Display & Control Solution
DS-C30S-4X10M55 System

HIKVISION

Chapter 1 Project Design

1.1 Video Wall Rendering

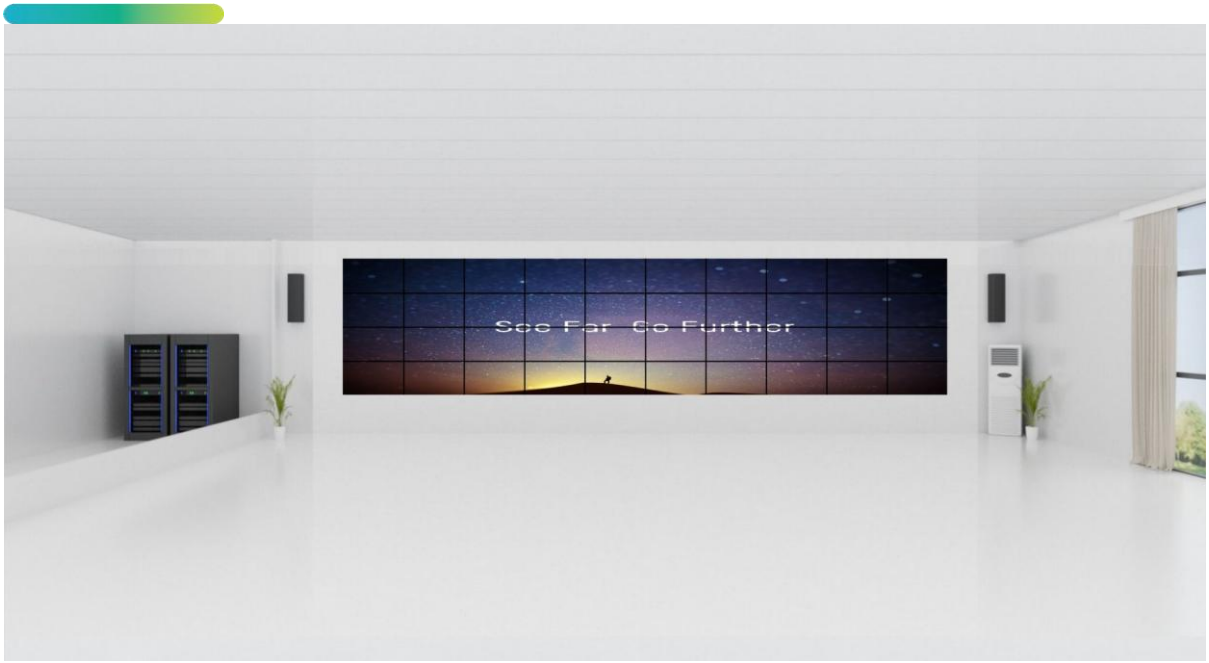


Figure 1.1.1 Video Wall Rendering 01

1.2 Vertical/Side View

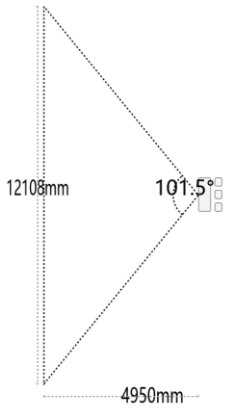


Figure 1.2.1 Side View

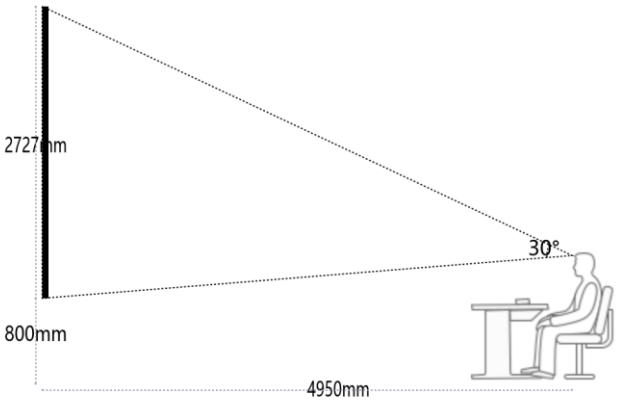


Figure 1.2.2 Vertical View

1.3 Recommended Solution

Table 1.3.1

Product Type	Model	Qty	Unit	Technical Specs
Display				
LCD Display	DS-D2055LR-E	40	PCS	55", 500 nits, 0.88 mm
LCD Bracket	DS-DN5501W	40	PCS	Front-maintenance wall-mounted bracket, suitable for all 55" LCD models to meet various installation requirements
Video Processing System				
Input Board	DS-C30S-02HI/4K	12	PCS	2 x HDMI 4K input boards
Output Board	DS-C30S-04HO	10	PCS	4 x HDMI output board: each board supports 4 x HDMI
Video Wall Controller	DS-C30S-S23	1	PCS	Video Wall Controllersub board slot × 23
Software license	HikCentral-P-SmartWall	1	PCS	Management of all functions of Smart Wall module, with unlimited decoding outputs manageable (perpetual license)
Smart Power Supply	DS-C30S-SPDU	2	PCS	24 x IEC 60320 C13 Outlet

