b>₩</b> 5.0V	When the voltage of NovaPro HD exceeds threshold value (able to be
	changed by users), the voltage value will turn red and blinks.
	Current effect is point-to-point display.
N K	Scaling down mode

2.5	Scaling up mode
GEN	It denotes that there is Genlock synchronous signal input.
DMX	It denotes that DMX channel signal is enabled.
• <del>C</del>	It is USB control currently.
	It is Ethernet Port control currently.
	Image Mosaic enabled
	Button lock icon, functions of the buttons and knob are locked when this icon appears on the main interface.
6	It denotes that the controller is not locked
2 Stop 4	

## 6.3 Step 1: Input Settings

Set the resolution of input source signal. Resolution can be directly set and changed through NovaPro HD for digital input modes: DVI, HDMI and DP. For other input modes, resolution can only be changed on input devices.

Input resolution can be set through two ways:

I: Preset Resolution

Choose a suitable resolution from the standard resolutions preset in the controller. If there is no suitable resolution, please go to II: Custom Resolution



#### II: Custom Resolution

Set custom width, height, refresh rate. Then turn the knob to select "Apply" and press the

knob to confirm and apply. If not confirmed, the custom resolution settings will be unavailable.

	leight(V)	960
<b>(</b> ) R	lefresh Rate	60Hz
	🗸 Apply	💭 Return
	🗸 Арріу	← Return
		Refresh Rate     Apply

## 6.4 Step 2: Screen Settings

Preconditions of screen settings:

- Each Ethernet port must load the same number of cabinets (If the number of cabinets is not integer multiples of the Ethernet ports, the remaining cabinets will be loaded by the last Ethernet port);
- 2) Regular screen, regular cabinets, each cabinet with the same size.

Operating steps of screen settings:

- Step 1 Turn on the power of LED display. If the cabinets display normally, go to step 2. If the cabinets display abnormally, it is required to load the cabinet file first and save it to receiving card. Please see detailed operations in <u>Advanced Settings</u>.
- Step 2 Enter into the submenu of **"Screen Settings"** submenu. The options are shown in the following figure:



Step 3 Set Cabinet Row QTY and Cabinet Column QTY according to the actual situation of the screen.

Step 4 Set Port1 Cabinet QTY. The device has some limitations on the cabinet quantity of

network interfaces. For details, see precautions for screen setting a). The controller has certain limitations to the quantity of cabinet loaded by an Ethernet port. Please see details in Notes a) of Screen Settings.

Step 5 Set data flow of the screen and please see the Notes c), d), e) of screen settings.



Notes for screen settings:

a) If the number of ports with loads is n Example: (n≤4), the quantities of cabinets loaded If Port 1, Port 2, Port 3 have loads, cabinet by each of the first n-1 ports must be quantity of Port 1 and Port 2 must be equal equal (If the quantity of cabinet loaded by and also be an integral multiple of the each port are different, please choose quantity of cabinet row or column. As a result, Advanced Config and view details in set Port 1 Cabinet Qty only according to Advanced Configuration) and also be actual situation during screen settings. The an integral multiple of the quantities of quantity of receiving card loaded by Port 3  $\leq$ cabinet rows or columns and, the quantity of cabinet loaded by Port 1. meanwhile, be greater than or equal to the quantities of cabinets loaded by the nth port.

b) In case of special-shaped cabinets, cabinets with different size and special-shaped

screen, the software NovaLCT-Mars is required to be connected to configure the screen.

c) During Data Flow setting, turn the knob to see the results of different types of data flow

on the screen in real time. If satisfied with the current data flow, you must press the knob

to save the setting. Press return key to exit from current operation.

d) During Data Flow setting, make sure that the data flow of each port is connected along

the same direction.

e) During Data Flow setting, make sure that the start position of Port 1 is the start position

of whole data flow connection.

## 6.5 Step 3: Brightness Control

Return to main menu interface. Press the knob and select the corresponding value. At this time, the knob can be turned to adjust brightness value.

🔆 Brightness	100%
Screen Settings	
Input Settings	•
Output Settings	•
Display Control	•
Advanced Settings	•
Communication Settings	•
🚱 Language	•

## 6.6 Step 4: Output Settings

Output settings can be divided into three cases:

I: Point-to-point display, namely, scaling disabled. Size of output image is the same as input image and the output is based on original proportion.

Horizontal and vertical offset of image are set as required and operation steps are shown in the figure below.



II: Output image is adjusted to the size of display screen, namely it is self-adaptive to the size of display screen.

Operation: Enable scaling and auto fit to screen.

	Scaling	Enable
A	Auto Fit To Screen	Enable
	Custom Scaling	Þ
-	Image Offset	▶
归	Apply to All	

III: Custom Scaling

Operation: Enable Scaling and disable Auto Fit To Screen to customize scaling.

