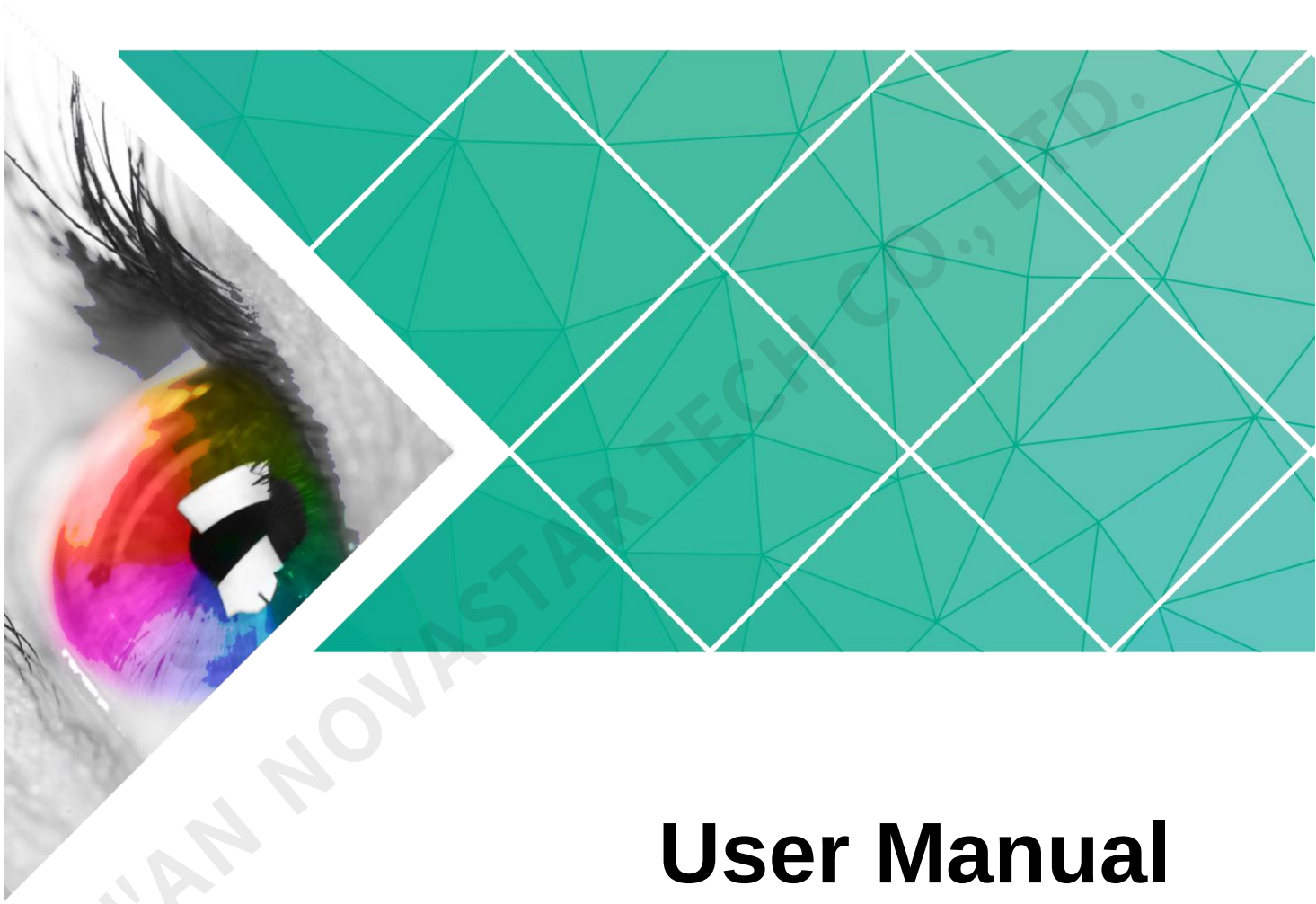
MCTRL R5

Independent Controller



User Manual

Product Version: V1.0.1

Document Number: NS110100550

Trademark

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Statement

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Change History

Version	Release Date	Description
V1.0.1	2018-03-07	Document style is updated.
V1.0.0	2016-06-06	First release

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1 Safety

To avoid potential hazards, please use this product according to regulations. Power outlet should be installed near the unit and easy to reach. In the event of breakdowns, only trained personnel may disassemble it for maintenance, and please contact the after-sales department of NovaStar for help.

