

MCTRL700 Pro

LED Display Controller



Specifications

Change History

Document Version	Release Date	Description
V1.0.0	2024-12-16	First release

Introduction

The MCTRL700 is an LED display controller developed by Xi'an NovaStar Tech Co., Ltd. (hereinafter referred to as NovaStar). It supports 1x HDMI input, 1x DVI input, 1x AUDIO input, and 6x Ethernet outputs. The maximum load capacity of a single controller is 1920 × 1200@60Hz. It supports connections to a control computer and device cascading through gigabit Ethernet ports, ensuring faster data transmission and higher stability.

The MCTRL700 Pro can be mainly used in the rental and fixed applications, such as concerts, live events, security monitoring centers, Olympic Games and various sports centers.

Certifications

FCC, CE, IC, CCC

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

- 3x types of input connectors
 - 1x SL-DVI (IN-LOOP)
 - 1x HDMI 1.3 (IN- LOOP)
 - 1x AUDIO
- 6x Gigabit Ethernet outputs
- 8bit video source input
- 2x Ethernet control ports

They are used for connections to a control computer and device cascading. Up to 20 devices can be cascaded.
- Low Latency

When Low Latency is enabled, the minimum processing latency of the controller is reduced to 0-frame (less than 1 ms)
- Pixel level brightness and chroma calibration

Working with NovaLCT and calibration platform, it supports brightness and chroma calibration on each LED, which can effectively remove color differences and greatly improve display brightness consistency and chroma consistency, allowing for better image quality.

Table 1-1 Function limitations

Function	Limitation
Low Latency	To enable low latency, please make sure all Ethernet ports load the cabinets vertically and share the same Y coordinate (all set to 0).

Appearance

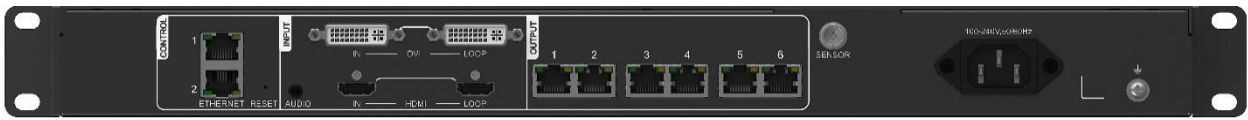
Front Panel




Name	Description	
ON/OFF	Power switch	
Indicator	Status	Description

RUN (Green)	Slow flashing (flashing once every 2s)	No video source input.
	Normal flashing (flashing 4 times every 1s)	Video source available.
	Fast flashing (flashing 30 times every 1s)	The device is in the startup process.
	Breathing	The Ethernet port redundancy has taken effect.
STA (Red)	Always on	The power supply is normal.
	Off	No power supply, or the power supply is abnormal.
	Fast flashing (flashing 30 times every 1s)	Device malfunctioning.
	Slow flashing (flashing once every 2s)	Controller identify command received.
	Normal flashing (flashing 4 times every 1s for 3s)	Press and hold the reset button for 3s to reset the IP address to its factory default setting.
	First off for 600ms, then on.	Press and hold the reset button for 10s to perform a soft reboot of the system.

