

MX40 Pro

LED Display Controller



Specifications

Change History

Document Version	Release Date	Description
V1.0.0	2022-02-18	First release

Introduction

The MX40 Pro is a flagship 4K LED display controller in the new-generation control system COEX series. This controller offers rich video inputs (HDMI 2.0, DP 1.2 and 12G-SDI) and 20 Ethernet outputs. It can also work with the brand-new software VMP (Vision Management Platform) to provide a better operation and control experience.

Certifications

The application is in progress. Please contact NovaStar if needed.

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

Inputs and Outputs

✦ Inputs

- 3x HDMI 2.0 (with loop through)
- 1x DP 1.2
- 1x 12G-SDI (with loop through)

✦ 12-bit, 10-bit and 8-bit video inputs

✦ Genlock signal input (with loop through)

✦ Ethernet outputs

20 Ethernet outputs, up to 8.8 million pixels supported

✦ Optical outputs

Four 10G SFP+ outputs

✦ Adaptive frame rate

Adaptive to various input frame rates, including decimal frame rates

Advanced Features

✦ Color processing

Abundant functions are provided to adjust and correct the video colors, such as Color Replacement, 14CH Color Correction, Color Curve and 3D LUT.

✦ Dynamic Booster

The frame-by-frame image analysis and dynamic adjustment can significantly improve the display contrast and image details for better visual experience, and effectively control and lower the display power consumption, extending the service life of the LED screen.

✦ Full Grayscale Calibration

Each grayscale of the input source has its own unique calibration coefficients, which can achieve brightness and chroma uniformity in high brightness, medium grayscale, and low grayscale at the same time.

✦ Pixel level brightness and chroma calibration

Work with NovaStar's high-precision calibration system to calibrate the brightness and chroma of each pixel, effectively eliminating brightness differences and chroma differences, and enabling high brightness consistency and chroma consistency.

✦ HDR

- Support HDR10 and comply with the SMPTE ST 2084 standard.
- Support HLG and comply with the BT.2100 standard.

✦ Latency

- Support low latency. The latency at the sending card is 0 frame (less than 1 ms) and the loading capacity is not reduced.
- Support additional video delay. Zero to two frames of delay can be added at the sending card.

✦ 3D

Work with the specified receiving cards, 3D emitter and 3D glasses to bring a fascinating and immersive 3D viewing experience.

Device Controls

✦ VMP software control

The device can be connected to and managed by NovaStar's brand-new VMP software. VMP features plenty of practical and easy-to-use functions, such as input and output settings, screen configuration, display correction, color processing, preset management, screen maintenance, and more.

✦ Cascading control via Ethernet

The Gigabit Ethernet control ports support TCP/IP protocol and star topology. No switch is needed to cascade control of multiple devices as a network switch is already built in.

Video Sources

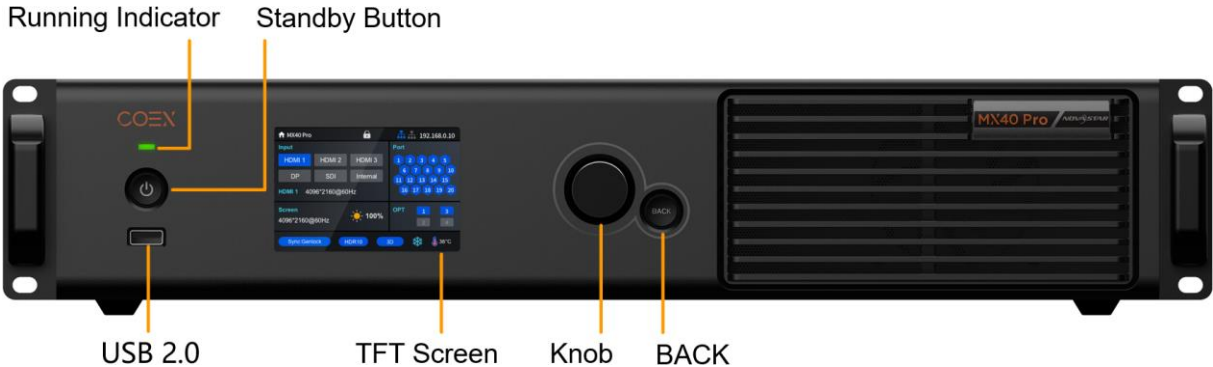
Input	Bit Depth	Sampling Format	Max Input Resolution
HDMI 2.0-1	8bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
	10bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
	12bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
HDMI 2.0-2	8bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
	10bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz

Input	Bit Depth	Sampling Format	Max Input Resolution
HDMI 2.0-3	8bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
	10bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
DP 1.2	8bit	RGB 4:4:4	4096x2160@60Hz
		YCbCr 4:4:4	8192x1080@60Hz
		YCbCr 4:2:2	
	10bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
	12bit	RGB 4:4:4	4096x2160@30Hz
		YCbCr 4:4:4	4096x1080@60Hz
		YCbCr 4:2:2	4096x2160@60Hz
12G-SDI	10bit	YCbCr 4:2:2	4096x2160@60Hz

Note
 The maximum resolution of HDMI and DP inputs in the table can be obtained by setting the graphics card.

