MCTRL R5

LED Display Controller

Specifications

Change History

Document Version	Release Date	Description
V1.0.3	2021-11-26	• Optimized the document content. • Changed the document style.
V1.0.2	2019-09-06	Optimized the document content.
V1.0.1	2018-06-04	Updated the document style.
V1.0.0	2016-06-06	First release

Introduction

The MCTRL R5 is the first LED display controller of NovaStar that supports image rotation. A single MCTRL R5 features a loading capacity of up to 3840×1080@60Hz. It supports any custom resolutions within this capacity, meeting the on-site configuration requirements of ultra-long or ultra-wide LED displays.

Working with the A8s or A10s Plus receiving card, the MCTRL R5 allows for free screen configuration and image rotation at any angle in SmartLCT, presenting a variety of images and bringing an amazing visual experience to users.

The MCTRL R5 is stable, reliable and powerful, dedicated to providing an ultimate visual experience. It can be mainly used in the rental and fixed installation applications, such as concerts, live events, security monitoring centers, Olympic Games and various sports centers.

Certifications

FCC, RoHS, UL&CUL, CE, CB, IC

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.
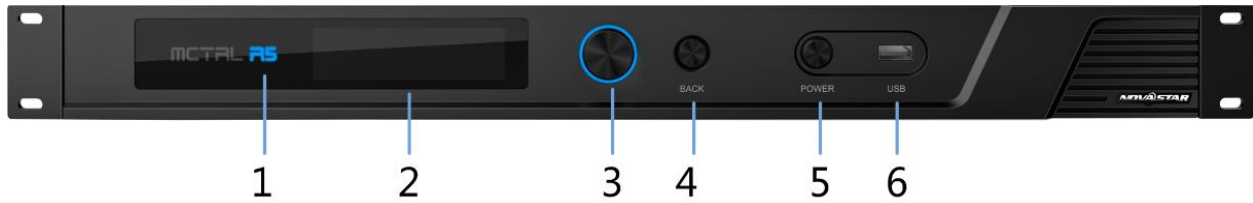
Features

- A variety of input connectors
  - 1x 6G-SDI
  - 1x HDMI 1.4
  - 1x DL-DVI
- 8x Gigabit Ethernet outputs and 2x optical outputs
- Image rotation at any angle

  Work with the A8s or A10s Plus receiving card and SmartLCT to support image rotation at any angle.

- Support for 8-bit and 10-bit video sources
- Pixel level brightness and chroma calibration

  Work with the high-precision calibration system to perform brightness and chroma calibration on each LED to effectively remove brightness differences and chroma differences, enabling high brightness consistency and chroma consistency.

- Firmware update via USB port on the front panel
- Up to 8 devices can be cascaded.

Table 1-1 Feature constraints

Feature	Constraints
Image rotation	• A 10-bit input does not support image rotation. • The screen must be configured on the MCTRL R5 before rotation setting in the LCD menu. • The screen must be configured in SmartLCT before rotation setting in SmartLCT.

Appearance

Front Panel

No.	Name	Description	
1	"R5" indicator	Solid blue	The device is functioning normally.
		Solid orange	The device has no signal input.
		Breathing blue	The device is in standby mode.
		Solid red	The device has an alarm.
2	OLED screen	Display the device status, menus, submenus and messages.	
3	Knob	On the home screen, press the knob to enter the main menu screen. On the main menu screen, rotate the knob to select a menu item or adjust the parameter value. Press the knob to confirm the operation.	
4	BACK	Go back to the previous menu.	
5	POWER	Standby button	
6	USB	A USB port used to connect a USB drive for firmware update	

Rear Panel

Connector Type	Connector Name	Description
Input	SDI	1x 6G-SDI input connector • Maximum resolution: 3840×1080@60Hz • Do NOT support interlaced signal input. • Do NOT support input resolution settings or input bit depth settings.