Scaling	Enable
Auto Fit To Screen	Disable
Custom Scaling	•
🛄 Image Offset	►
Apply to All	

Operating steps of custom scaling:

a) Input Capture setting, i.e., to capture the part of the image from one start position of the input image and display it on the LED screen. It is needed to set horizontal width (≤horizontal resolution of input source) and vertical height (≤vertical resolution of input source) as well as start X (horizontal start) and start Y (vertical start).

Custom Scaling	Input Capture	
🖬 Input Capture	📥 Input Source	DVI
Cutput Window	Width (H)	720
	Height(V)	240
	🕨 🗖 Start X	0
S	🛄 Start Y	0

b) Output Window setting, size of the window is smaller than or equal to the size of LED display. After window is set, images can only be displayed within the range of the window and be self-adapted to the size of the window.

Custom Scaling		Input Capture	
Input Capture	•	Width (H)	800
🔜 Output Window	►	Height(V)	600
		Start X	100
		Start Y	100
		Start Y	8

After setting according to the above two steps, the captured content will be only displayed on the set area of the LED display, as shown below:



#### Normal

- > **Freeze**: same as the function of FRZ button.
- **Black Out**: same as the function of BLK button.
- > Test Pattern

Normal	✓	Pure Color	
🗱 Freeze		Gradient	
Black Out		Grid	
RGB Test Pattern		<ul> <li>Orientation</li> </ul>	1-0, 0-1 iog. 2-0.
d Image Settings		F Brightness	2
Channel Effect	Cut	Space	4
	6	Speed	2

Picture quality adjustment

Set contrast, saturation, hue, sharpness, color temperature, red brightness, green brightness, blue brightness and Gamma as required. Save these parameters to hardware after adjusting to satisfaction

	Contrast Saturation Hue Sharpness Color Temperature	50% 50% 50 12
	Saturation Hue Sharpness Color Temperature	50% 50 12
	Hue  Sharpness  Color Temperature	50 12
▶	Sharpness	12
	📥 Color Temperature	
		Custom
Cut	🔞 Red	255
	G Green	255
	Blue	255
	Save to Hardware	2.8
		) * *
		Blue Image Settings Save to Hardware

#### Channel Effect

The software supports three effects: cut, fade and pop-up. Select Off to if off to switch off Channel Effect.

	Normal	$\checkmark$
***	Freeze	Off
	Black Out	Cut
RGB	Test Pattern	Fade
lo	Image Settings	Pop-up
0-	Channel Effect	Cu

## 6.8 Advanced Settings

Several options of major function setting are included in advanced settings, as shown in the figure below, including PIP, Advanced Configuration, Montage, etc. Operation of each function will be detailed for users in the following chapter.

Main		Advanced Settings	
O- Brightness	100%	PIP	►
Screen Settings	•	Advanced Config	
hput Settings	•		•
Output Settings	► <b></b>	Load Cabinet Files	•
🔝 Display Control	•		•
🔯 Advanced Settings		Advanced Property	•
Communication Settings	•	📄 Save to Hardware	•
🕜 Language	•	Redundancy	
		Factory Reset	V4.4.1.2
<b>.1Picture in Picture</b>	e (PIP)		

To switch on or off PIP and set the input source of main screen as well as the size, position and transparency of PIP and PIP crop settings.

Advanced Settings	11	PIP Settings	
PIP		📰 PIP	On
Advanced Config	•	Hain Source	DVI
Montage	*	PIP Source	VGA
load Cabinet Files	> <b></b>	Width(H)	1920
Alarm Threshold	•	Height(V)	1024
Advanced Property	•	Start X	0
Save to Hardware	•	🛄 Start Y	0
Redundancy		Transparency	0
+		n PIP Crop Settings	•

**PIP:** Switching on/off PIP is the same as the function of PIP button on front panel and synchronous with it.

**Main source/PIP source:** Input source switching of main screen and PIP is the same as the function of input source switching button on front panel.

Width (H): Horizontal width of PIP

Height (V): Vertical height of PIP

- Start X: Horizontal coordinates of PIP
- Start Y: Vertical coordinates of PIP

Transparency: Transparency of PIP

#### **PIP Crop Settings:**

Image cropped from the set starting position will be displayed on PIP and its size is the set horizontal width and vertical height.

Please enable this function before setting horizontal width, vertical height, start X and start Y.

PIP Settings	PIP Crop Settings	
PIP Crop Settings	PIP Crop Enable	Disable
	Width(H)	720
	Height(V)	240
	Start X	0
	🔲 🛄 Start Y	0

# 6.8.2Advanced Configuration

If the number of cabinets loaded by each Ethernet port is different and the preconditions of screen settings are not met, advanced configuration can be used now. Operating steps of advanced configuration are shown as below:



#### 1) Enable Advanced Config

Please enable Advanced Config first since it is disabled by default in NovaPro HD.