Appearance

Front Panel



Name	Description
Running Indicator	<ul style="list-style-type: none"> • Solid red: Standby • Solid blue: The device is being powered on. • Solid green: The device is running normally. • Flashing red: The device is running abnormally.
Standby Button	<ul style="list-style-type: none"> • Press the button to power on or power off the device. • Hold down the button for 5s or longer to restart the device.
USB 2.0	Used to send cabinet configuration files and export the diagnostic result
TFT Screen	A 3.5-inch screen that displays the device status, menus, submenus and messages for parameter settings
Knob	<ul style="list-style-type: none"> • 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. • Hold down the knob and BACK button simultaneously for 5s or longer to lock or unlock the buttons.
BACK	Go back to the previous menu or cancel the current operation.

Rear Panel

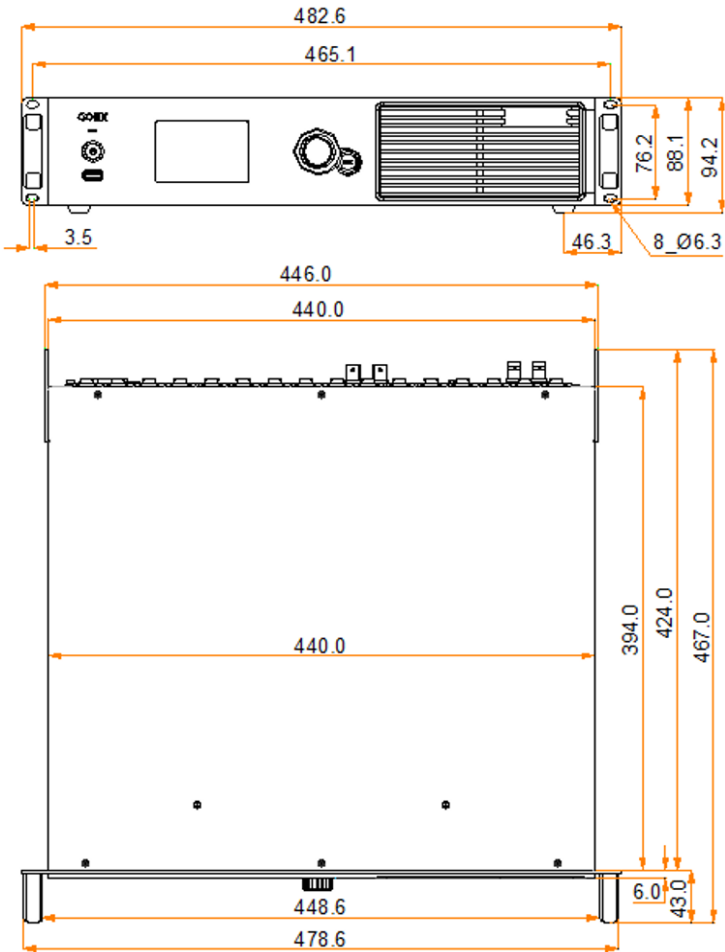


Inputs (INPUT area)			
Type	Qty	Description	
HDMI 2.0-1 IN (Type-A)	1	Resolutions	Max resolution: 4096x2160@60Hz or 8192x1080@60Hz Min resolution: 800x600@60Hz
		Max width/height	Max width: 8192 pixels (8192x1080@60Hz) Max height: 8192 pixels (1080x8192@60Hz)
		Frame rates	23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/120/143.86/144/240 Hz
		HDR	Support HDR10 and comply with the SMPTE ST 2084 standard. Support HLG and comply with the BT.2100 standard.
		EDID management	Support standard resolutions, up to 3840x2160@60Hz. Support custom input resolutions.
		HDCP	HDCP 2.2 compliant, backwards compatible
		Interlaced signal inputs	Not supported