	HDMI	1x HDMI 1.4 input connector
		• Maximum resolution: 3840×1080@60Hz
		• Minimum resolution: 800×600@24Hz
		• Custom resolutions supported
		    Maximum width: 3840 (3840×1080@60Hz)
		    Maximum height: 3840 (800×3840@60Hz)
		• Supported standard resolutions:
		1024×768@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1280×720@(24/25/30/48/50/60/72/75/85/100/120)Hz

Connector Type	Connector Name	Description
		1280×1024@(24/25/30/48/50/60/72/75/85/100/120)Hz 1366×768@(24/25/30/48/50/60/72/75/85/100/120)Hz 1440×900@(24/25/30/48/50/60/72/75/85/100/120)Hz 1536×1536@(24/25/30/48/50/60/72/75/85/100)Hz 1600×1200@(24/25/30/48/50/60/72/75/85/100/120)Hz 1920×1080@(24/25/30/48/50/60/72/75/85/100/120)Hz 1920×1200@(24/25/30/48/50/60/72/75/85/100)Hz 2048×640@(24/25/30/48/50/60/72/75/85/100/120)Hz 2048×1152@(24/25/30/48/50/60/72/75/85/100)Hz 2304×1152@(24/25/30/48/50/60/72/75/85/100)Hz 2560×816@(24/25/30/48/50/60/72/75/85/100/120)Hz 2560×1600@(24/25/30/48/50/60)Hz 3840×1080@(24/25/30/48/50/60)Hz • Support HDCP 1.4. • Do NOT support interlaced signal input.

	DVI	1x DL-DVI input connector
		
		• Maximum resolution: 3840×1080@60Hz
		
		• Minimum resolution: 800×600@24Hz
		
		• Custom resolutions supported
		
		    Maximum width: 3840 (3840×1080@60Hz)
		    Maximum height: 3840 (800×3840@60Hz)
		
		• Supported standard resolutions:
		1024×768@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1280×720@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1280×1024@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1366×768@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1440×900@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1536×1536@(24/25/30/48/50/60/72/75/85/100)Hz
		1600×1200@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1920×1080@(24/25/30/48/50/60/72/75/85/100/120)Hz
		1920×1200@(24/25/30/48/50/60/72/75/85/100)Hz
		2048×640@(24/25/30/48/50/60/72/75/85/100/120)Hz
		2048×1152@(24/25/30/48/50/60/72/75/85/100)Hz
		2304×1152@(24/25/30/48/50/60/72/75/85/100)Hz
		2560×816@(24/25/30/48/50/60/72/75/85/100/120)Hz
		2560×1600@(24/25/30/48/50/60)Hz
		3840×1080@(24/25/30/48/50/60)Hz
		
		• Do NOT support interlaced signal input.

Output	1–8	8x RJ45 Gigabit Ethernet ports • Capacity per port up to 650,000 pixels (8bit) or 325,000 pixels (10bit) • Do not support audio output. • Support redundancy between Ethernet ports.
	OPT1–OPT2	2× 10G optical ports • OPT 1 copies and outputs the data on Ethernet ports 1–8. • OPT 2 is the copy channel of OPT 1.

Connector Type	Connector Name	Description
Control	ETHERNET	Connect to the control computer.
	USB IN-OUT	• IN: 1x type-B USB 2.0, used as the input port to cascade devices or connect to PC for device debug • OUT: 1x type-A USB 2.0, used as the output port to cascade devices. Up to 8 devices can be cascaded.
	GENLOCK IN-LOOP	A pair of Genlock signal connectors. Support Bi-Level, Tri-Level and Black burst. • IN: Accept the sync signal. • LOOP: Loop the sync signal.
Power	AC 100V~240V-50/60Hz	