Advanced Config defaults to "Disabled". After the function is enabled, the rows and columns of the cabinets loaded by each port, offset, and data flow can be set respectively.

👖 Advanced Config	Enable	
Port1 Settings	•	
Port2 Settings	•	
Port3 Settings	•	
Port4 Settings	•	
🗸 Apply	Return	

#### 2) Ethernet Port Settings

Set the rows and columns of the cabinets loaded by each port, horizontal and vertical offset as well as data flow according to the actual layout of the cabinets.

Advanced Config		Port1 Load	
Advanced Config	Enable	Cabinet Row QTY	1
🕋 Port1 Settings		Cabinet Col QTY	1
Port2 Settings		🛅 Start X	0
Port3 Settings		Start Y	0
Port4 Settings	<b>F</b>	Data Flow (Front View)	2
V Apply	Return		

Precautions for advanced mapping screen:
a) If the cabinets are irregular shaped and the sizes are different and the LED screen is also irregular shaped, the software NovaLCT-Mars is required to be connected to configure LED display.
b) When wiring method is set, real-time effect of different wirings can be displayed on the display screen by turning the knob. If you are satisfied, you must press the knob once to save the setting and press return key to exit the current operation. During data flow

setting, turn the knob and the results can be viewed on the LED display in real time.

Press the knob to save your setting if you are satisfied with it and then press return

button to exit from current operation.

After Port Settings are completed, select "**Apply**" and press the knob to apply current settings. If you want to quit the settings, select "Return".



## 6.8.3Montage

For oversized LED display, two or more NovaPro HD units are needed for montage. In this case, the loading area of each NovaPro HD unit needs to be set respectively.

Enable Montage first and set total width and height of the LED display. Then set the size and starting position of loading area of the NovaPro HD unit.

Total sizes of loading area of all NovaPro HD units are the total sizes of LED display.

Advanced Settings		Montage	
PIP PIP	•	Montage	Enable
Advanced Config	•	Total Width(H)	4000
		Total Height(V)	1000
Load Cabinet Files	▶ ■	Load Area With	2000
Alarm Threshold	•	Load Area Height	1000
Advanced Property	4	Load Area X	0
Save to Hardware	•	Load Area Y	0
Redundancy	Primary		

Montage Example: the total number of pixels of the LED display is 4000×1000, which has exceeded the load of a single Pro HD unit. Montage can be applied and two Pro HD units can be used for montage. See detailed parameter settings and the connections in the chart

and figure below.



Montage Connections (referring to the Chapter: Signal Connection)

**Note**: If montage is to be enabled, please ensure Output Settings is in the third case: Custom Scaling, namely, set Scaling as enable while Custom Scaling as disable.

# 6.8.4Load Cabinet File

Connect NovaPro HD to PC and run NovaLCT-Mars on PC. Import cabinet configuration file saved before into the controller.

1) Save cabinet configuration file

After receiving card is configured, click **Save File** to save cabinet configuration file (.rcfg) to local file on PC.

