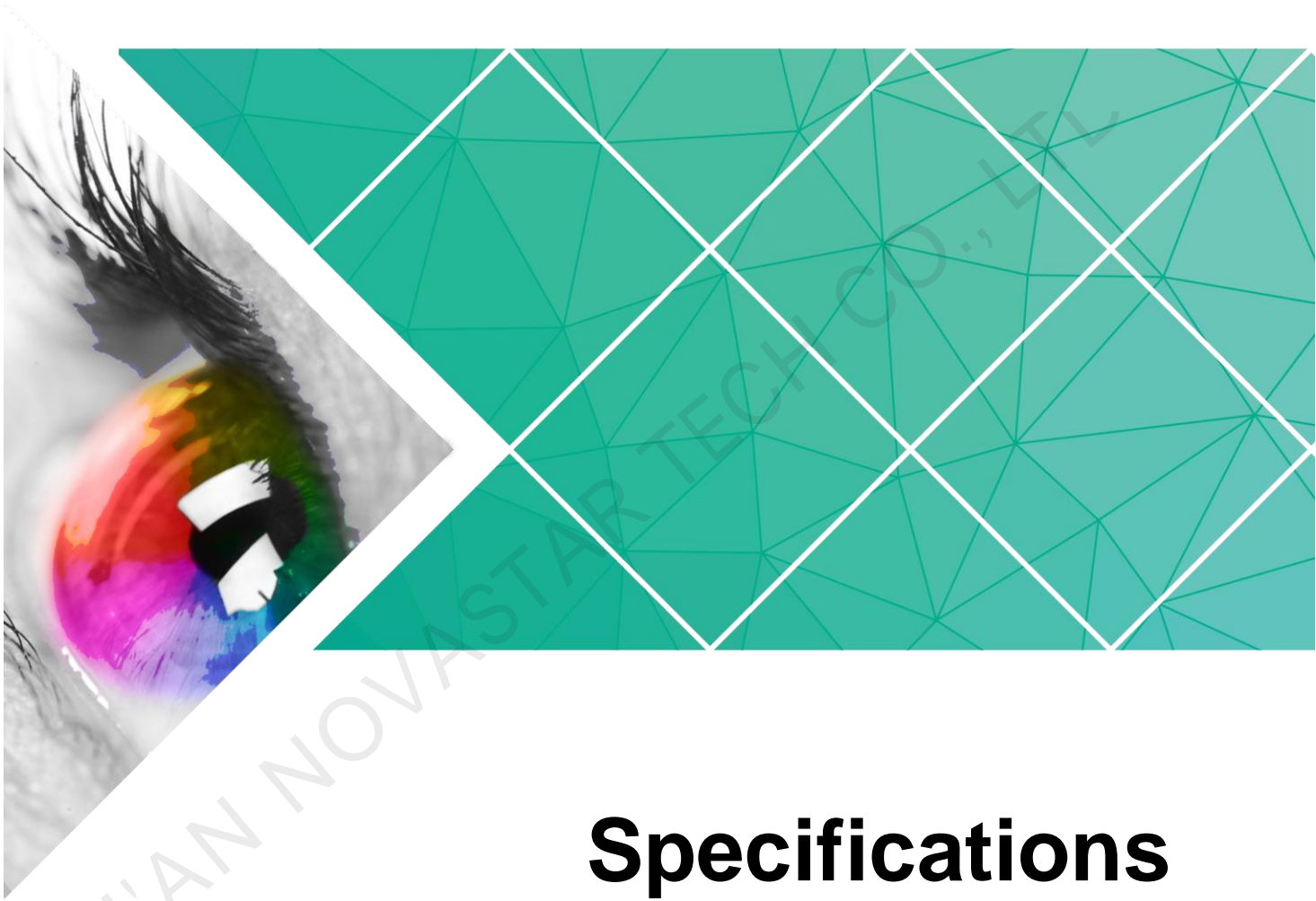


# MCTRL660 PRO

Independent Controller



## Specifications

Product Version: V1.3.0

Document Number: NS110100729

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XI'AN NOVASTAR TECH CO., LTD.