	High-voltage hazard: Operating voltage of this product ranges from 100 V to 240 V AC.
	Grounding: Ground connection of this product is enabled through power cords. Please make sure that ground conductors are in good condition.
	Electromagnetic interference: Keep this product far away from magnets, motors and transformers.
	Moisture proof: Keep this product in a dry and clean environment. In case of liquid immersion, please pull the power plug out immediately.
	Keep the product away from flammable and explosive hazardous substances.
	Prevent liquids or metal fragments from dropping into the product in order to avoid accidents.

2 Overview

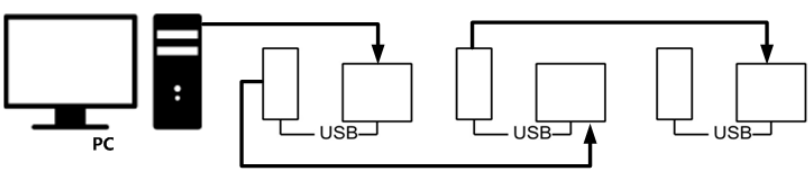
Developed by NovaStar, the MCTRL R5 is the first independent controller that supports rotation function. With up to 3840×1080@60Hz loading capacity of a single unit, it can support any custom resolution within this range as required, thus meeting the on-site configuration requirements of extra-long or extra-large LED displays.

The MCTRL R5 supports HDMI, Dual Link DVI, SDI signal inputs, as well as 8 Neutrik Gigabit Ethernet ports, and 2 optical fiber outputs.

The distinctive and innovative design of the MCTRL R5 enables screen configuration without PC, diverse image rotation effects, and amazing visual experience for users.

Note: The device must be powered off before connection.

To control multiple MCTRL R5 units (10 units at most), please cascade them according to the figure below.



3 Hardware Structure

3.1 Appearance

Front Panel

No.	Name	Description
①	Indicator **R5**	Blue always on: Normal Red on: Alarm Orange on: No signal Blue breathing: Standby
②	LED screen	Displays the menu.
③	Knob	Pressing the knob enters a menu or confirms an option or operation, while rotating the knob selects a menu item or adjusts a parameter.
④	**BACK**	Returns to the parent menu.
⑤	**POWER**	Pressing it powers on the device, while holding it down for 4–5 seconds powers off the device.
⑥	USB port	Connects to the USB drive for firmware upgrade.

Instruction on knob operations:

- On the home screen, pressing the knob enters the main menu.

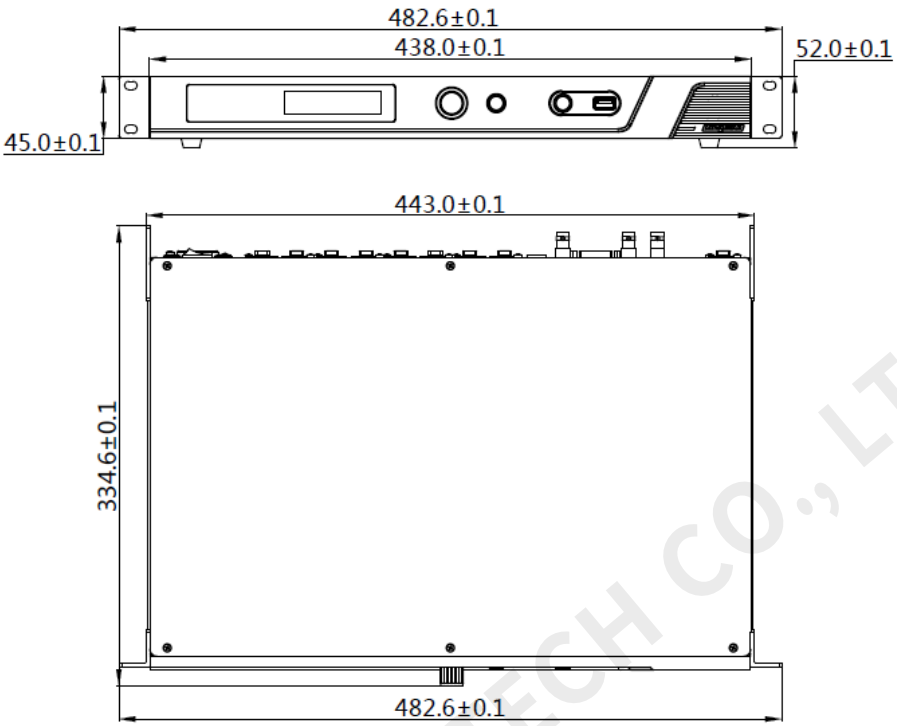
- On the main menu, rotating the knob selects a menu item or adjusts the parameter, and pressing the knob confirms the selection or enters the submenu.
- Holding down the knob and **BACK** button simultaneously for 5 seconds locks or unlocks all the buttons.

