Colorlight

Z5
LED Video Controller
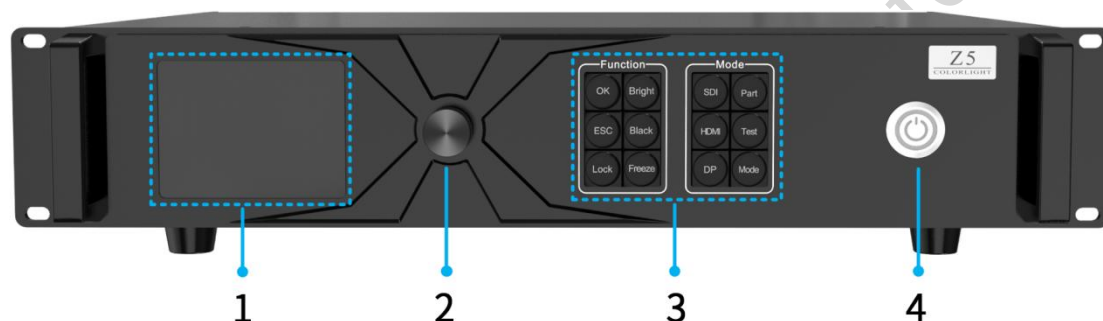
Specification V2.0

Overview

Z5, a new generation of professional LED video controller, is designed specially to meet the ultra-low latency display, HDR and wide color gamut needs of live event, broadcast, television, filming and other scenarios, where real time, low-latency processing and color fidelity is required for Ultra HD image and LED display control. Z5 includes features providing excellent vision effect for user.
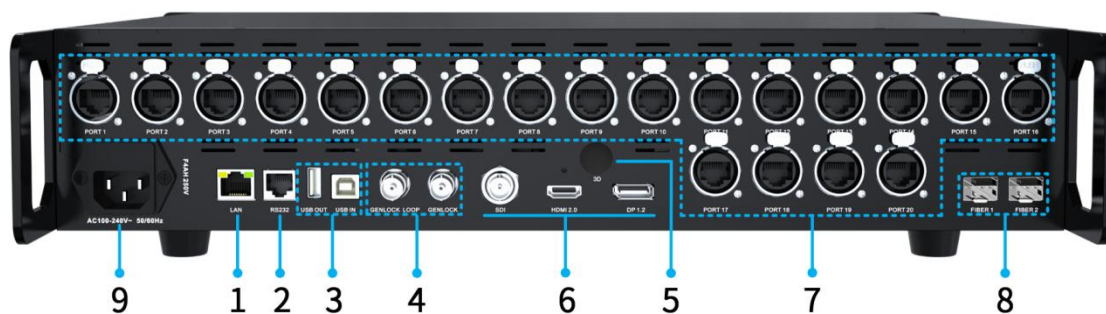
Appearance

Front panel

No.	Name	Description
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 interface. • **Lock**: lock buttons of front panel. • **Bright**: tune brightness. • **Black**: black screen. • **Freeze**: freeze screen. • **SDI**: switch to SDI signal. • **HDMI**: switch to HDMI signal. • **DP**: switch to DP signal. • **Part**: crop or show the switch buttons in full screen. • **Test**: test patterns. • Mode: select a preset.
4	Power switch	Power button.

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.
3D		
5	3D*	4-pin S terminal connector, output 3D sync signal (optional, for use with active 3D glasses).
Input		
6	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.
	HDMI2.0	• 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: - 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.
	DP1.2	• 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: - 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		
7	PORT 1-20	• 20-channel Gigabit Ethernet port, Neutrik (NE8FBH) port, compatible with standard RJ45 port. • Device load capacity: - Maximum width t is 16384 pixels, Maximum heigh is 8192 pixels. - When output frame rate is 60Hz, 8bit color depth supports up to 13.1 million pixels and 10bit supports up to 9.83 million pixels. - When output frame rate is 120Hz, 8bit color depth supports up to 6.55 million pixels and 10bit supports up to 4.91 million pixels. • Load capacity of one network port: - When output frame rate is 60Hz, 8bit color depth supports up

		to 650 thousand pixels and 10bit supports up to 490 thousand pixels. - When output frame rate is 120Hz, 8bit color depth supports up to 320 million pixels and 10bit supports up to 240 million pixels.
8	FIBER 1, FIBER 2	• 2-channel 10G output fiber port (purchase separately10G SFP+ optical module, transmission distance depends on optical module specifications). • Automatically copy the output data of 20 network ports. FIBER 1 corresponds to network port PORT 1-10, fiber 2 corresponds to network port PORT 11-20. • Select manually the signal output between network ports and fiber.
Power		
9	Power Socket	AC100-240V, 50 / 60Hz, built-in fuse.

*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.