Sending Seads     Scan Board     Sceens Connection       Module Info Chip: Direction:     Horizontal     Decode Type:     74HC138 Decoding     Data Group:     4     4       Cabine Info     Image Seads     Fease Seads     Image Seads     Years Seads     7     Fease Seads     7       Pace Width:     Image Seads     Fease Seads     Image Seads     Years Seads     7     Fease Seads     7       Pace Internet Seads     Image Seads     Fease Seads     Image Seads     7     Fease Seads     7       Participants     Status     Image Seads     Image Seads     7     Fease Seads     7       Participants     Status     Image Seads     Status     7     Fease Seads     7       Participants     Status     Image Seads     Image Seads     7     Fease Seads       Participants     Image Seads     Status     Image Seads     7     Fease Seads       Data Chooc     Image Seads     Image Seads     Image Seads     Image Seads     1     1       Data Chooc     Image Seads     Image Seads     Image Seads     Image Seads     1     1       Data Chooc     Image Seads     Image Seads     Image Seads     Image Seads     1     1       Data Chooc     Image Seads	Sending Board Scan Board Screen Connection	
Module Info     Common C		
Chip: Common C Size: 320%-32H Stan Tipe: 1/4 stan Direction: Horizontal Decode Type: 74HC138 Decoding Data Group: 4 Cabinet Info © Regular Preve Heidhit: 66 C + 225 Rese Preve Heidhit: 66 C + 128 Rese Preve Heidhit: 66 C + 128 Rese Preve Heidhit: 66 C + 128 Rese Rese Preve Heidhit: 66 C + 128 Rese Res	Module Info	
Direction:     Hotzontal     Decode Type:     74HC138 Decoding     Data Group:     4       Cabinet Info	Chip: Common C Size: 32W×32H Scan Type: 1/4 scan	>>
Cabinet Info Regular Pixel Width: 99 - 4-225 Pixel Heicht: 99 - 4-225 Pixel Heicht: 99 - 4-123 Pixel Heicht: 99 - 7-123 Pixel Heicht: 99 - 7-123 Pixel Pixel Heicht: 90 - 7-123 Pixel Pixel Pixel Heicht: 90 - 7-123 Pixel Pixel	Direction: Horizontal Decode Type: 74HC138 Decoding Data Group: 4	
● Regular         Prese	Cabinet Info	
<ul> <li>● Regular</li> <li>Pixe Hindt:</li> <li>● Fixe Hind:</li> <li>● Fixe Hind:<td></td><td></td></li></ul>		
Piek Widt:       Be to <	Regular	
Pixel Heidnit       Pixel Heidnit       Construct       Ine wath in and height       Construct       Ine wath in and height         Performance Setting       Increase Setting       Increase Setting       Increase Setting       Increase Setting       Increase Setting         Refresh Rate:       400 - H2       Cray Mode:       Refresh Rate Fest - Cray Mode:       Construct       Cray Scale:       Cray Scale:       Cray Mode:       Refresh Rate Fest - Cray Mode:       Cray Mode:       Refresh Rate Fest - Cray Mode:       Cray Mode:       Cray Scale:       Cray Mode:       Refresh Rate Fest - Cray Mode:       Cray Mode:       Cray Scale:       Cray Mode:       Cray Mode:       Refresh Rate Fest - Cray Mode:       Cra	Pixel Width: 96 🔄 <=265 Please A Width: ?? Height: ?? Height: ??	Please
Module Case     Lent     Lent       Performance Setting       Refresh Rate:       480     Hz       Gray Mode:       Befresh Rate:       480     Hz       Gray Mode:       Befresh Rate:       10ata Clock:       225       10ata Clock:       225       10ata Clock:       225       10ata Clock:       225       10ata Clock:       235       10ata Clock:       236       10ata Clock:       237       10ata Clock:       238       10ata Clock:       238       11ne Change T, 3       2012       338       11ne Change T, 3       2014       11ne Change T, 3       2015       12ne Change T, 4       21ne Change T, 4	Pixel Height 64 Caller 4=128 the width and height and h	the width
Performance Setting         More Setting           Refresh Rate:         400           Gray Scale:         Normal 4056           Data Clock:         125           Data Clock:         125           Data Clock:         125           Blanking Time:         28           Clock Phase:         2           Brightness Eff         69.01%           Min OE:         328.05           Save Config File         Save           Gray Koting File         Save           Save Config File         Save           Save         Close           Save         Save           Save         Save           Save		and height
Group Swap         More Setting           Refresh Rate:         400           Gray Scale:         Normal 4066           Data Clock:         12.5           Data Clock:         12.5           Data Clock:         12.5           MHz         Data Duby:           Data Clock:         12.5           Blanking Time:         25           Gray Scale:         6           Blanking Time:         25           Gray Scale:         60.01%           Min OE:         328.05           Save Config File         Save           Bradt Setting         Load File           Save Config File         Save           Gray % Comp         Save           Save         Close           Save Config File         Save           Save         Close           Save         Close           Save         Close           Save         Save	Performance Setting	
Refresh Rate:       480       Hz       Accelerate R <ul> <li>Gray Scale:</li> <li>Hormal 4095</li> <li>Gray Mode:</li> <li>Refresh Rate First</li> <li>Gray Mode:</li> <li>Gray Gray Mode:</li> <li>Gran Board File(".rcfg)</li> <li< td=""><td>Group Swap More Setting</td><td></td></li<></ul>	Group Swap More Setting	
Gray Scale:       Normal 4096 •       Gray Mode:       Refresh Rate First •         Data Clock:       125 •       MHz       Data Duty:       50 •       (25-75)%         Clock Phase:       2       •       Exercise Control       20 •       (1-24)         Line Change T       3       •       (0-19)       Binking Time:       25       (0-19)         Brightness Effic.       69.01%       Min OE:       328 ns       (1-24)         Brightness Effic.       69.01%       Min OE:       328 ns       (1-24)         Brightness Effic.       69.01%       Min OE:       328 ns       (1-24)         Brightness Effic.       69.01%       Min OE:       328 ns       Close         Save Config File       Save       Close       Close         Save Config File       Save       Close       Close         Save File       Read From HW       Send To HW       Send To HW         Save Config File       Save       Close       Close         Save File       Read From HW       Send To HW       Send To HW         Save File       Read From HW       Send To HW       Send To HW         Save File       Read From HW       Send To HW       Send To HW	Refresh Rate: 480  Hz Accelerate R 4	
Data Clock:       125       MHz       Data Duly:       50       (25-75)%         Clock Phase:       2       •       Ghost Contro       20       (1-24)         Blanking Time:       25       (-200us)       Ghost Contro       20       (1-24)         Line Change T       3       (0-19)       Binking Time:       28       (1-24)         Brightness Eff       69.01%       Min OE:       328 ns       Save Tile       Read From HW       Send To HW         Smart Setting       Load File       Save Config File       Save Close       Close         #7 59.7       #10       Save Config File       Save Close       Close         #2 5767       #11       Save Config File       Save Close         #2 5767       #2       #2       P         Save Config File       Save Close       Close       Close         #2 5767       #2       #2       P       P         #2 576	Gray Scale: Normal 4096 - Gray Mode: Refresh Rate First -	
Clock Phase:       □	Data Clock: 12.5 MHz Data Duty: 50 V (25~75) %	+ '
Blanking Time:       注       (=2.00us)       Ghost Contro       20       (1-24)         Line Change T       3       (0-19)       Brightness Eff       69.01%       Min OE:       328 ns         Smart Setting       Load File       Save File       Read From HW       Send To HW         Smart Setting       Load File       Save Config File       Save       Close         Smart Setting       Load File       Save       Close       Close         Smart Setting       Save       View Config File       P       Mart Setting       P         Smart Setting       Save       View Config File       NovaCle File       P       Mart Setting       P         Smart Setting       Save       Save       NovaCle File       NovaCle File       NovaCle File       NovaCle File       NovaCle File	Clock Phase 2 Low Gray Co 0	
Line Change T       3       (0-19)         Brightness Efi       69.01%       Min OE:       328 ns         Smart Setting       Load File       Save File       Read From HW       Send To HW         Smart Setting       Load File       Save       Close         Image: State File       Read From HW       Send To HW         Smart Setting       Load File       Save       Close         Image: State File       Read From HW       Send To HW         Save       Close       Close         Image: State File       Read From HW       Send To HW         Save       Close       Close         Image: State File       Save       Save       Close         Image: State File       Save       Save       Save       Save         Image: State File       Save       Save       Save       Save         Image: St	Blanking Time: 25 (-2 ngue) Ghost Contro	
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2) Import cabinet configuration file into NovaPro HD.

