Z8

LED Video Controller

Specification V1.6

Overview

Z8 is a professional LED display controller for high-end applications offering real-time scaling, ultra-low latency, HDR, multi-window display and high color bit depth, featuring excellent image quality, precision color reproduction and powerful video processing. Z8 supports a loading capacity of up to 35.38 million pixels, with a maximum width up to 16384 pixels. Equipped with 5G Ethernet ports and 10G optical fiber outputs, Z8 can reduce dramatically the cable quantity, such simplifies hardware connection on site. It meets the on-site configuration requirements for ultra-long, ultra-high and ultra-large screens.

With swappable card design, Z8 allows for various hardware configuration according to actual field requirements.

Features

Input

- 2×HDMI2.0, 2×DP1.2, 2×12G-SDI, single port supports up to 4096×2160@60Hz.
- Input frame rate from 23.98Hz to 240Hz.
- 8bit / 10bit / 12bit color depth.
- HDCP1.3 / HDCP2.3 high-bandwidth digital content protection technology.

Output

- Pixel to pixel output of up to 8K (8192×4320@60Hz), with maximum 16384 pixels in width and maximum 8192 pixels in height.
- 5G Ethernet output board and 10G optical fiber output board.
- Ethernet port and controller redundancy.

Video processing

- Cropping, broadcasting scaling and splicing of videos sources.
- Up to 4-window display.
- HDR 10 and HLG display.
- Frame multiplexing for multi-camera shooting of virtual background, support fusion output of multiple video signals.
- Frame rate multiplication with automatic multiplication and custom multiplication up to 10×.
- Better grayscale at low brightness for improving the grayscale performance in low brightness.

- Genlock.

Color adjustment

- Color curve for individually adjusting the RGB saturation and overall brightness at different grayscale levels.
- Color magic with multi-color adjustment based on HSV color model to realize color transformation.
- 3D-LUT for cinematic color adjustment, with color adjustment strength setting.
- Picture adjustment for hue, saturation, contrast, and brightness compensation.
- Brightness adjustment, support brightness adjustment based on Ethernet port groups.
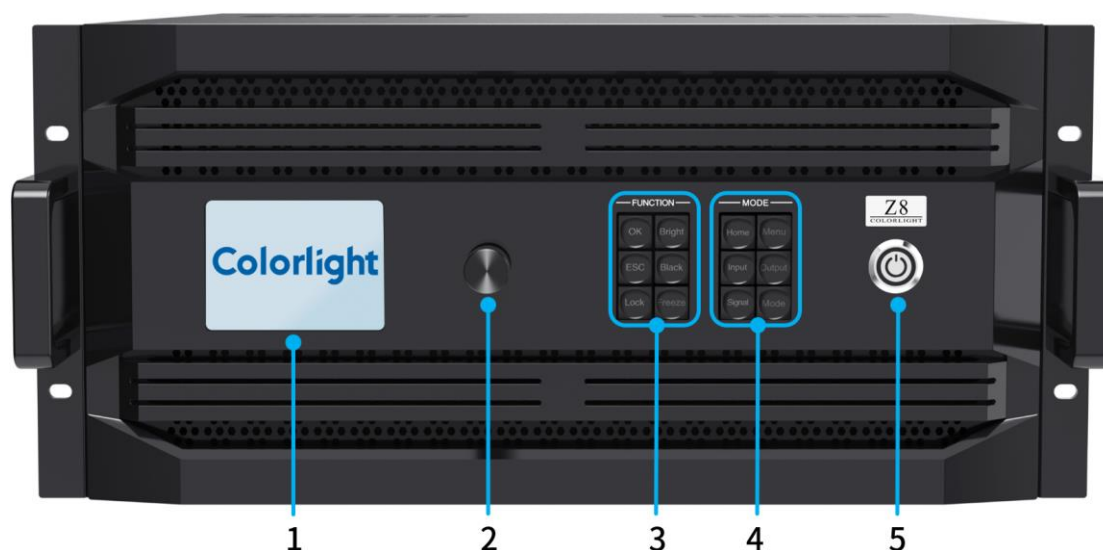- Color temperature adjustment with precision and RGB independent adjustment.

