

Z3

LED Video Controller

Specification V1.0



Overview

Z3 is a professional LED video controller of the latest generation. Its strong capabilities of UHD image processing and LED screen control allow for ultra-low latency, HDR and wide color gamut display effects, bringing an authentic audio-visual feast to users. It can be massively applied in live events, broadcast, television, filming and other scenarios.

Features

Input

- Full 4K inputs: HDMI2.0, DP1.2, 12G-SDI.
- Up to 4096×2160@60Hz on a single channel.
- Support 8/10-bit video signal input.
- Support HDCP1.4/HDCP2.2.
- 23.98Hz to 240Hz input frame rate.

Output

- Maximum loading capacity of 8.84 million pixels, with up to 16,384 pixels in width and 8192 pixels in height.
- 6× 5G Ethernet ports outputs or 3× 10 Gigabit fiber ports output.
- 23.98Hz to 240Hz output frame rate.
- Support both Ethernet port redundancy and controller redundancy.

Video processing

- Video signal cropping, switching, and broadcasting level scaling.
- Single window display.
- Low latency, a minimal latency of one frame.
- HDR10/HLG display.
- Genlock.

Color adjustment

- Picture adjustment: support adjusting the hue, saturation, contrast, and brightness compensation of the device' s output.
- Brightness adjustment: support adjusting brightness by Ethernet port group.
- Color temperature adjustment: support adjusting color temperature accurately and RGB component individually.

Control

- USB port for control and cascading.

- RS232 serial communication protocol.
- LAN port for TCP/IP control.

Appearance

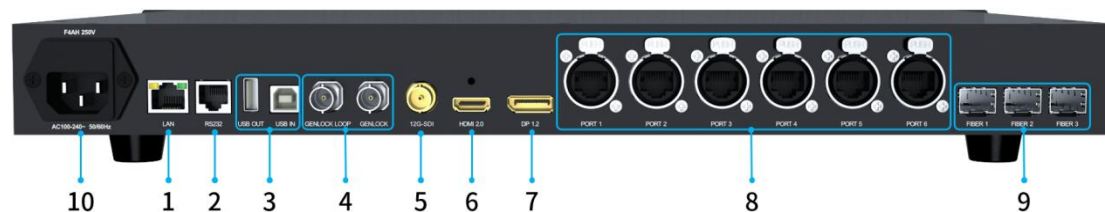
Front panel



No.	Item	Description
1	LCD screen	Display operation menu and system information.
2	Knob	• Press to enter sub-menu or confirm selection. • Rotate to select menu item or tune parameters.
3	ESC key	Exit current interface.
4	Function keys	• Bright: Tune brightness. • Black: Send output screen to black. • Freeze: Freeze screen. • SDI: Switch to SDI signal. • HDMI: Switch to HDMI signal. • DP: Switch to DP signal. • Lock: Lock the keys on the front panel.
5	Power switch	Power on/off the device.

*The illustration is for reference only. Since the appearance of equipment may vary due to different production process, please refer to the actual product.

Rear panel



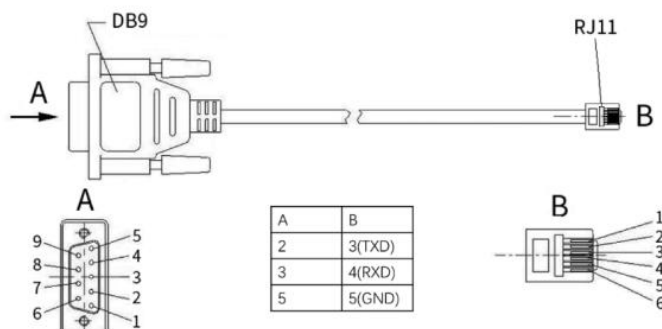
Control		
1	LAN	RJ45 port for accessing local area network.
2	RS232	RJ11(6P6C) port* for connecting to central control.
3	USB IN	USB2.0 Type-B port, enabling connection to a PC for debugging or cascading input.
	USB OUT	USB2.0 Type-A port for cascading output.
Genlock		
4	GENLOCK	1× BNC port, male, for the input of an external synchronization source. - Support Bi-level and Tri-level sync. - Support 23.98~60Hz frame rates.
	GENLOCK LOOP	1× BNC port, male. - Loop out Genlock sync signal.
Input		
5	12G-SDI	1× BNC port. - Comply with SMPTE 2082/2081/424M/292M standards, and support HD/3G/6G-SDI/12G-SDI (2SI format) / Level A/B. - Maximum resolution: 4096×2160@60Hz. - Support de-interlaced display. - Not support EDID settings.
6	HDMI2.0	1× HDMI Type A port. - Comply with HDMI 2.0 standard, support HDCP2.2 and compatible with HDCP1.4. - Maximum resolution: 4096×2160@60Hz, minimum resolution: 800×600@60Hz, maximum pixel clock: 600MHz. - Custom resolution: - Maximum width: 8192 (8192×1080@60Hz). - Maximum height: 8192 (1080×8192@60Hz). - Support HDR.