Rear Panel

Input	
SDI	6G-SDI connector
HDMI	HDMI1.4 connector
DVI	DVI connector
Output	
1–8	8 × Neutrik (NE8FBH) Gigabit Ethernet outputs
OPT1–2	2 × Fiber optical outputs OPT1 corresponds to Ethernet ports 1–8. OPT2 serves as the backup for OPT1.
Control	
ETHERNET	For PC connection
USB IN	Input port for cascading devices, or for PC connection
USB OUT	Output port for cascading devices
GENLOCK	
IN	GENLOCK type: Blackburst. It is the GENLOCK synchronization signal which is used to ensure synchronization between the LED screen display and external GENLOCK source.
LOOP	GENLOCK loop output
Power Connector	
AC 100-240 V–50/60 Hz	AC power input

Note: Type-A USB port is prohibited from being connected to the upper computer directly.

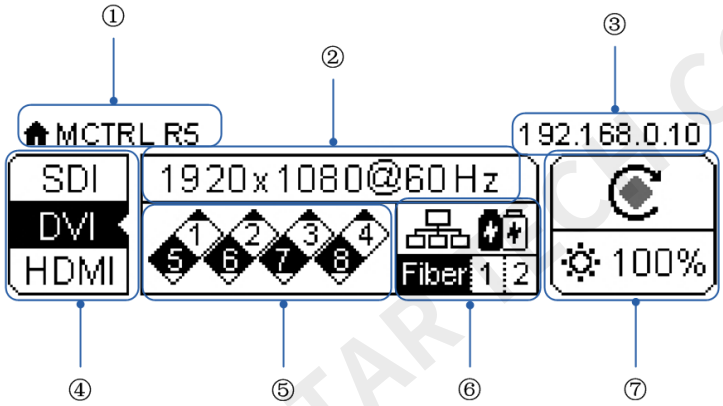
3.2 Dimensions



Unit: mm

4 Homepage

After the MCTRL R5 is powered on, the home screen is shown in the figure below.



No.	Description	
①	Name of the device	
②	Resolution and frame rate of the current input source.	
③	IP address	
④	Video connection status, types of video sources supported	
⑤	Ethernet ports connection status: • Black indicates the port connection is valid and in control status. • White indicates the port is disconnected or the connection is invalid. • Upper corner mark indicates the port connection is valid and in redundant status.	
⑥	Operating status description:	
		Power voltage of the motherboard
		Temperature inside the device
		Screen brightness

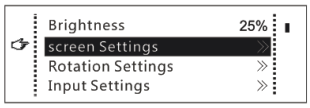
No.	Description	
	Fiber 1~2	Optical fiber ports connection: • Black indicates the port connection is valid and in control status. • White indicates the port is unconnected or the connection is invalid.
	/GEN	Control ports: Connects to USB/ Ethernet/ GenLock synchronization
	/	Rotation enabled/locked

5 Menu Operations

MCTRL R5 features powerful functions and simple operations. To achieve better display effects, users can choose to set other options in the menu.

5.1 Brightness Adjustment

On the main menu, press the knob to select the **Brightness** item and rotate the knob to adjust the brightness value.



5.2 Screen Settings

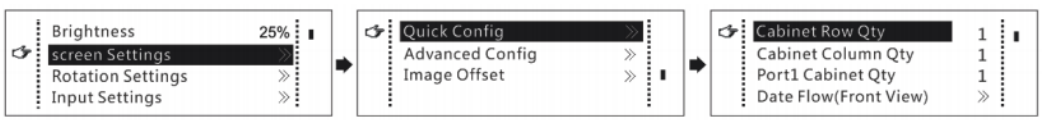
5.2.1 Quick Configuration

Before you start, load the cabinet configuration files and save them to the receiving card.

Step 1 Press the knob to enter the main menu.