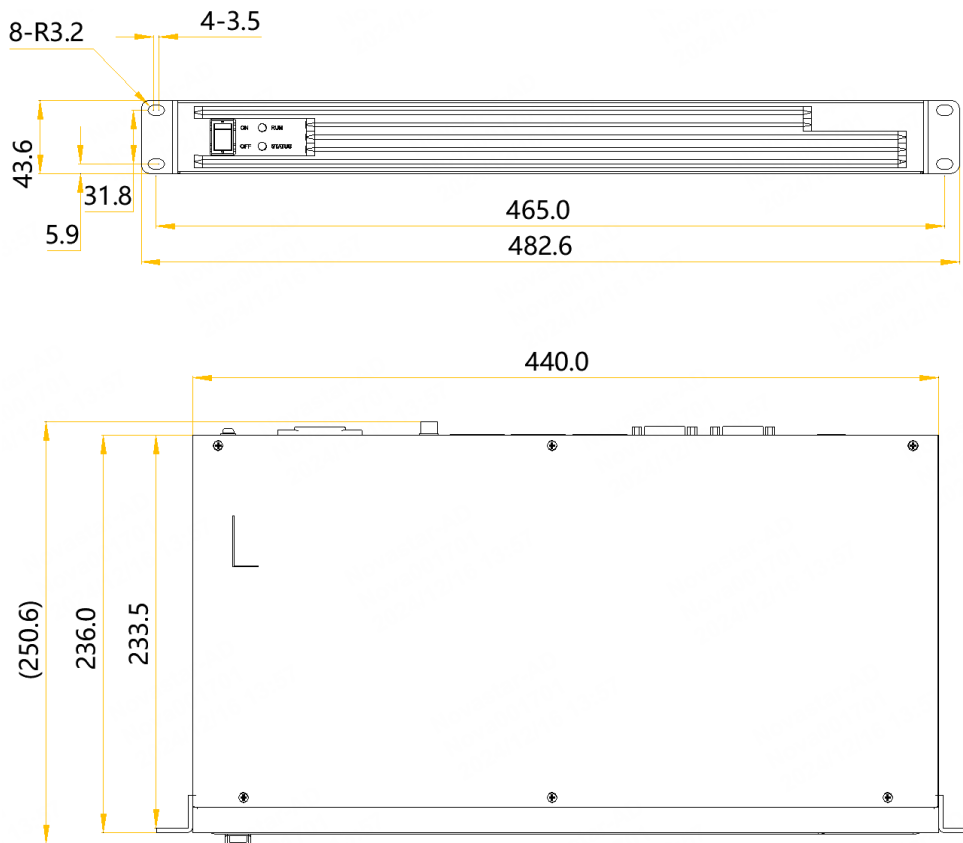
Rear Panel



Input Connector			
Type	Qty	Description	
HDMI 1.3	1	Resolution	Max resolution: 1920 × 1200@60Hz Min resolution: 800 × 600@60Hz
		Max width/height	Max width: 3840 pixels (3840×800@60Hz) Max height: 3840 pixels (600×3840@60Hz)
		Frame rates	24 / 25 / 30 / 48 / 50 / 60 Hz
		EDID management	Support standard resolutions, up to 1920×1200@60Hz. Support custom input resolutions.
		HDCP	Support HDCP 1.4.
		Interlaced signal inputs	Not supported.
SL-DVI	1	Resolution	Max resolution: 1920 × 1200@60Hz Min resolution: 800 × 600@60Hz
		Max width/height	Max width: 3840 pixels (3840×800@60Hz) Max height: 3840 pixels (600×3840@60Hz)
		Frame rates	24 / 25 / 30 / 48 / 50 / 60 Hz

		EDID management	Support standard resolutions, up to 1920×1200@60Hz. Support custom input resolutions.
		HDCP	Support HDCP 1.4.
		Interlaced signal inputs	Not supported.
AUDIO	1	3.5mm audio jack, supports external audio input.	
Output Connector			
Type	Qty	Description	
1-6	6	Gigabit Ethernet output ports. Support hot backup between Ethernet ports. <ul style="list-style-type: none"> Capacity per port up to 650,000 pixels (8bit@60Hz). Ethernet ports 1 and 2, in conjunction with a multifunction card, can support audio output. 	
Control Connector			
Type	Qty	Description	
ETHERNET	2	Gigabit Ethernet control port with TCP/IP support. They have the same functions without priority and order, and can be connected to the control computer software. No switch or router is needed to deploy multiple devices on the same LAN via device cascading as the network switching function is already built in. Up 20 devices can be cascaded.	
Light Sensor	1	Connect to a light sensor to monitor ambient brightness to allow for screen brightness adjustment.  Note Only light sensors sold by NovaStar are supported.	
Reset Button	1	Press and hold for 3s	The IP address resets to the factory default value, and the STA indicator flashes 4 times every 1s for 3s. <ul style="list-style-type: none"> Subnet mask: 255.255.255.0 Device IP: 192.168.0.10
		Press and hold for 10s	The system performs a soft reboot, with the STA indicator first turning off (600ms) and then turning on.
Power Connector			
100-240V, 50/60Hz	1	An AC power input connector and switch	

Dimensions



Tolerance: ± 0.3 Unit: mm

Specifications

Electrical Specifications	Input voltage	AC 100V-240V, 50/60Hz
	Rated power consumption	17W
Operating Environment	Temperature	-20°C to +50°C
	Humidity	0% RH to 80% RH, non-condensing
Storage Environment	Temperature	-30°C to +80°C
	Humidity	0% RH to 95% RH, non-condensing
Physical Specifications	Dimensions	482.6 mm × 250.6 mm × 43.6 mm
	Net weight	2.6 kg Note: It is the weight of a single device only.
	Gross weight	19.5 kg Note: It is the weight of 5 devices packaged in one packing box.
Packing Information	Packing box	585 mm × 465 mm × 353 mm Note: Each packing box can hold up to 5 devices.
	Carrying case	565 mm × 88 mm × 328 mm

	Accessories	1× HDMI cable, 1x Power cord, 1x Ethernet cable (1.5m)
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Video Source Features

Input Connector	Features		
	Bit Depth	Sampling Format	Max Input Resolution
HDMI 1.3	8bit	RGB 4:4:4	1920×1200@60Hz
Single-link DVI	8bit	RGB 4:4:4	1920×1200@60Hz

Ethernet Port Load Capacity

The formula of calculating the load capacity per Ethernet port and the detailed parameters are as follows:

$$\text{Load capacity} \times 24 \times \text{Frame rate} < 1000 \times 1000 \times 1000 \times 0.95$$

Max Load Capacity Per Port	
Frame Rate / Bit Depth	8bit
24 Hz	1,649,305.556
25 Hz	1,583,333
30 Hz	1,319,444
50 Hz	791,667
60 Hz	659,722

Notes and Cautions

Notes for Battery

- The battery is not intended to be replaced.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

Notes for Installation

When the product needs to be installed on the rack, 4 screws at least M5*12 should be used to fix it. The rack for installation shall bear at least four times the product's weight.

- Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (T_{ma}) specified by the manufacturer.
- Reduced Air Flow – Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
- Mechanical Loading – Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

- Circuit Overloading – Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing – Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Warning

This product can only be placed horizontally. Do not mount vertically or upside-down.

This device may cause radio interference in a residential setting.

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