		• Support independent EDID settings and comply with EDIDV1.3 standard. • Not support audio input. • Not support interlaced signal inputs.
7	DP1.2	• 1× DisplayPort1.2. • Comply with DP1.2 standard, support HDCP2.2 and compatible with HDCP1.4. • Maximum resolution: 4096×2160@60Hz, minimum resolution: 800×600@60Hz, maximum pixel clock: 600MHz. • Custom resolution: - Maximum width: 8192 (8192×1080@60Hz). - Maximum height: 8192 (1080×8192@60Hz). • Support HDR. • Support independent EDID settings and comply with EDIDV1.3 standard. • Not support audio input. • Not support interlaced signal inputs.
Output		
8	PORT 1-6	• 6× Neutrik Ethernet ports with a single-port transmission rate of 5 Gb/s, working with 5G receiving card. • Total pixel capacity: - Up to 16,384 pixels in width and 8192 pixels in height. - 60Hz output, 8-bit: 8.84 million pixels, 10-bit: 6.63 million pixels. - 120Hz output, 8-bit: 4.42 million pixels, 10-bit: 3.31 million pixels. - 240Hz output, 8-bit: 2.21 million pixels, 10-bit: 1.65 million pixels. • Pixel capacity per port: - 60Hz output, 8-bit: 2.8 million pixels, 10-bit: 2.1 million pixels. - 120Hz output, 8-bit: 1.4 million pixels, 10-bit: 1.05 million pixels. - 240Hz output, 8-bit: 0.7 million pixels, 10-bit: 0.52 million pixels. - Redundancy supported. - Shielded cable recommended (CAT6 and above), maximum run length of 80 meters.
9	FIBER 1-3	• 3× 10G output fiber ports (optional 10G SFP+ optical module. Transmission distance depends on optical module specifications). • Automatically back up the output of the 6× 5G Ethernet ports. FIBER 1 corresponds to PORT 1-2, FIBER 2 to PORT 3-4, and FIBER 3

		to PORT 5-6. • Output mode (Ethernet or fiber optic) to be manually selected.
Power		
10	AC100-240V	Mains input, 100-240V~, 50/60Hz, built-in power protector.

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* The schematic of RJ11 (6P6C) to DB9 cable is shown as follows:



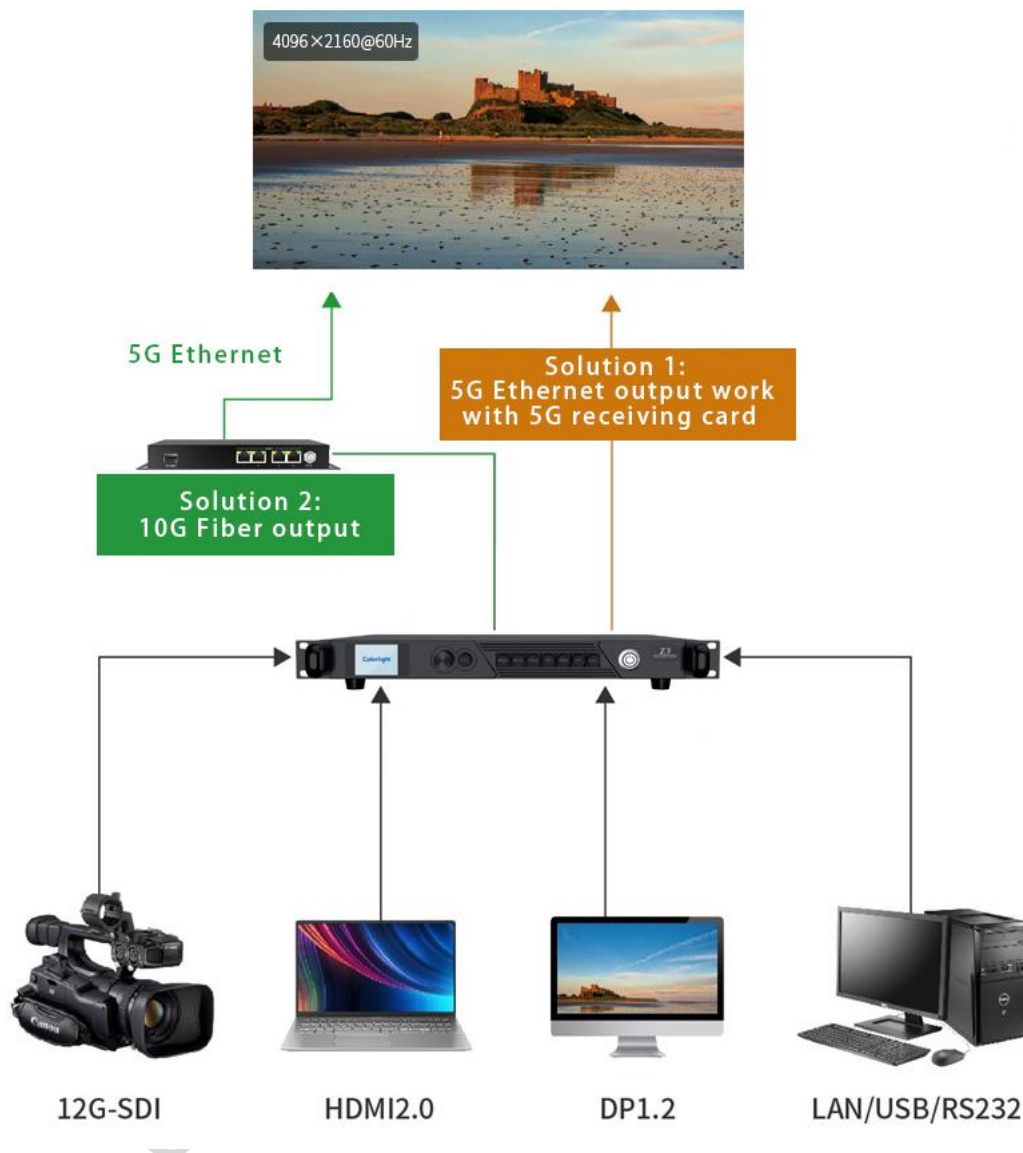
Signal format

HDMI2.0						
Input	Color space	Sampling	Color depth	Max. resolution	Frame rate	
4K	YCbCr	4:2:2	8/10bit	4096×2160@60Hz	23.98,30,50,59.94,60	
	YCbCr/RGB	4:4:4	8bit	4096×2160@60Hz		
	YCbCr/RGB	4:4:4	10bit	4096×2160@30Hz		
2K	YCbCr	4:2:2	8/10bit	1920×1200@60Hz	23.97,24,30,50,59.94,60,100,120,144	
	YCbCr/RGB	4:4:4	8bit	1920×1200@60Hz		
	YCbCr/RGB	4:4:4	10bit	1920×1200@30Hz		
HD	YCbCr	4:2:2	8/10bit	1280×1200@60Hz	23.97,24,30,50,59.94,60,100,120,144,240	
	YCbCr/RGB	4:4:4	8/10bit	1280×1200@30Hz		
Only part of the regular resolutions are listed above.						
DP1.2						
Input	Color space	Sampling	Color depth	Max. resolution	Frame rate	
4K	YCbCr	4:2:2	8,10bit	4096×2160@60Hz	23.98,24,25,29.97,30,50,59.94,60	
	YCbCr/RGB	4:4:4	8bit	4096×2160@60Hz		
	YCbCr/RGB	4:4:4	10bit	4096×2160@30Hz		
2K	YCbCr	4:2:2	8/10bit	1920×1200@60Hz	23.97,24,30,50,59.94,60,100,120,144	
	YCbCr/RGB	4:4:4	8bit	1920×1200@60Hz		
	YCbCr/RGB	4:4:4	10bit	1920×1200@30Hz		
HD	YCbCr	4:2:2	8/10bit	1280×1200@60Hz	23.97,24,30,50,59.94,60,100,120,144,240	
	YCbCr/RGB	4:4:4	8/10bit	1280×1200@30Hz		
Only part of the regular resolutions are listed above.						
12G-SDI						
Input	Color space	Sampling	Color depth	Max. resolution	Frame rate	
12G	YCbCr	4:2:2	10bit	4096×2160p@60Hz	23.98,24,25,29.97,30,50,59.94,60	
6G	YCbCr	4:2:2	10bit	4096×2160p@30Hz		
3G	YCbCr	4:2:2	10bit	2048×1080p@60Hz		
Level A/B						
HD						
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		
Only part of the regular resolutions are listed above.						