Operating steps are shown in the figure below:

MovaLCT-N	Mars V4.3.0 T2	
System(S)	Tools(C) Plug-in Tool(P) User(U) Lang	juage(Lang)(L) Help(H)
	Screen Config(S) Bightness(B)	
Screen Conf	Calibration(C) trol	Monitor Function Card
Local System	Display Control(P)	Destruction Destruction of the second s
	Monitor(M)	
Control Sv	Function Card(F)	0 View Detail
Monitor Info	Hardware Information(H)	
Haugh	Multiple Screen Management(A)	
	Point Detect(T)	
	Prestore Picture(R)	
	Color Restore(O)	
	Light Panel Flash(U)	
Server Status:	Receive Card relay(I)	
8 <del></del>	MultiBatch of Adgustment(M)	
	Load configuration file(E)	
oad configuration fil	e	📕 💀 Load configuration file
Select COM port:	COM3 -	Select COM port: COM3 👻
	Move Up Move Down	Config file 1 Move Up Move Down
Add File	Delete File	Add File Delete File
Rename File	Save to HW	Rename File Save to HW

3) Load Cabinet File

uL.



# 6.8.5Alarm Threshold Settings

Set the threshold values of temperature and voltage. When temperature or voltage of NovaPro HD exceeds the threshold value, temperature or voltage on the home page of the screen will turn red and blink.

Advanced Settings		Alarm Threshold	
PIP PIP	•	UTemperature MAX	85°C
Advanced Config	•	Temperature MIN	-20°C
Hontage	•	Voltage MAX	7.5\
Eoad Cabinet Files	▶ 🖬	Voltage MIN	3.5\
Alarm Threshold			
Advanced Property	<b>N</b>		
E Save to Hardware			
Redundancy	Primary		
Advanced Propert	y		
Advanced Propert	<b>y</b>	Advanced Property	
Advanced Propert	y .	Advanced Property	
Advanced Propert	y	Advanced Property ADJ VGA Auto Adj ADC Calibration	
Advanced Settings Advanced Settings Advanced Config Montage	y	Advanced Property ADJ VGA Auto Adj ADC Calibration MR Settings	or
Advanced Settings          Advanced Settings         PIP         Advanced Config         Montage         Load Cabinet Files	y	Advanced Property ADJ VGA Auto Adj ADC Calibration MR Settings Calibration	Of Brightness
Advanced Settings Advanced Settings PIP Advanced Config Montage Load Cabinet Files Alarm Threshold		Advanced Property ADJ VGA Auto Adj ADC Calibration ADC Calibration Calibration Calibration Return to Home Screen	Of Brightness 36003
Advanced Settings          Advanced Settings         PIP         Advanced Config         Montage         Load Cabinet Files         Alarm Threshold         Advanced Property		Advanced Property ADJ VGA Auto Adj ADC Calibration DNR Settings Calibration Calibration Return to Home Screen	Of Brightness 3600\$
Advanced Settings PIP Advanced Config Advanced Config Load Cabinet Files Alarm Threshold Advanced Property Save to Hardware		Advanced Property ADJ VGA Auto Adj ADC Calibration DNR Settings Calibration Calibration Return to Home Screen	Of Brightness 36005

Including following functions:

**VGA Auto Adj:** sampling parameters of VGA input signal are automatically adjusted so that VGA image is clear and complete. Select this menu and then press the knob once to perform VGA automatic adjustment once.