Control

- USB port for control and cascading.
- LAN port for TCP/IP control.
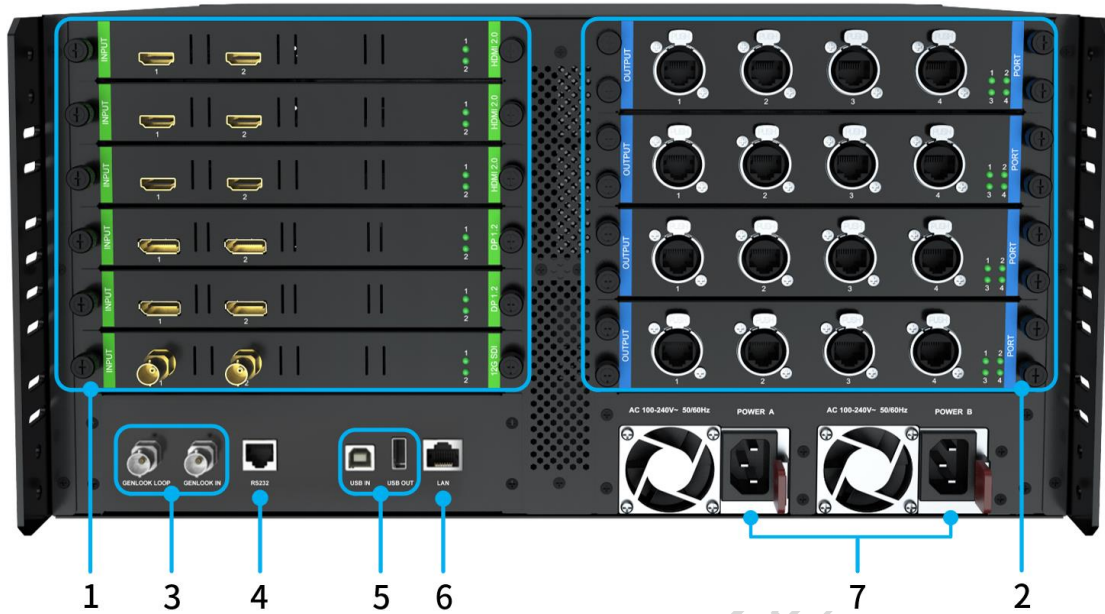- RS232 protocol.
- Support multi-scene presets.

Applications

Hardware

Front panel

No.	Item	Function
1	LCD screen	Displays the operation menu and system information.
2	Knob	Select an item or adjust the parameter, press the knob to confirm your selection or adjustment.
3	Function keys	OK: Confirm button.
		ESC: Exit the current operation or back to previous menu.
		Lock: Lock button.
		Bright: Tune brightness.
		Black: Black screen.
		Freeze: Freeze screen.
4	Mode keys	Home: Startup interface.
		Menu: Main menu.
		Input: Input settings.
		Output: Output settings.
		Signal: Input source information.
		Mode: Select a preset.
5	Button	Power button.

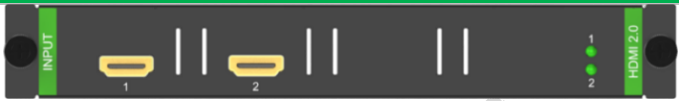## Rear panel

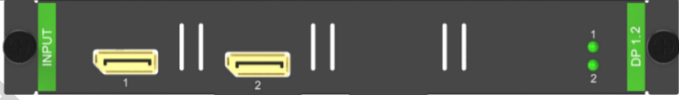| Input		

1	INPUT	• Maximum 6 swappable cards, up to 2 inputs of 4096× 2160@60Hz each card.
		• Optional card:
		  - 2× HDMI2.0.
		  - 2× DP1.2.
		  - 2× 12G-SDI.

Output		

2	OUTPUT	• Maximum 4 swappable cards, up to 13.1 million pixels per card. Only boards of the same type can be installed.
		• Optional card:
		  - 4× 5G Ethernet ports.
		  - 2× 10G Optical fiber ports.
		  - 2× 10G Primary + 2× 10G Backup Optical fiber ports.

Control		
3	GENLOCK	Input genlock signal.
	GENLOCK LOOP	Genlock signal loop.
4	RS232	*RJ11 port, connect to third-party device.
5	USB IN	USB2.0 Type-B, connect to a computer for debugging or cascading input.
	USB OUT	USB2.0 Type-A, as cascading output.

6	LAN	Connect to a computer, or connect to a switch for accessing local area network, or act as Art-net control port.
Power		
7	MAINS INPUT	AC100-240V,50/60Hz, dual module for redundant.

* The equipment shown in the picture is for reference only. Due to the difference of boards assembled, the appearance of the equipment may be different from the picture. Please refer to the actual product.