## Change History

Version	Hardware Version	Release Date	Description
V1.3.0	V1.0.3.0	2019-03-04	<ul style="list-style-type: none"> <li>• Added the <b>Backup &amp; Restore</b> function for Web control.</li> <li>• Changed the location of color depth function on Web control UI.</li> <li>• Added the following functions for home screen:                             <ul style="list-style-type: none"> <li>– The standby button will be disabled after the home screen is locked.</li> <li>– Display the color depth of video source.</li> <li>– Display the custom sending card name.</li> </ul> </li> <li>• Changed the location of color depth function.</li> <li>• Deleted the deep color loop mode adjustment function.</li> <li>• Changed the value range of the hue parameter in image settings to -180–180.</li> </ul>
V1.2.0	V1.0.2.0	2019-01-25	Updated the appearance and dimensions diagrams.
V1.1.0	V1.0.2.0	2018-12-03	<ul style="list-style-type: none"> <li>• Optimized descriptions of ultra-high color depth input.</li> <li>• Optimized descriptions of individual Gamma adjustment for RGB.</li> <li>• Optimized descriptions of low latency.</li> </ul>
V1.0.0	V1.0.1.0	2018-09-26	First release

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# Contents

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<b>Change History</b> .....	<b>ii</b>
<b>1 Overview</b> .....	<b>1</b>
<b>2 Video Source Features</b> .....	<b>2</b>
<b>3 Appearance</b> .....	<b>3</b>
3.1 Front Panel .....	3
3.2 Rear Panel .....	3
<b>4 Dimensions</b> .....	<b>6</b>
<b>5 Specifications</b> .....	<b>7</b>

# 1 Overview

The MCTRL660 PRO is a professional controller developed by NovaStar. A single MCTRL660 PRO has a loading capacity of up to 1920×1200@60Hz. It supports custom resolutions with the width up to 3840 pixels and height up to 2560 pixels, which meets configuration requirement of ultra-large screens.

The MCTRL660 PRO has a variety of video connectors:

- Input connectors: 1 × 3G-SDI, 1 × HDMI 1.4a, 1 × single-link DVI
- Output connectors: 6 × Gigabit Ethernet port, 2 × 10G optical port
- Loop output connectors: 1 × 3G-SDI LOOP, 1 × HDMI 1.4a LOOP, 1 × DVI LOOP

The MCTRL660 PRO has many industry-leading advanced technologies:

- Input of ultra-high color depths: 10-bit/12-bit RGB 4:4:4/YCbCr 4:4:4, with input resolutions up to 1920×1080@60Hz, increasing color expression capabilities by 4096 times compared to 8-bit inputs, and presenting images with rich and delicate colors, smoother transitions, as well as clearer details
- Supports individual Gamma adjustment for RGB when the color depth of input source is 10-bit or 12-bit, which effectively controls image non-uniformity under low grayscale and white balance offset to improve image quality.
- Low latency: Less than 1 ms (when the start position of image is 0.)
- Dual working modes: working as sending card and fiber converter
- One-click backup and recovery, quickly recovering previous screen configurations to deal with sudden on-site failure
- Image mirroring, allowing for more cool and dazzling stage effects
- Auto LED screen configuration
- Web control
- Pixel level brightness and chroma calibration
- Monitoring of inputs
- Multiple MCTRL660 PRO units can be cascaded.

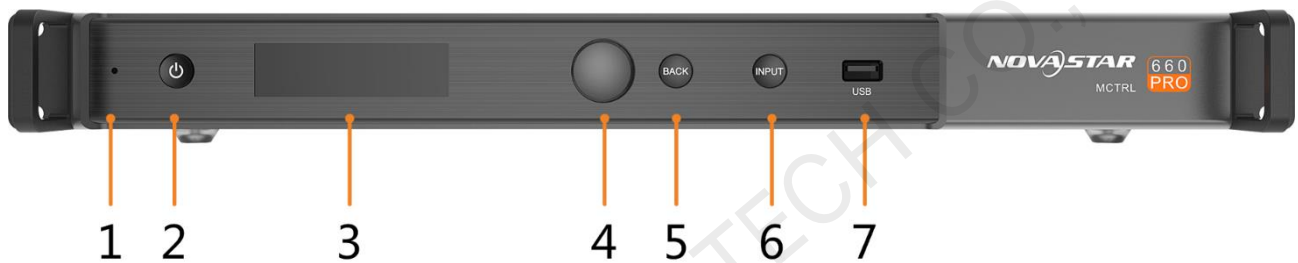
The MCTRL660 PRO is mainly used for the rental and fixed fields, such as concerts, live events, security monitoring centers, Olympic Games and various sports centers.

# 2 Video Source Features

Input Connector	Features		
	Color Depth	Sampling Format	Maximum Input Resolution
HDMI 1.4a	8-bit	RGB 4:4:4	1920×1200@60Hz
	10-bit/12-bit	YCbCr 4:4:4	1920×1080@60Hz
Single-link DVI	8-bit	YCbCr 4:2:2	1920×1200@60Hz
	10-bit/12-bit	YCbCr 4:2:0	1920×1080@60Hz
3G-SDI	Maximum supported input resolution: 1920×1080@60Hz. Note: <ul style="list-style-type: none"> <li>• 3G-SDI input sources do not support input resolution and color depth settings.</li> <li>• The Gamma value can be adjusted for 8-bit input sources and cannot be adjusted for 10-bit or 12-bit input sources.</li> </ul>		