**ADC Calibration:** Images will be color cast or darker etc. when analog signal is accessed into processors without ADC calibration. NovaPro HD is able to automatically perform ADC calibration based on input analog signal (including CVBS and VGA) to solve above problems. Select this menu and then press the knob once to perform ADC calibration once.

**DNR Settings:** It is available when image input port is not VGA and there are five modes of noise reduction: "Off", "Auto", "Low", "Medium" and "High".

## 6.8.7Save parameters to hardware

Save all the configurations of NovaPro HD to hardware and the data will not be lost after power off.

Advanced Settings		
PIP PIP	•	
Advanced Config	•	
Montage	•	Save parameters to hardware?
load Cabinet Files	▶	
Alarm Threshold	Þ	No
Advanced Property	F	
📄 Save to Hardware		
Redundancy	Primary	r

# 6.8.8 Redundancy

Set this controller as primary control or backup. "Primary" or "Backup" will be displayed on the main interface.

Advanced Config	
Montage	•
load Cabinet Files	•
Alarm Threshold	•
Advanced Property	Primary
📃 Save to Hardware	Backup
Redundancy	Primary

# 6.8.9DMX512 Channel Settings

Set the starting channel of DMX512. NovaPro HD currently has extracted 16 property channels. 0~8 have been defined with properties and the rest are not defined for the moment. For example, if the starting channel is set as 1, the controller will take 16 channels from the 1st channel as available channels.



Definitions of channel properties are shown in the table below:

Channel No.	Property Definition		
0	Global Brightness of LED display		
1	Contrast		
2	Saturation		
3	Hue		
4	Color temperature		
5	Red component brightness		
6	Green component brightness		
7	Blue component brightness		
8	Gamma		
9	Undefined		
10	Undefined		

11	Undefined
12	Undefined
13	Undefined
14	Undefined
15	Undefined

## 6.8.10 Factory Reset

Restore NovaPro HD to factory settings.

## 6.8.11 Hardware version

View hardware version of NovaPro HD.

## 6.9 Communication Settings

Set communication mode and network parameters of NovaPro HD.

There are two communication modes, one is USB Preferred and the other is LAN Preferred. If both USB and LAN port are connected to control computer and LAN Preferred is selected, system will use LAN to control. If only USB port is connected, the setting will be unavailable and system will use USB to control.

Network modes include "Manually" and "Automatically". It is obtained through DHCP while in "Automatically" mode.

	Main	100%	Communication Settings Mode Select	USB Preferred		
	Screen Settings	•	Network Settings	•		
	Input Settings	•				
	Output Settings	<b>*</b> •••				
	Display Control					
	Communication Settings					
	I anguiane					
Ļ	U Language		L			
			l'anne anna anna anna anna anna anna anna			
			Mode Select	LISB Preferred	Network Settings	Manually
			Network Settings		IP IP Address	192.168.5.12
					MSM Subnet Mask	255.255.255.0
					Rest	
						<u> </u>
6.101	Language Setti	ngs			0.	
NovaF	Pro HD supports C	hinese an	id English at p	present.		
		Language S	ettings			
				C		
		<u> </u>	/ Chiness			
		Engli	sh/英文		÷1.	
			4			
		C	2			

# 7 Web Interface Operation

Access Web control interface of Pro HD through browser. Main operating steps, functions and corresponding parameter configuration requirements are the same as the operation of the controller. This chapter only covers network establishment, motion description and features of Web interface operations. Please refer to the relevant chapters of controller operation for specific parameter configurations and configuration requirements.

#### 7.1 Network Establishment

- 1) Connect Pro HD to the same LAN and network segment as the control computer.
- 2) Turn on the power of Pro HD and set communication settings on the controller

referring to <u>7.9 Communication Setting</u>. Local IP can be obtained automatically or manually if you know the IP address.

 Open up the browser on control computer. Enter the local IP of Pro HD and open up the web configuration interface.

#### 7.2 Operating Motion Description

The Web interface of Pro HD is shown as the picture below. Compared with controller operation, the operation with Web interface is more intuitional and clearer.



**Toolbar**: The toolbar will be highlighted when you move the mouse over it. By clicking the toolbar, you can get into the configuration pages of sub menus. The functions are the same as the menus in the bottom left of the page.

**Menu bar:** click the mouse and enter the parameter configuration interface in the main menu. If there are sub menus, sub menu bar will pop out.