Card specification

Input card	
2×HDMI2.0 Input card with 2× HDMI2.0 ports.	 • HDMI2.0 port, up to 4096×2160@60Hz per port. • Up to two 4K inputs at the same time, each signal support independent color adjustment. • Each input supports customized resolution and EDID setting. • Each input supports cropping and scaling. • Maximum width per input: 8096 pixels (8096×1160@60Hz). • Maximum height per input: 8192 pixels (1024×8192@60Hz). • Indicator status: Always on (power supply is normal), Flash (Signal input is normal).
2×DP1.2 Input card with 2× DP1.2 ports.	 • DP1.2 port, up to 4096×2160@60Hz per port. • Up to two 4K inputs at the same time, each signal supports independent color adjustment. • Each input supports cropping and scaling. • Each input supports customized resolution and EDID setting. • Maximum width per input: 8096 pixels (8096×1160@60Hz). • Maximum height per input: 8192 pixels (1024×8192@60Hz). • Indicator status: Always on (power supply is normal), Flash (Signal input is normal).
2×12G-SDI	

Input card with 2× 12G-SDI ports.	• 2×12G-SDI port, up to 4096×2160@60Hz per port. • Up to two 4K signal inputs at the same time, each signal supports independent color adjustment. • Each input supports different resolution, cropping and scaling. • Each input supports 12G-SDI standard, downward compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI. • Support deinterlaced display and not support EDID settings. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal).

Output card	
2×10G Fiber Output card with 2×10G optical fiber ports.	 • 2×Neutrik optical fiber ports, using single-mode duplex LC fiber, up to 10 Gb/s per port over single-mode fiber. • Equipped with single-mode optical fiber module, allowing for cable runs up to 2 km. • Each card supports a loading capacity of up to 13.1 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 6.50 million pixels. • Loading capacity of each output (10bit, 60Hz): up to 4.87 million pixels. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal). • Recommend using single-mode fiber with a wire diameter of 9 / 125μm and with a PC / UPC connector.
2×10G Fiber Primary +2×10G Fiber Backup Output card with 2× 10G Primary and 2× 10G Backup optical fiber ports.	 • 2×Neutrik optical fiber ports, 2×Neutrik Backup optical fiber ports, using single-mode duplex LC fiber, up to 10 Gb/s per port over single-mode fiber. • Equipped with single-mode optical fiber module, allowing for cable runs up to 2 km. • Each card supports a loading capacity of up to 13.1 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 6.50 million pixels. • Loading capacity of each output (10bit, 60Hz): up to 4.87 million pixels. • Indicator status: Always on (power supply is normal), Flash

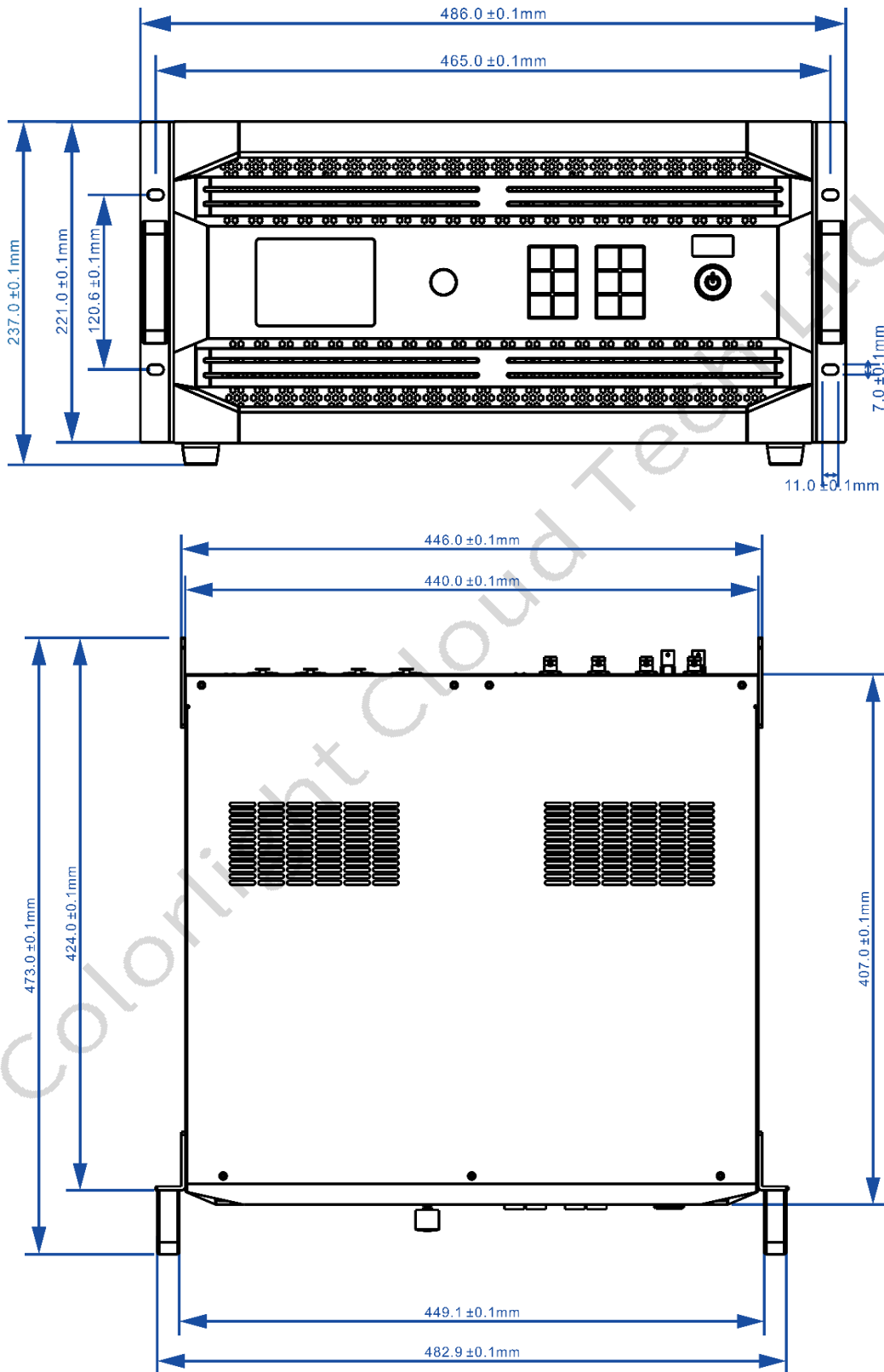|	
	(Signal input is normal). • Recommend using single-mode fiber with a wire diameter of 9 / 125μm and with a PC / UPC connector.
4×5G Ethernet Output card with 4×5G Ethernet ports.	 • 4×Neutrik Ethernet ports, transmission rate per port: 5 Gb/s, connects with 5G receiving cards. • Each card supports a loading capacity of up to 11.2 million pixels, with a maximum width or height of 8192 pixels. • Loading capacity of each output (8bit, 60Hz): up to 2.8 million pixels. • Loading capacity of each output (10bit, 60Hz): up to 2.1 million pixels. • Indicator status: Always on (power supply is normal), Flash (Signal input is normal). • The recommended maximum cable (Cat 6).