# 3 Appearance

## 3.1 Front Panel



No.	Description
1	Operating indicator <ul style="list-style-type: none"> <li>• Green: The device is running normally.</li> <li>• Red: The device is in standby mode.</li> </ul>
2	Standby button
3	OLED operation screen
4	Function knob
5	<b>BACK</b> button: Press to go back to the previous menu.
6	<b>INPUT</b> button: Press to choose a video source.
7	USB port: Used to update firmware

## 3.2 Rear Panel

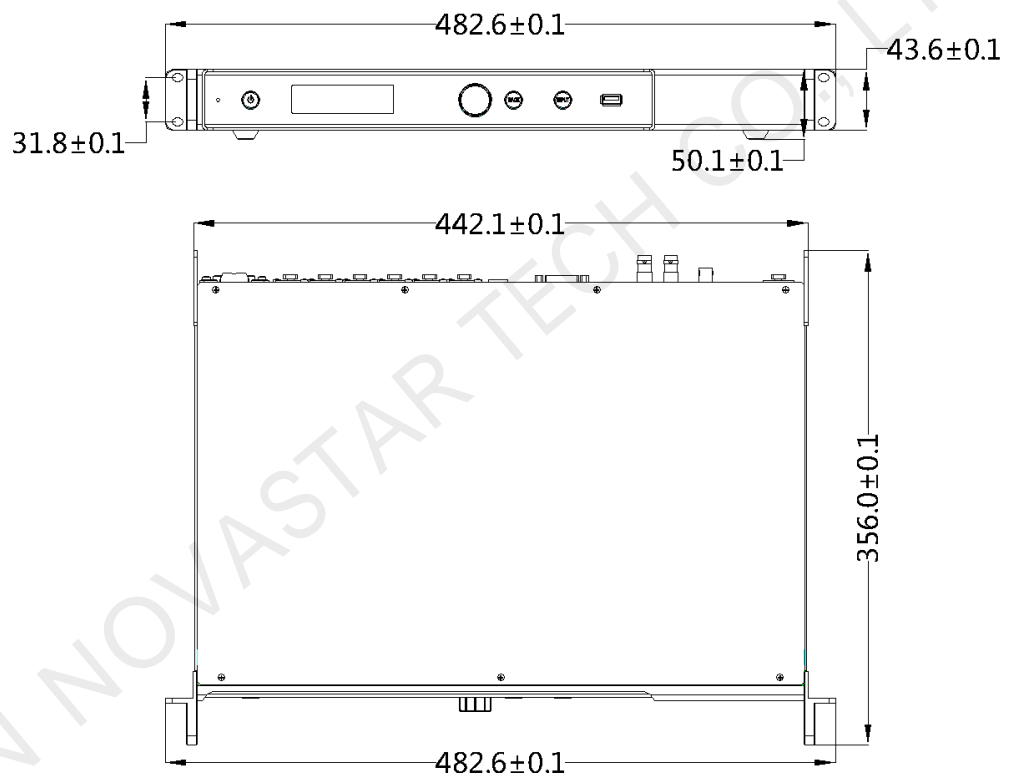


Connector	Connector Name	Description
Input	DVI IN	<ul style="list-style-type: none"> <li>• Single-link DVI connector</li> <li>• Custom resolutions supported: <ul style="list-style-type: none"> <li>Maximum width: 3840 pixels</li> <li>Maximum height: 2560 pixels</li> </ul> </li> <li>• Supported standard resolutions: <ul style="list-style-type: none"> <li>1024x768@(24/30/48/50/60/72/75/85/100/120)Hz</li> <li>1280x1024@(24/30/48/50/60/72/75/85)Hz</li> <li>1366x768@(24/30/48/50/60/72/75/85/100)Hz</li> <li>1440x900@(24/30/48/50/60/72/75/85)Hz</li> <li>1600x1200@(24/30/48/50/60)Hz</li> <li>1920x1080@(24/30/48/50/60)Hz</li> <li>1920x1200@(24/30/48/50/60)Hz</li> <li>2560x960@(24/30/48/50)Hz</li> <li>2560x1600@(24/30)Hz</li> </ul> </li> </ul>
	HDMI IN	<ul style="list-style-type: none"> <li>• HDMI 1.4a compliant</li> <li>• HDCP 1.4 compliant</li> <li>• Custom resolutions supported: <ul style="list-style-type: none"> <li>Maximum width: 3840 pixels</li> <li>Maximum height: 2560 pixels</li> </ul> </li> <li>• Supported standard resolutions: <ul style="list-style-type: none"> <li>1024x768@(24/30/48/50/60/72/75/85/100/120)Hz</li> <li>1280x1024@(24/30/48/50/60/72/75/85)Hz</li> <li>1366x768@(24/30/48/50/60/72/75/85/100)Hz</li> <li>1440x900@(24/30/48/50/60/72/75/85)Hz</li> <li>1600x1200@(24/30/48/50/60)Hz</li> <li>1920x1080@(24/30/48/50/60)Hz</li> <li>1920x1200@(24/30/48/50/60)Hz</li> <li>2560x960@(24/30/48/50)Hz</li> <li>2560x1600@(24/30)Hz</li> </ul> </li> </ul>
	3G-SDI IN	<ul style="list-style-type: none"> <li>• SMPTE ST 425-1 Level A &amp; B, SMPTE ST 274, ST 296, ST 295 compliant</li> <li>• Maximum supported input resolution: 1920x1080@60Hz</li> </ul> <p>Note: 3G-SDI input sources do not support input resolution and color depth settings.</p>
Output	RJ45 x 6	<ul style="list-style-type: none"> <li>• 6 Gigabit Ethernet ports</li> <li>• Maximum loading capacity of a single Ethernet port: <ul style="list-style-type: none"> <li>– For 8-bit input sources: 650,000 pixels</li> <li>– For 10-bit/12-bit input sources: 320,000 pixels</li> </ul> </li> <li>• Support redundancy between Ethernet ports.</li> </ul>