**Six input source switching buttons:** the input source of the main screen can be switched with mouse clicking. The switching of the input source of PIP needs to enter "Advanced

SDI DVI HDM	VGA DP CVBS	INPUT MAIN DVI No Signal PIP DVI No Signal OUTPUT Screen 128*512 @60Hz		BLK -
		Port STATUS Conter 3: 87% & 34°C (2) 4.8V	4 <u>1</u>	PIP -
;ở: Brightness	PIP			
Screen Settings	PIP Source SDI	🧿 DVI 💿 HDMI 💿 VGA	DP. CVBS	
Contract Settings	PIP Crop Settings PIF	Window Settings		
Display Control	Apply PIP Crop S	ettings		
Advanced Settings	Width(H)	3	726 (64-1920)	
Network Settings	Height(V)		98 (48~1080)	
My Device	Start X 💮		0 (0~1856)	
G Language Settings	Start Y 💮		0 (0-1032)	

Settings"  $\rightarrow$  "PIP" sub menu interface settings, as shown in the figure below.

Three display control buttons: the indicator lights default to blue and turn green when enabled.

#### 7.3 My Device

The name of the device can be modified, which is a unique function of Web interface operation.

NOVA)STAR NovaPro HD	(	
	INPUT MAIN DVI No Signal PIP DVI No Signal	BLK =
SDI DVI HDMI VGA DP CVBS	OUTPUT Screen 128*512 @60Hz Port 1 2 3 4	FRZ -
	STATUS Primary ※ 87% 🌡 35°C 🔍 4.8V	PIP
- Č: Brightness Device Name MyPro	(0~32,letters,numbers)	
Input Settings       Input Settings		
Cut Output Settings		
Advanced Settings		
Network Settings		
Language Settings		

# 8 LCT Client Operation

Communication between control computer and Pro HD is via USB control cable. Compared with the operation through controller and Web, LCT client can provide users with the most comprehensive functions and configuration parameters.

The main functions include screen configuration, brightness adjustment, monitoring, calibration, etc. Please refer to *Nova M3 Control System User Manual* for specific operations of these functions.

Operation interface of LCT client is shown as the figure below:

	۱			$\sim \sim \sim$		
Screen Configuration	Brightness	Calibration	Screen Control	Monitoring	Multi-function Card	My NovaiCare
ocal System Information	'n					
Control System	1	Other Dev	vice Unk	nown 🗾 🔽	iew Details of Device	
onitor Information						
100						
		•		0		Monitoring Card
			2.			

# 9 Firmware Upgrade

You can upgrade the firmware of Pro HD by the NovaLCT client.

Connect Pro HD to PC and run NovaLCT-Mars on PC. Log in advanced user and the password is "admin". Then click "admin" on your keyboard after logging in and the program loading page will pop up.

System(S)	Settings (C)	Tools(T) Plug-in (P)	User(U) Language(L)	Help(H)	
Brightness	Screen Cont	rol Monitoring Multi-	function Card My NovaiCar	re	
Control Sys	stem 1 nation	Other Devi	ce Unknown	View Details of Device	
8		a a a a a a a a a a a a a a a a a a a		20	
		•		0	
Service Status:	Service versio	n:3.0			

System(S) Settings (C)	Tools(T) Plug-in (P) Us	ser(U) Language(L) Helj Advanced User Login (A) Enter Demonstration Mode	o(H) (E)
Brightness Screen Contr	Monitoring Multi-functi	ion Card My NovaiCare	
Local System Information	User Login	and the second s	×
Control System 1			
Control System 1		admin	
Monitor Information	Passwo	ord *****	
100		02	
•	Log	jin Cancel	
ervice Status: Service version	n:3.0		
			$\bigcirc$ ·`
System(S) Settings (C)	Tools(T) Plug-in (P) U	ser(U) Language(L) Hel	p(H)
	<u> </u>		
			Weight Court Weitherstown
Screen Configuration   Brig	itness Calibration Scre	en Control   Monitoring   Mi	Inti-function Card My NovalCare
Local System Information			
Control System 1	Other Device	Unknown View	Details of Device
Monitor Information			
Alter .	Alle		<b>2</b> 370
			Monitoring Card
	5		
ervice Status: Service versio	1:3.0		
N N			