HDMI 2.0-2 IN (Type-A)	1	Resolutions	Max resolution: 4096×2160@60Hz or 8192×1080@60Hz Min resolution: 800×600@60Hz
		Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
		Frame rates	23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/ 120/143.86/144/240 Hz
		HDR	Support HDR10 and comply with the SMPTE ST 2084 standard. Support HLG and comply with the BT.2100 standard.
		EDID management	Support standard resolutions, up to 3840×2160@60Hz. Support custom input resolutions.
		HDCP	HDCP 2.2 compliant, backwards compatible
		Interlaced signal inputs	Not supported
HDMI 2.0-3 IN (Type-A)	1	Resolutions	Max resolution: 4096×2160@60Hz or 8192×1080@60Hz Min resolution: 800×600@60Hz
		Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
		Frame rates	23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/ 120/143.86/144/240 Hz
		HDR	Support HDR10 and comply with the SMPTE ST 2084 standard. Support HLG and comply with the BT.2100 standard.
		EDID management	Support standard resolutions, up to 3840×2160@60Hz. Support custom input resolutions.
		HDCP	HDCP 2.2 compliant, backwards compatible
		Interlaced signal inputs	Not supported
DP 1.2	1	Resolutions	Max resolution: 4096×2160@60Hz or 8192×1080@60Hz Min resolution: 800×600@60Hz
		Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 8192 pixels (1080×8192@60Hz)
		Frame rates	23.98/24/25/29.97/30/47.95/48/50/59.94/60/71.93/72/75/100/119.88/ 120/143.86/144/240 Hz
		EDID management	Support standard resolutions, up to 3840×2160@60Hz. Support custom input resolutions.
		HDCP	HDCP 1.3 compliant
		Interlaced signal inputs	Not supported

12G-SDI IN	1	Standards	Support ST-2082 (12G), ST-2081 (6G), ST-424 (3G) and ST-292 (HD) standard video inputs. Support 3G-Level A/Level B (DS mode).
		Resolutions	Max resolution: 4096x2160@60Hz
		Frame rates	Support frame rates up to 60 Hz.
Outputs (OUTPUT area)			
Type	Qty	Description	
1–20	20	Gigabit Ethernet ports. Support redundancy between Ethernet ports. Max loading capacity per port: <ul style="list-style-type: none"> • 8bit@60Hz: 650,000 pixels • 10bit@60Hz: 480,000 pixels (available only with the A10s Pro receiving card) • 10/12bit@60Hz: 325,000 pixels 	
OPT 1–4	4	10G SFP+ ports <ul style="list-style-type: none"> • OPT 1 transmits the data of Ethernet ports 1 to 10. OPT 3 is the copy channel of OPT 1. • OPT 2 transmits the data of Ethernet ports 11 to 20. OPT 4 is the copy channel of OPT 2. 	
HDMI 2.0-1 LOOP	1	HDMI loop through	
HDMI 2.0-2 LOOP	1		
HDMI 2.0-3 LOOP	1		
12G-SDI LOOP	1	SDI loop through	
SPDIF OUT	1	A digital audio output (Reserved)	
Controls (CONTROL area)			
Type	Qty	Description	
ETHERNET	2	Gigabit Ethernet control ports. Support TCP/IP protocol and star topology. They have the same functions without priority and order, and can be connected to VMP software. No switch is needed to cascade control of multiple devices as a network switch is already built in.	
GENLOCK	1	A pair of Genlock signal connectors. Support Bi-Level and Tri-Level. <ul style="list-style-type: none"> • IN: Accept the sync signal. • LOOP: Loop the sync signal. For standard Genlock signal generators, up to 10 MX40 Pro devices can be cascaded.	
AUX	1	An auxiliary connector that connects to the central control device (RS232) (Reserved)	
Power			
100-240V~, 50/60Hz, 2A	1	An AC power input connector and switch	

Dimensions



Tolerance: ±0.3 Unit: mm

Specifications

Electrical Specifications	Power input	100-240V~, 50/60Hz, 2A
	Max power consumption	70 W
Operating Environment	Temperature	-20°C to +60°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 × 94.2 mm × 467.0 mm
Packing Information	Packing box	660.0 mm × 570.0 mm × 210.0 mm, kraft paper box
	Accessory box	408.0 mm × 290.0 mm × 50.0 mm, white cardboard box
	Accessories	<ul style="list-style-type: none"> • 1x Power cord • 1x Ethernet cable • 1x HDMI cable • 1x DP cable

IP Rating	IP20 Please prevent the product from water intrusion and do not wet or wash the product.
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The amount of power consumption may vary depending on various factors such as product settings, usage, and environment.

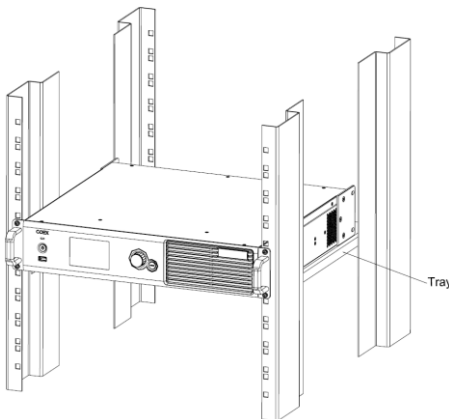
Notes and Cautions

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 32kg 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).


Others

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

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