

Z3

LED Video Controller

Specification V2.0



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.

Appearance

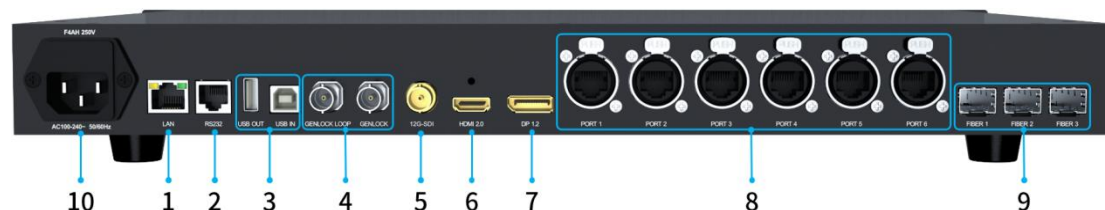
Front panel



No.	Item	Description
1	LCD screen	Display operation menu and system information.
2	Knob	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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



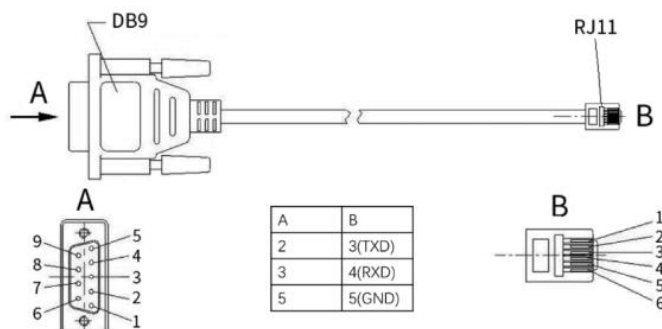
Control		
1	LAN	<ul style="list-style-type: none"> RJ45 port for accessing local area network.
2	RS232	<ul style="list-style-type: none"> RJ11(6P6C) port* for connecting to central control.
3	USB IN	<ul style="list-style-type: none"> USB2.0 Type-B port, enabling connection to a PC for debugging or cascading input.
	USB OUT	<ul style="list-style-type: none"> USB2.0 Type-A port for cascading output.
Genlock		
4	GENLOCK	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 1× BNC port, male. Loop out Genlock sync signal.
Input		
5	12G-SDI	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 1× HDMI Type A port. Comply with HDMI 2.0 standard, support HDCP2.3 and compatible with HDCP1.4. Maximum resolution: 4096×2160@60Hz, minimum resolution: 800×600@60Hz, maximum pixel clock: 600MHz. Custom resolution: <ul style="list-style-type: none"> Maximum width: 8192 (8192×1080@60Hz). Maximum height: 8192 (1080×8192@60Hz). Support HDR.

		<ul style="list-style-type: none"> • Support independent EDID settings and comply with EDIDV1.3 standard. • Not support audio input. • Not support interlaced signal inputs.
7	DP1.2	<ul style="list-style-type: none"> • 1× DisplayPort1.2. • Comply with DP1.2 standard, support HDCP2.3 and compatible with HDCP1.3. • Maximum resolution: 4096×2160@60Hz, minimum resolution: 800×600@60Hz, maximum pixel clock: 600MHz. • Custom resolution: <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> • 6× Neutrik Ethernet ports with a single-port transmission rate of 5 Gb/s, working with 5G receiving card. • Total pixel capacity: <ul style="list-style-type: none"> - Up to 16,384 pixels in width and 8192 pixels in height. - 60Hz output, 8-bit: 8.84 million pixels, 10-bit: 8.84 million pixels. - 120Hz output, 8-bit: 4.42 million pixels, 10-bit: 4.42 million pixels. - 240Hz output, 8-bit: 2.21 million pixels, 10-bit: 2.21 million pixels. • Pixel capacity per port: <ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> • 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.

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

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



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/HDCP1.3/HDCP2.3.
- 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.
- Multi-screen display (maximum three screens)
- Low latency, a minimal latency of one frame.
- Lag-free processing, 0 frame delay at minimum
- HDR10/HLG display.
- Genlock.
- Crossfade of a single layer
- Virtual pixel, support 3x virtual and 4x virtual
- Multi-function card automatic brightness

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.