rogram Loading			
Select Operation Com	nunication Port		
Current Operation Communication Port	USB@Port_#0001.Hub_#0001	Device Count	1
Select Program			
Program Name			
Program Version	Program Version V1.0.0.0		
Program Path E:\M3\中文\VX系列Data_VX4S_1.0.0.0			
The Selected Items to	Dad		
Sending Card	Receiving Card EPGA		Update Reconne
			C AC
and upro Varaian Info			
ardware Version Info		C	
ardware Version Info Refre	et Po Send 1 👘 Port	1 Rece.	Refres
ardware Version Info Refre	et Po Send 1 💽 Port	Rece.	Refres
ardware Version Info	et Po Send 1 Port	Rece.	Refres
ardware Version Info	et Po Send 1 Port	1 Rece 1	Refres
ardware Version Info Refre	et Po Send 1 Port	Rece.	Refres
ardware Version Info	et Po Send 1 Port	Rece.	Refres
ardware Version Info	et Po Send 1 Port	Rece.	Refres
ardware Version Info	et Po Send 1 Port	Rece.	Refres
ardware Version Info	et Po Send Port	Rece	Refres
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ardware Version Info	et Po Send Port	Rece.	Refres
ardware Version Info	et Po Send Port	Rece.	Refres
eardware Version Info	et Po Send Port	Rece	Refres
Iardware Version Info <ul> <li>Refre</li> <li>Refre</li> <li>Image: Sending Card</li> <li>Receivin</li> </ul> Image: Sending Card         Receivin           Sisplay Info         2015/11/5         16:06:44Conn           2015/11/5         16:07:33Current	et Po Send Port	Rece	Refres

**Current operation communication port:** Choose the serial port, the hardware program of which is to be upgraded.

Program path: Select the hardware program to be upgrade currently.

Sending card: Check to update all the programs of sending card.

**FPGA of receiving card:** Check to update FPGA program of receiving card.

Update: Change hardware program into hardware device.

Refresh all: Check this option and click "Refresh" to refresh and display the program versions

of all sending card and receiving card of current serial port.

•

**Set refresh:** Click "Refresh" to set refresh and display the version information of one receiving card.

**Refresh:** Refresh and display the version information of hardware in order to make sure the hardware program is updated.

# **10 Troubleshooting and Precautions**

Problem	Solution
	Check whether the power is correctly connected and the switch is
	on.
	Use test pattern to check whether the LED is correctly connected
Blank screen of	and is working properly.
LED display	Check whether Pro HD has signal input and the output is set as
	black out.
	Check whether the display configuration mode and parameters are
	correct.
	Check whether the input channel has image input and it is
	displayed normally.
, 7	Check whether PIP is enabled and channel 2 has signal input and
	the image is displayed normally.
Monitoring port output is abnormal	Check whether monitor output is connected correctly and the
	connection is not loose.
	If connecting Pro to display, please confirm whether the display
	supports the output resolution of Pro.
	Try to cut the power and restart the device. Then reset Pro and do

	the operations again.
VGA input phase offset	Perform VGA auto fit
PIP displays abnormally	Check whether channel 2 has signal input and it is displayed normally. Check whether the parameter settings of PIP are correct.
Channel effect is abnormal	Check whether channel is switched on.
Montage is abnormal	Check whether montage is enabled and the parameter settings are correct. Check whether input signal is normal.
Precautions	<ol> <li>This product only supports rectangular screen composed of cabinets with same size and specifications for machine configuration. Irregular cabinets and screens need to be configured on LCT client.</li> <li>It is not recommended to alternately operate one LED display via machine operation, Web operation and LCT client operation.</li> </ol>

Please troubleshoot the devices according to above steps. If problems cannot be solved, please contact our local dealers or customer service department. Since there are components with high voltage inside the controller, please DO NOT maintain it by yourself for the sake of your safety.

# **11 Technical Specifications**

Inputs		
Port	Qty	Description
CVBS	1	PAL/NTSC
VGA	1	VESA standard (supporting 1080p input)
DVI	1	VESA standard (supporting 1080i input)
		supporting HDCP
HDMI	1	EIA/CEA-861 standard, in accordance with HDMI-
		1.3standard, supporting HDCP
DP	1	VESA standard
3G-SDI	1	480i、576i、720p、1080i/p(3G SDI)

Outputs		
Port	Qty	Description
DVI LOOP	0	DVI loop output, consistent with DVI input connector
SDI LOOP	1	SDI loop output, consistent with SDI input connector
LED Output	4	4 Gigabit Ethernet outputs. Only Ethernet port 1 supports
1/1		audio output. When the multifunction card is connected for
		audio decoding, the multifunction card must be connected
		to the Ethernet port 1.
		Maximum horizontal resolution is 3840 pixels.
		Maximum vertical resolution is 1920 pixels.

OPT Output	4	4 optical fiber connectors for long-distance transmission
Monitor	2	DVI and HDMI connectors for output image monitoring DVI
		and HDMI connectors output the same image.

Control Interf	ace	
Port	Qty	Description
USB	2	Upper computer control interface
RJ45	1	Multi-units communication interface
DMX	1	Connected to all kinds of control interfaces that support DMX512 interface protocol.
	1	

<b>Overall Specifications</b>	0-
Input power	AC 100-250V~, 50/60Hz, 0.65A
Overall power consumption	30 W
Operating temperature	-20°C~+60°C
Dimensions (L x W x H)	483 mm × 389 mm × 88.2 mm
Weight	6 kg
+iph +iph	·

# **12 Installation Dimensions**