Dimensions
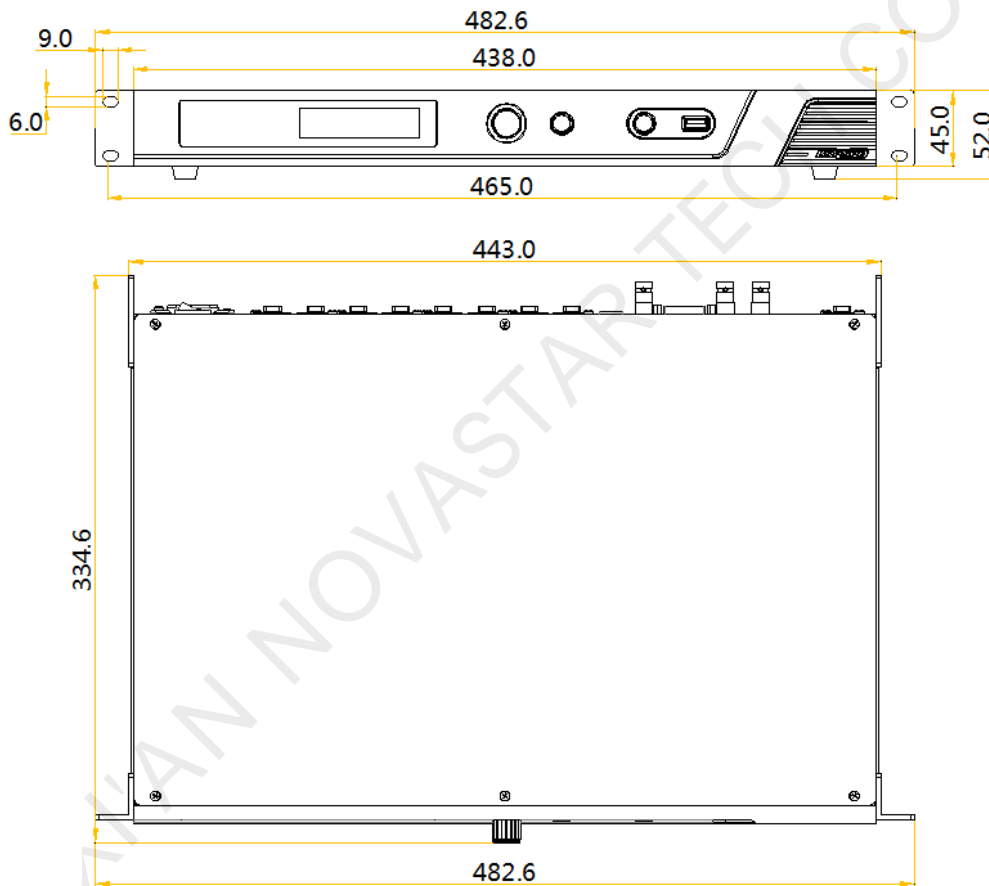
Tolerance: ±0.3   Unit: mm

Specifications

Electrical Specifications	Input voltage	AC 100V~240V-50/60Hz
	Rated power consumption	25 W
Operating Environment	Temperature	–20°C to +60°C
	Humidity	10% RH to 90% RH, non-condensing

Storage Environment	Temperature	−20°C to +70°C
	Humidity	10% RH to 90% RH, non-condensing
Physical Specifications	Dimensions	482.6 mm × 334.6 mm × 52.0 mm
	Weight	4.3 kg
Packing Information	Carrying case	530 mm × 370 mm × 140 mm
	Accessory box	405 mm × 290 mm × 48 mm 1x Power cord, 1x Ethernet cable, 1x USB cable, 1x HDMI cable, 1x DVI cable
	Packing box	550 mm × 400 mm × 175 mm

Video Source Features

Input Connector	Features		
	Bit Depth	Sampling Format	Max. Input Resolution
HDMI 1.4	8bit	RGB 4:4:4 YCbCr 4:4:4 YCbCr 4:2:2	3840×1080@60Hz
	10bit		2048×1152@60Hz
Dual-link DVI	8bit	RGB 4:4:4	3840×1080@60Hz
6G-SDI	Maximum input resolution: 3840×1080@60Hz Note: When the input source is a 6G-SDI signal, the input resolution cannot be set. Interlaced signals are not supported.		

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Official website
www.novastar.tech

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