Signal format

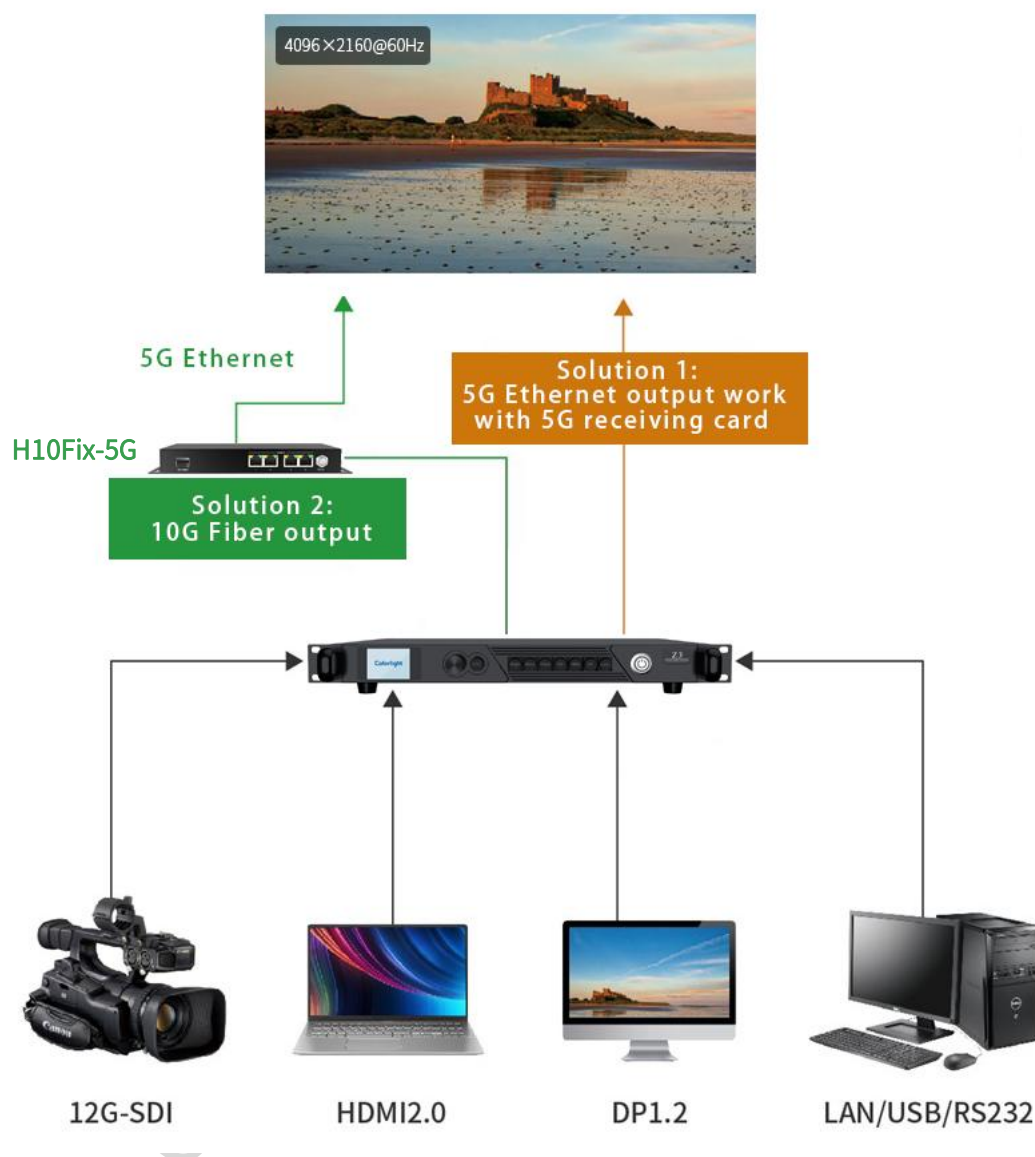
HDMI2.0					
Input	Max Resolution	Color space	Sam pling	Color depth	Frame rate (Hz)
4K	4096x2160	YCbCr	4:2:0	8,10bit	60
		YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
	3840x2160	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	23.98,24,25,29.97,30
		YCbCr/RGB	4:4:4	8bit	50,59.94,60
2K	2048x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	1920x1080	YCbCr	4:2:2	8,10,12bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10,12bit	
	2048x1080	YCbCr	4:2:2	8bit	100,120
		YCbCr/RGB	4:4:4	8bit	
	1920x1080	YCbCr	4:2:2	8bit	100,120,240
		YCbCr/RGB	4:4:4	8bit	
Only some of the regular resolutions are shown above.					
DP1.2					
Input	Max Resolution	Color space	Sam pling	Color depth	Frame rate (Hz)
4K	4096x2160	YCbCr	4:2:2	8,10bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10bit	
	3840x2160	YCbCr	4:2:2	8,10bit	
		YCbCr/RGB	4:4:4	8,10bit	
2K	2048x1080	YCbCr	4:2:2	8,10bit	23.98,24,25,29.97,30,50, 59.94,60
		YCbCr/RGB	4:4:4	8,10bit	
	1920x1080	YCbCr	4:2:2	8,10bit	
		YCbCr/RGB	4:4:4	8,10bit	
	2048x1080	YCbCr	4:2:2	8bit	100,120
		YCbCr/RGB	4:4:4	8bit	
	1920x1080	YCbCr	4:2:2	8bit	100,120,240
		YCbCr/RGB	4:4:4	8bit	
Only some of the regular resolutions are shown above.					