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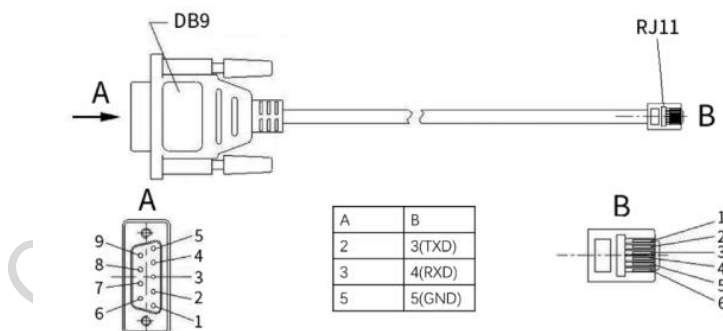
Features

Input

- Full 4K inputs: HDMI2.0, DP1.2, 12G-SDI.
- Single port supports up to 4096×2160@60Hz.
- Support 8bit / 10bit video signal input.
- Support HDCP1.4/HDCP1.3/HDCP2.3.
- Support input frame rate from 23.98Hz to 240Hz.

Output

- Maximum capacity of 13.1 million pixels, with maximum 16384 pixels in width or 8192 pixels in height.
- 20-channel Gigabit Ethernet port output; 2-channel 10 Gigabit fiber port output, choose any of two types.
- Support output frame rate of 23.98Hz to 240Hz.
- 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 for hue, saturation, contrast, and brightness compensation.
- Brightness adjustment, support network port grouping brightness adjustment.
- Color temperature adjustment with precision and RGB independent adjustment.

Control

- USB port for control and cascading.
- RS232 port.
- LAN port for TCP/IP control.

Signal format

HDMI2.0					
Input	Max Resolution	Color space	Sampling	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	Sampling	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	Sampling	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.

Parameters

Dimensions （W×H×D）	
Unboxed	482.6mm (19") × 88.0mm (3.4") × 407.1mm (16.0"), 2U chassis (w / o foot pads)
Boxed	655.0mm (25.7")×245.0mm (9.6")×615.0mm (24.2")
Weight	
Net weight	5.85kg (12.90lbs)
Total weight	7.65kg (16.87lbs)
Electrical specification	
Power input	AC100-240V, 50 / 60Hz
Rated power	75W
Operating environment	
Temperature	-20℃~55℃ (-4°F~131°F)
Humidity	0%RH-90%RH, no-condensing
Storage environment	
Temperature	-30℃~80℃ (-22°F~176°F)
Humidity	0%RH-90%RH, no-condensing
Certification	
CCC, 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.	