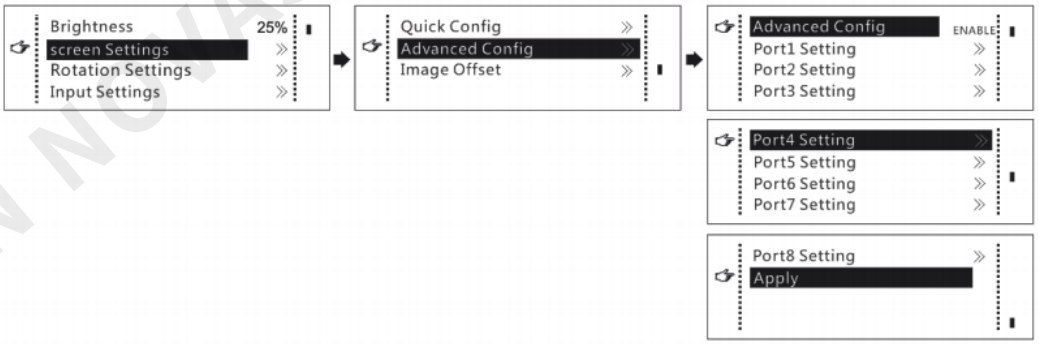
Step 2 Choose **Screen Settings** > **Quick Config** to enter the submenu, and rotate the knob to set corresponding options.

- Set the row and column quantity of cabinets based on the actual condition of a screen.
- Set the cabinet quantity connecting to port 1. There are limits on the loading capacity of ports. Refer to **a)** in **Note** for details.
- Set data flow of the screen, and refer to **c), d),** and **e)** in **Note** for details.



<table>
<tr><th colspan="2">Note</th></tr>
<tr><td>a). If n ports are used to load the screen, the number of cabinets loaded by the first (n–1) ports must be:
1. The same;
2. The integral multiple of the number of rows or columns;
3. No less than the number of cabinets loaded by the last port.</td><td>Example:
If Ethernet ports 1–8 are used to load the screen, the number of cabinets loaded by ports 1–7 must be the same and the integral multiple of the number of rows or columns. Therefore, you need to set only the number of cabinets loaded by port 1 according to the actual situation during quick configuration. The number of cabinets loaded by port 8 must be less than or equal to the number of cabinets loaded by port 1.</td></tr>
<tr><td colspan="2">b). If there are irregular cabinets, cabinets of different sizes, or irregular screens, it is required to connect NovaLCT for screen configuration.</td></tr>
<tr><td colspan="2">c). During data flow settings, you can view the results of different data flow presets on LED display by rotating the knob. When you are satisfied with the LED display image effect, press the knob to save the settings.</td></tr>
<tr><td colspan="2">d). During data flow settings, you must ensure that the physical connection of each port is along the same direction and downward to next one.</td></tr>
<tr><td colspan="2">e). During data flow settings, you must ensure that the Ethernet port 1 is at the beginning position of the whole physical connection.</td></tr>
<tr><td colspan="2">f). After enabling the rotation function, choose Screen Settings > Quick Config, and a message asking “Disable rotation. Are you sure?” will appear. Choose Yes to continue.</td></tr>
</table>

5.2.2 Advanced Configuration



Step 1 Choose **Advanced Config** and press the knob to enter its submenu.

Step 2 On the warning screen, click **Yes** to enter the advanced configuration screen.

Step 3 Select **Enable** and set the parameters of targeted Ethernet ports.

5.2.3 Image Offset

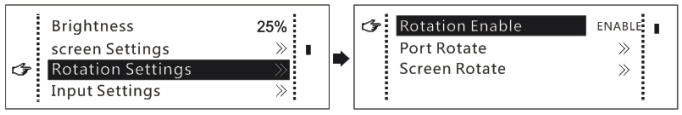
Set the horizontal offset and vertical offset of devices’ loading image.

5.3 Rotation Settings

There are 2 rotation methods: Port rotation and screen rotation.

- Port rotation: Rotation of cabinets loaded by an Ethernet port (For example, set the rotation angle of port 1, and the cabinets loaded by port 1 will rotate according to the angle).
- Screen rotation: Rotation of the whole LED screen according to the rotation angle set before.

Rotation settings:



Step 1 Choose **Rotation Settings** > **Rotation Enable**, and choose **ENABLE**.

Step 2 Choose **Port Rotate** or **Screen Rotate** and set parameters.

Step 3 Select **Save** to save your settings.

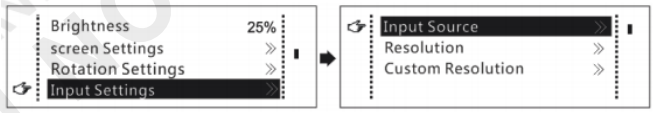
Notes:

- Hardware screen configuration is required to be done before the rotation settings.
- After screen configuration are done on SmartLCT, set rotation function on MCTRL R5, and a message “Reconfig screen. Are you sure?” will appear. Choose **Yes** to perform rotation settings.