12G SDI					
Input	Max Resolution	Color space	Sam pling	Color depth	Frame rate (Hz)
12G	4096x2160p	YCbCr	4:2:2	10bit	50,59.94,60
	3840x2160p	YCbCr	4:2:2	10bit	
6G	4096x2160p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	3840x2160p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
3G Level A/B	2048x1080p	YCbCr	4:2:2	10bit	50,59.94,60
	1920x1080p	YCbCr	4:2:2	10bit	
HD	2048x1080p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	1920x1080p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30
	1920x1080i	YCbCr	4:2:2	10bit	50,59.94,60
	1280x720p	YCbCr	4:2:2	10bit	23.98,24,25,29.97,30,50, 59.94,60
Only some of the regular resolutions are shown 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.	

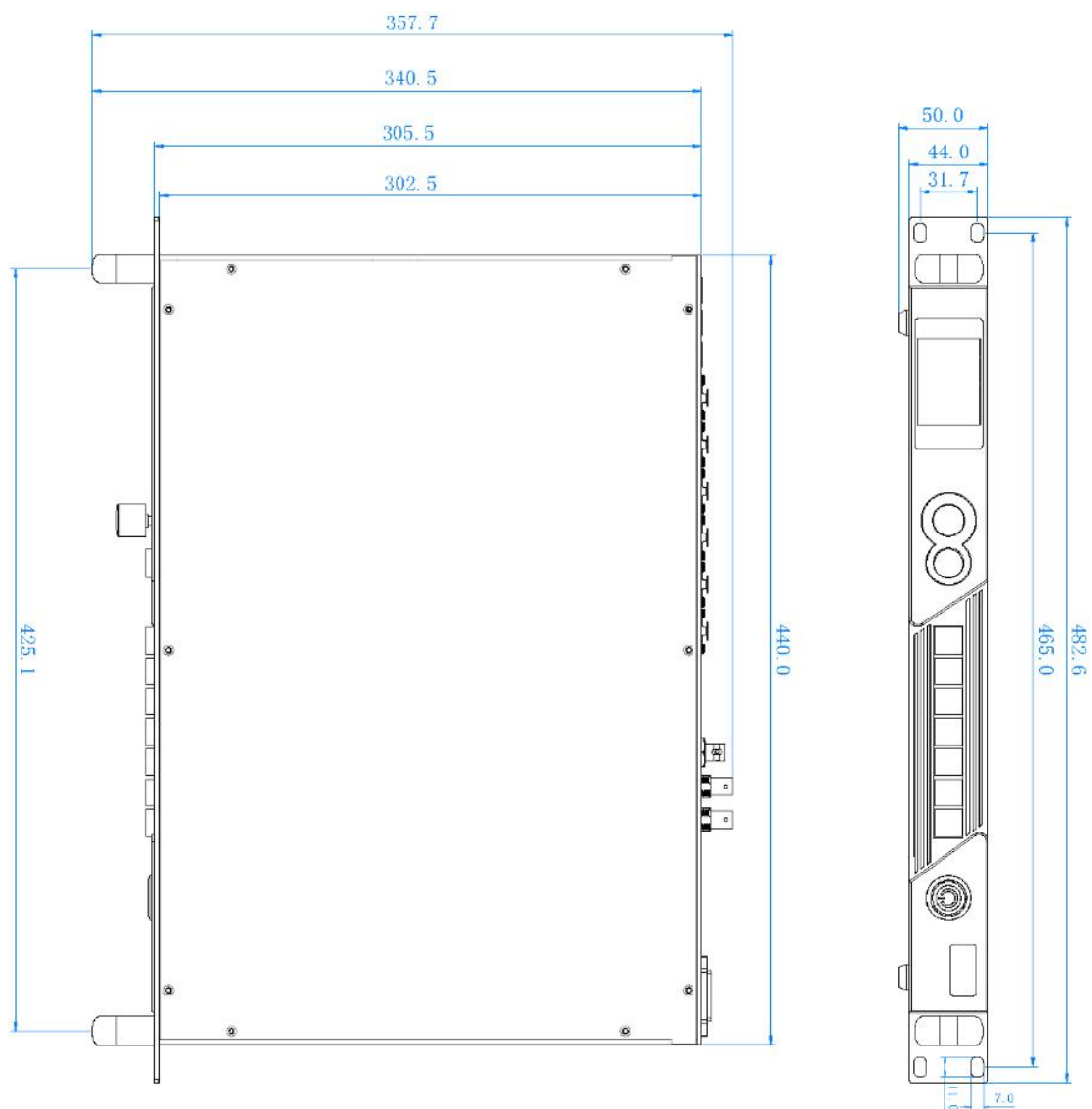
Application



Note: When H10Fix-5G selects the output types of the four network ports, only the first two can be used.

Reference dimensions

Unit: mm



Statement

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