Application
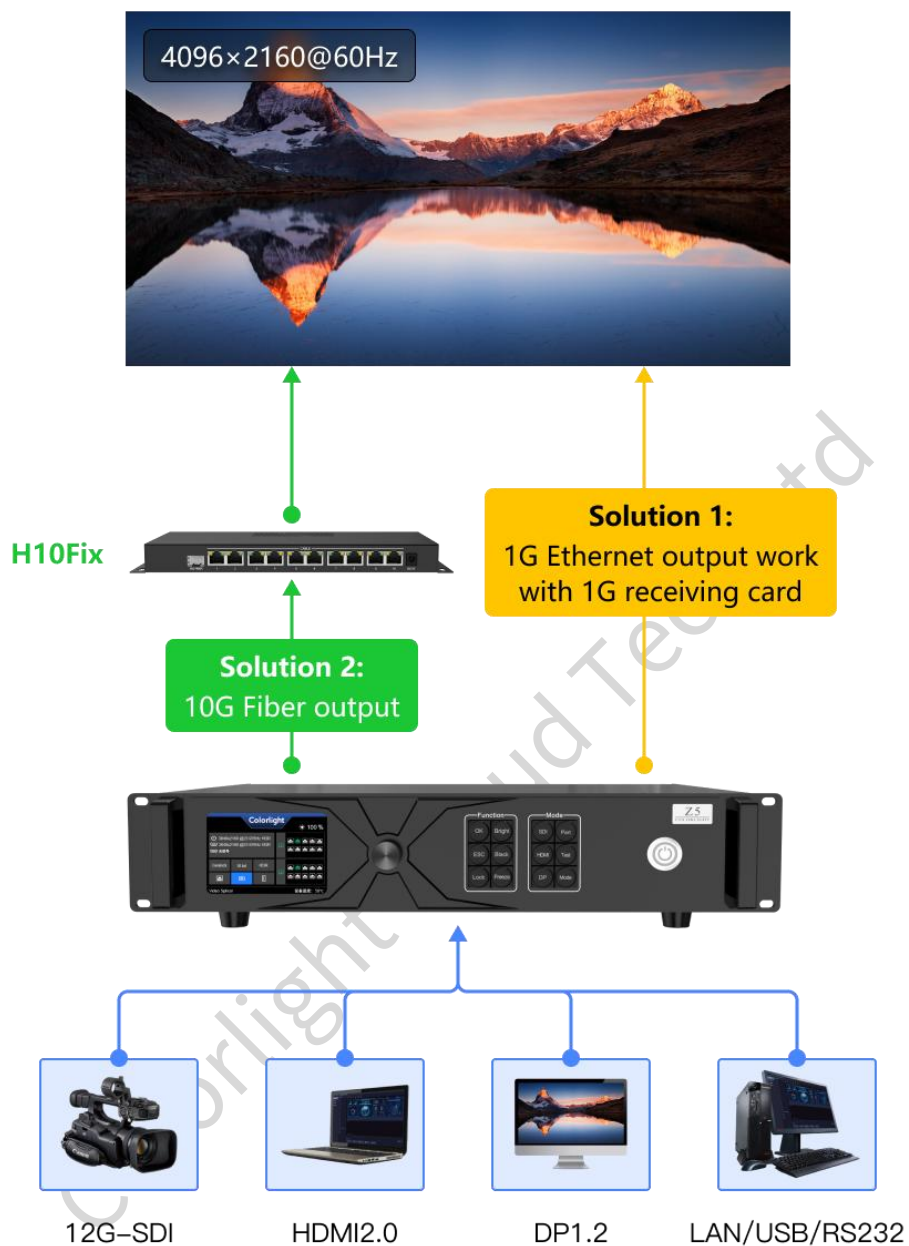
Colorlight

Reference dimensions

Unit: mm

Statement

Service Phone
4008 770 775
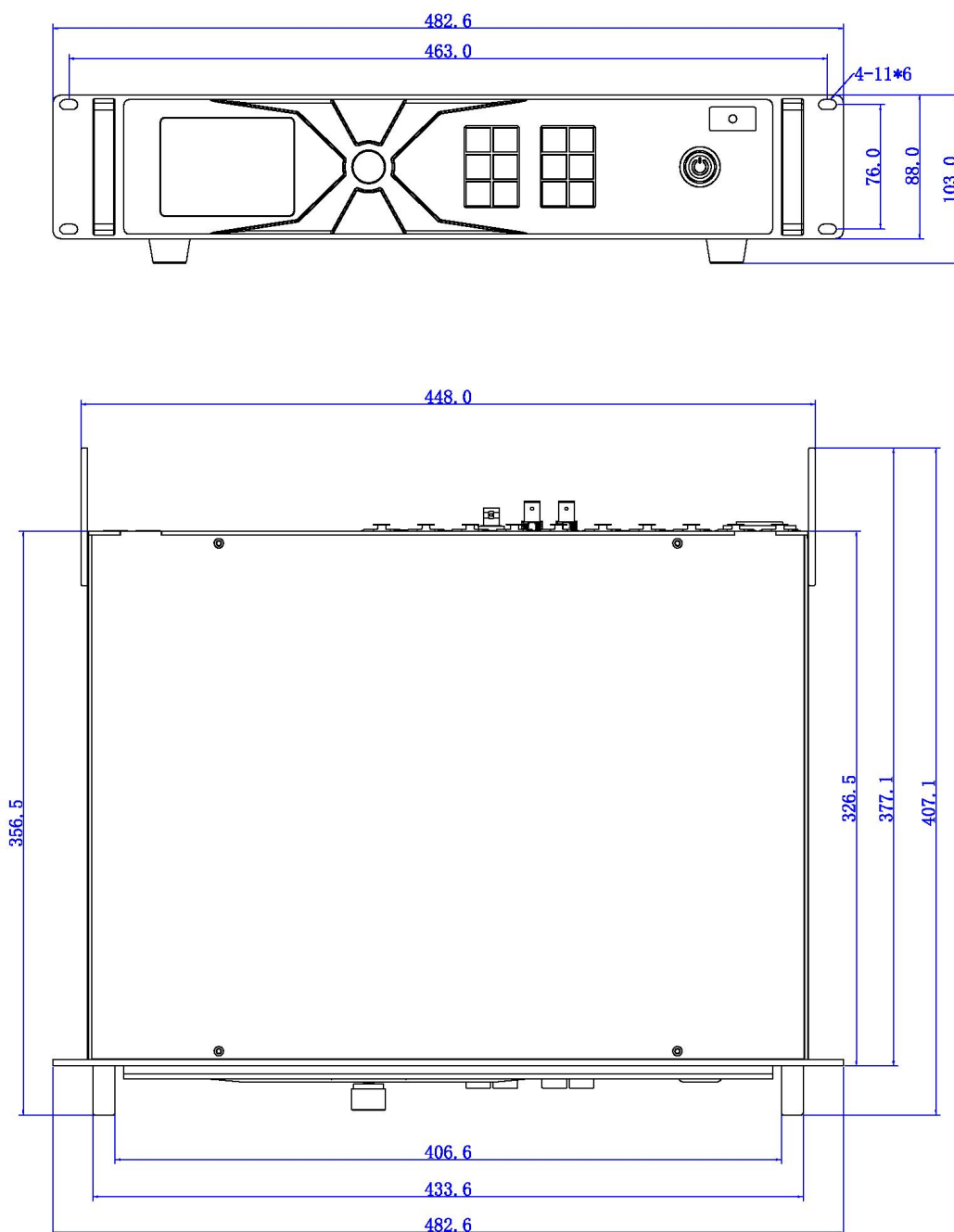
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