Specifications

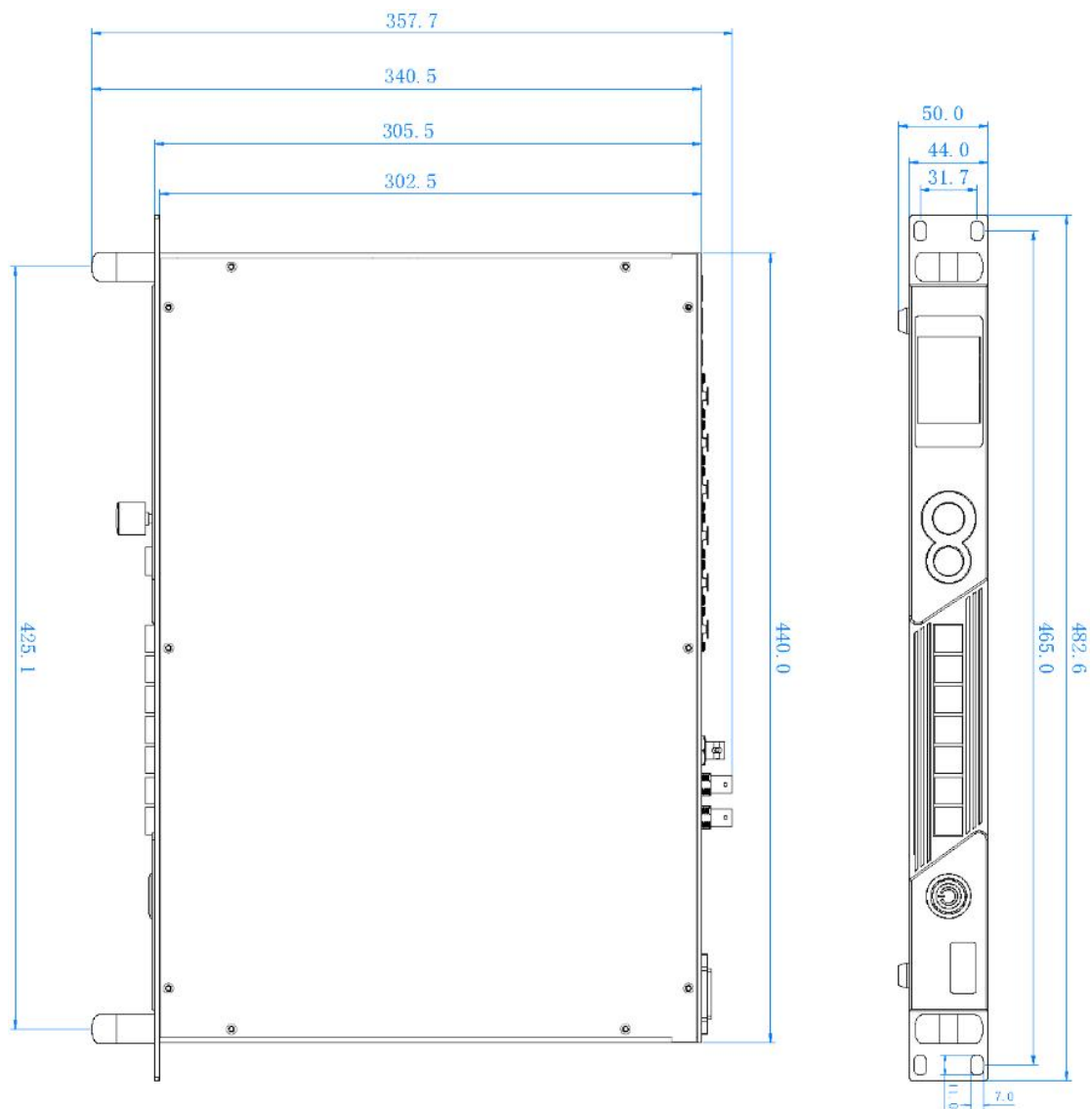
Dimensions (W×H×D)	
Device	482.6mm(19.0")×44.0mm(1.7")×357.7mm(14.1"), 1U, not including rubber feet
Packing	541.0mm(21.3")×518.0mm(20.4")×500mm(19.7")
Weight	
Net	2.96kg (6.53lbs)
Gross	4.3kg (9.48lbs)
Electrical parameters	
Power supply	AC100-240V, 50/60Hz
Rated power	50W
Operating environment	
Temperature	-20°C~50°C (-4°F~122°F)
Humidity	0%RH-90%RH, non-condensing
Storage environment	
Temperature	-30°C~80°C (-22°F~176°F)
Humidity	0%RH-90%RH, non-condensing
Certifications	
CE, FCC, CB, IC, cTUVus	
* If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact Colorlight to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks or Colorlight has the right to claim compensation.	

Application



Reference dimensions

Unit: mm



Statement

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