5.4 Input Settings

5.4.1 Input Video Source Settings

There are several types of input sources available for users to choose.



5.4.2 Input Resolution Settings

There are 2 methods to set input resolution:

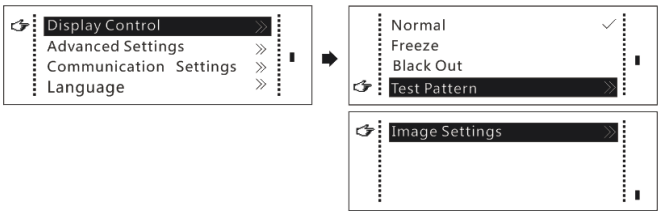
Method 1: Preset resolution

Choose a proper resolution from the preset standard resolutions, or use method 2 to customize the resolution.

Method 2: Custom resolution

Rotate the knob to set the custom width (growing in even numbers), custom height, and custom refresh rate, and choose **Apply**. Press the knob to confirm the setting. If **Apply** is not enabled, the custom resolution is invalid.

5.5 Display Control



Normal: Playing the input source normally.

Black Out: The screen is black out, with no display.

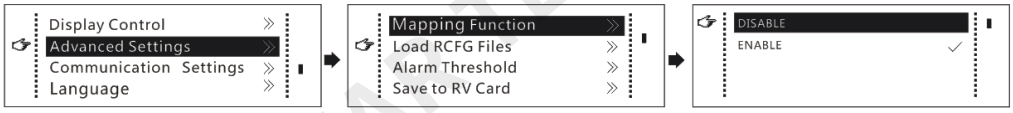
Freeze: Freezing the displaying image.

Test Pattern: 8 test patterns including pure color and lines testing.

Image Settings: Setting red, green and blue brightness, color temperature, Gamma rate, and saving parameters.

5.6 Advanced Settings

Advanced settings include settings of multiple main functions, as shown below.



5.6.1 Mapping Function

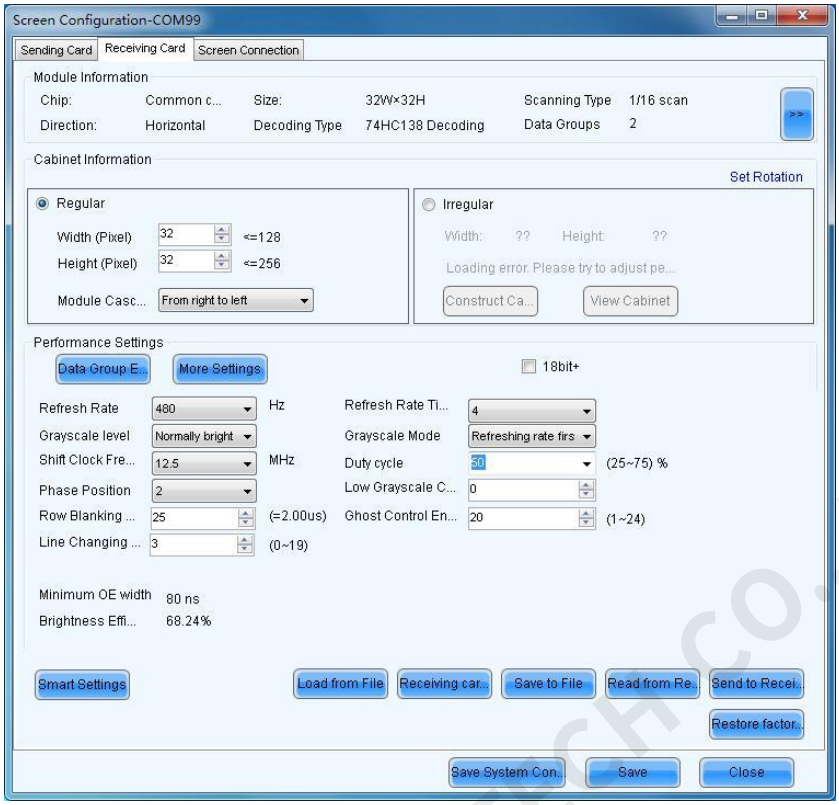
When **Mapping Function** is enabled, each of the cabinets will display the cabinet number and Ethernet port number it belongs to.