	OPT1 OPT2	<ul style="list-style-type: none"> <li>• 10G optical ports <ul style="list-style-type: none"> <li>- Single-mode twin-core fiber: Support LC optical connectors; wavelength: 1310 nm; transmission distance: 10 km; OS1/OS2 recommended.</li> <li>- Dual-mode twin-core fiber: Support LC optical connectors; wavelength: 850 nm; transmission distance: 300 m; OM3/OM4 recommended.</li> </ul> </li> <li>• The maximum loading capacity of a single optical port equals to that of all the 6 Ethernet ports.</li> <li>• 2 OPT inputs/outputs <ul style="list-style-type: none"> <li>- The OPT1 works as the primary input or output port, and the 6 Gigabit Ethernet ports work as the corresponding output or input ports.</li> <li>- The OPT2 works as the backup input or output port of OPT1.</li> </ul> </li> <li>• In the sending card mode, both OPT ports and 6 Gigabit Ethernet ports can work as output ports to output the same image.</li> <li>• In the fiber converter mode, when the OPT ports work as the input ports, the 6 Gigabit Ethernet ports work as output ports. When the 6 Gigabit Ethernet ports work as input ports, the OPT ports work as output ports.</li> </ul>
	DVI LOOP	DVI loop output
	HDMI LOOP	HDMI loop output Support HDCP 1.3 loop output encryption.
	3G-SDI LOOP	SDI loop output
MONITOR	HDMI	<p>Connect to a monitor to monitor the inputs. The output resolution of this connector is 1920×1080@60Hz (fixed output with a width of 1920 pixels and height of 1080 pixels).</p> <p>If the input resolution exceeds the monitor resolution, the input will be automatically scaled in proportion and then displayed on the monitor starting from its top left.</p>
Control	GENLOCK IN	<p>GENLOCK input connector</p> <ul style="list-style-type: none"> <li>• Genlock type: Blackburst</li> <li>• Input Genlock sync signal to ensure synchronization and same refresh rate between the output signals of cascaded MCTRL660 PRO units and the external Genlock input signal.</li> </ul>
	GENLOCK LOOP	Genlock loop output connector. Up to 8 MCTRL660 PRO units can be cascaded.
	ETHERNET	Fast Ethernet port, which connects to PC and supports TCP/IP
	USB IN	Input port for cascading devices, or connecting to PC
	USB OUT	Output port for cascading devices. Up to 8 MCTRL660 PRO units can be cascaded.
Power supply		100 V–240 V AC
Power switch		ON/OFF

# 4 Dimensions



Unit: mm

# 5 Specifications

Electrical Parameters	Input voltage	100 V–240 V AC
	Rated power consumption	20 W
Operating Environment	Temperature	-20°C–60°C
	Humidity	10% RH–90% RH, non-condensing
Storage Environment	Temperature	-25°C–125°C
Packing Information	Carrying case	550 mm × 440 mm × 175 mm White cardboard box
	Packing box	530 mm × 140 mm × 410 mm Craft paper box
	Accessory box	White cardboard box
	Accessories	1 × Ethernet cable 1 × DVI cable 1 × USB cable 1 × HDMI cable 1 × Power cord
Dimensions	482.6 mm × 356.0 mm × 50.1 mm	
Space Requirement	1U	
Net Weight	4.6 kg	
Certifications	RoHS, EMC, FCC, IC, LVD	