Signal format

HDMI2.0					
Input	Sampling rate		Color depth	Max resolution	Frame rate
4K	YCbCr	4:2:2	8,10,12bit	4096×2160@60Hz	23.98,24,25,29.97,30, 50,59.94,60,100,120, 144,200, 240.
	YCbCr/RGB	4:4:4	8bit		
	YCbCr/RGB	4:4:4	10,12bit	4096×2160@30Hz	

The above only shows a part of conventional resolutions.

DP1.2					
Input	Sampling rate		Color depth	Max resolution	Frame rate
4K	YCbCr	4:2:2	8,10,12bit	4096×2160@60Hz	23.98,24,25,29.97,30, 50,59.94,60,100,120, 144,200,240.
	YCbCr/RGB	4:4:4	8bit		
	YCbCr/RGB	4:4:4	10,12bit	4096×2160@30Hz	

The above only shows a part of conventional resolutions.

Input	Sampling rate		Color depth	Max resolution	Frame rate
12G	YCbCr	4:2:2	10bit	4096×2160@60Hz	23.98,24,25,29.97,30, 50,59.94,60.
6G	YCbCr	4:2:2	10bit	4096×2160@30Hz	
3G Level A/B	YCbCr	4:2:2	10bit	2048×1080p@60Hz	
HD	YCbCr	4:2:2	10bit	2048×1080p@30Hz	
	YCbCr	4:2:2	10bit	1920×1080i@60Hz	
	YCbCr	4:2:2	10bit	1280×720p@60Hz	
SD	YCbCr	4:2:2	10bit	720×576i@50Hz	
	YCbCr	4:2:2	10bit	720×480i@59.94Hz	

The above only shows a part of conventional resolutions.

Other Specification

Dimensions （W×H×D）	
Unboxed	486.0mm (19.1") × 221.5mm (8.7") × 473.0mm (18.6"), 5U chassis, (w / o foot pads)
Boxed	645.0mm (25.4")×300.0mm (11.8")×540.0mm (21.3")
Weight	
Net weight	22.5kg (49.6lbs)
Total weight	41.7kg (91.9lbs)
Electrical specification	
Power input	AC100-240V, 50 / 60Hz, PSU redundancy
Card power consumption	25W
Rated power	300W (With all cards installed)
Operating environment	
Temperature	-10°C~50°C(14°F~122°F)
Humidity	10%RH-80%RH, no-condensing
Storage environment	
Temperature	-20°C~80°C(-4°F~176°F)
Humidity	10%RH-90%RH, no-condensing
Certification	
CE, FCC, CB, IC, cTUVus.	
* If there is no certification for the country or region where the product is sold, please contact Colorlight to confirm it right away. Otherwise, if the relevant legal risks are caused, the customer shall bear it or Colorlight has the right of recourse.	

Reference dimensions

Unit: mm

Statement

Service Phone

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