5.6.2 Loading Cabinet Files

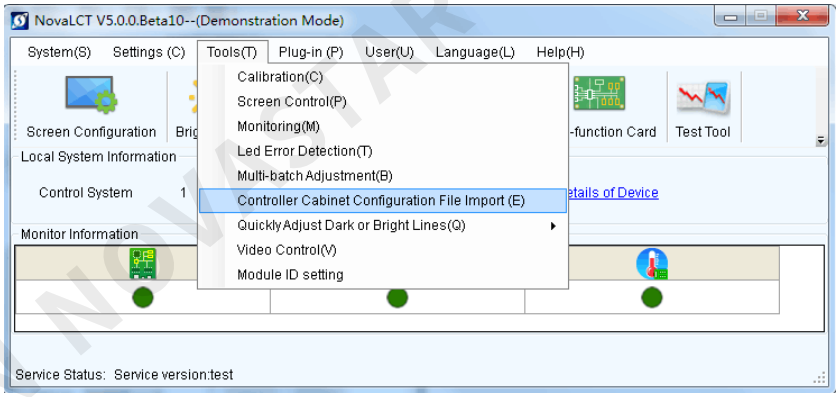
Connect to PC and start NovaLCT on PC, and import the saved cabinet configuration files.

Step 1 Save cabinet configuration files.

After configuring the receiving cards, click **Save to File** to save the cabinet configuration files (.rcfgx) to local PC.



Step 2 Import the cabinet configuration files to the MCTRL R5.



Note: After entering the **Configuration File of Controller Cabinet Import** window, NovaLCT will automatically read the configuration files already existed in the MCTRL R5. Users can change the names and orders of these files or delete them.

Step 3 Load the cabinet configuration files.

5.6.3 Alarm Threshold

Set the ranges of temperature and voltage values.

5.6.4 Saving to Hardware

Save all the configurations related to the receiving cards to the receiving cards and those data will not be lost even after the device is powered off.

5.6.5 Redundancy

Set the current device as the primary or backup device.

5.6.6 Preset Template

Save configuration information, rotation parameters, and user settings information as templates. Users can add 10 templates at most.

5.6.7 Hot Backup for Input Source

Set backup source for the current input source. The backup source should be other types of input source supported by the device.

5.6.8 Factory Reset

Reset the current device to factory settings.

5.6.9 Go Homepage (s)

The current page stays for how many seconds before going homepage when there is no actions.

5.6.10 Greyscale Adjustment

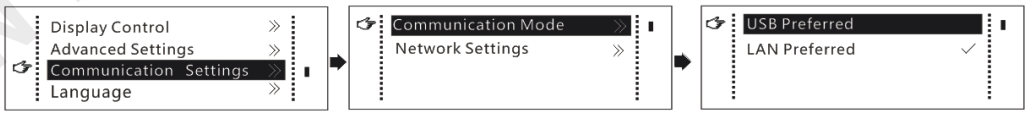
Adjust greyscale among the range from 4 to 15 for the LED display screen.

5.6.11 Hardware Version

View the hardware version of current device. In case of new version release, access NovaLCT through PC to upgrade the hardware version.

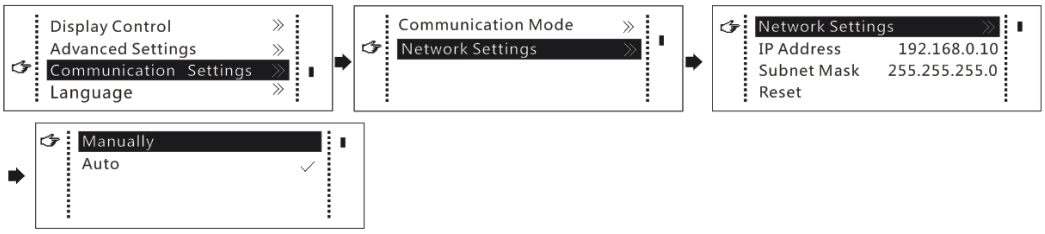
5.7 Communication Settings

Set the communication mode and network parameters.



Two communication modes are provided: **USB Preferred** and **LAN Preferred**.

When the USB and Ethernet ports are connected at the same time, the system will use the communication mode set by the user.



Network settings include manual mode and auto mode. When setting the network manually, the IP address of current device cannot conflict with IP addresses of other devices.

5.8 Language

Change the UI language of the MCTRL R5 unit.

6 Specifications

Input Voltage	AC 100-240V 50/60 Hz
Rated Power Consumption	25 W
Operating Temperature	-20°C–60°C
Operating Humidity	10% RH–90% RH
Dimensions	482.6 mm × 334.6 mm × 52.0 mm
Weight	4.3 kg