Table 1.3.2

Display		
Video Wall Scale	Row × Column	4x10
	Display Unit Quantity	40
Video Wall Dimension	Width × Height	12.1081m × 2.72704m
	Video Wall Size	33.02 sq.m
	Diagonal Length	488.6"
	Resolution of Display Unit	19200*4320
	Size of Display Unit	1210.81×681.76
Load Bearing	Video Wall Weight	832.00 kg
	Bracket Weight	504 kg
Power Consumption	Power Consumption Per LCD Display	245W
	Standby Consumption	0.5W

Table 1.3.3

Video Processing System Parameters		
Video Processing System Parameters	Number of Input Ports	24
	Number of Output Ports	40
	Max. Decoding Capability at 720p.	0

Table 1.3.4

DS-D2055LR-E		
Display	Screen Size	55 inch
	Active Display Area	1209.63 (H) mm × 680.34 (V) mm
	Backlight	Direct-lit LED backlight
	Pixel Pitch	0.63 mm
	Physical Seam	0.88 mm
	Bezel Width	0.44 mm (top/left), 0.44 mm (bottom/right)
	Resolution	1920 × 1080@60 Hz (downward compatible)
	Brightness	500 cd/m²
	Viewing Angle	Horizontal 178°, vertical 178°
	Color Depth	10 bit, 1.07 B
	Contrast Ratio	1100:1
	Response Time	8 ms
	Color Gamut	72% NTSC
	Surface Treatment	Haze 28%, 3H
Interface	Video & Audio Input	VGA × 1, HDMI × 2, DVI × 1, USB × 1

	Video & Audio Output	HDMI × 1
	Control Interface	RS232 IN × 1, RS232 OUT × 1
Power	Power Supply	100-240 VAC, 50/60 Hz
	Power Consumption	≤ 245 W
	Standby Consumption	≤ 0.5 W
Working Environment	Working Temperature	0°C to 40°C (32°F to 104°F)
	Working Humidity	10% to 80% RH (non-condensing)
	Storage Temperature	-20°C to 60°C (-4°F to 140°F)
	Storage Humidity	10% to 90% RH (non-condensing)
	Operating Life	≥ 60,000 Hours Stable and 24-hour continuous working
General	Casing Material	SGCC
	VESA	600 (H) mm × 400 (V) mm
	Product Dimension (W × H × D)	1210.81 mm × 681.76 mm × 68.9 mm (47.67" × 26.84" × 2.71")
	Package Dimension (W × H × D)	1404(W) mm × 910 (H) mm × 231 (D) mm
	Net Weight	20.8 ± 0.5 kg (45.9 ± 1.1 lb) for single display
	Gross Weight	39.2 ± 0.5 kg (86.4 ± 1.1 lb) for carton with a single display
	Packing List	Carton with a single display : LCD display × 1, power cable × 1, network cable × 1, 2-meter HDMI cable × 1, screw × 4, remote control × 1, IR receiver × 1, RS-232 converter × 1, quick start guide (multilingual) × 1, quick start guide (English) × 1 By option: 50/25/20/15/xx-meter HDMI cable, LCD Display Modular Bracket

1.4 System Topology

System Topology Picture

Video Cable Network Cable Cat5e Cable Bluetooth Power Cord USB Cable

Chapter 2 Installation

2.1 Bracket Installation

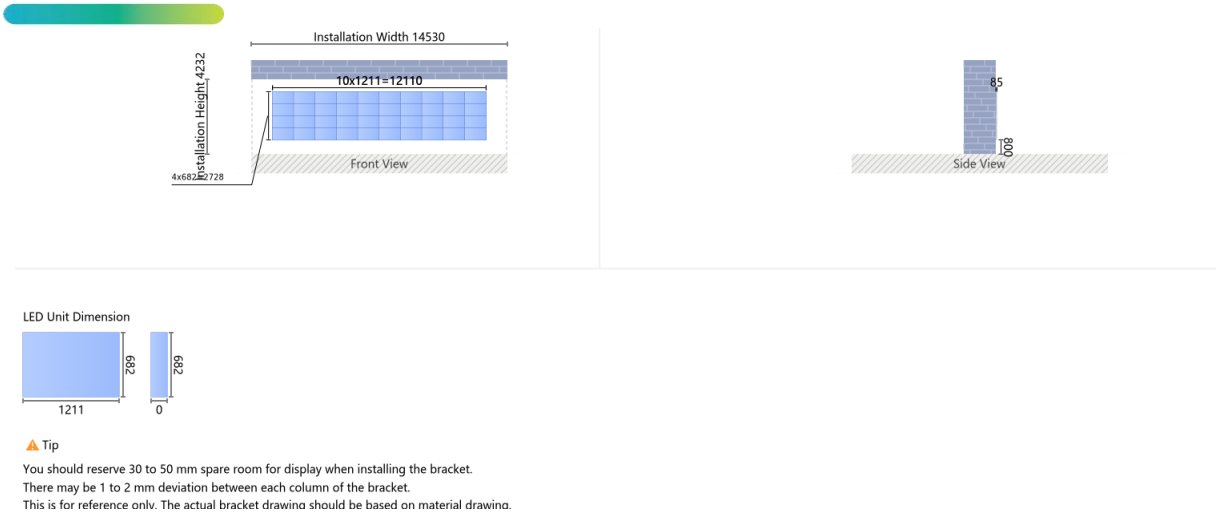


Figure 2.1.1 Brackets Installation

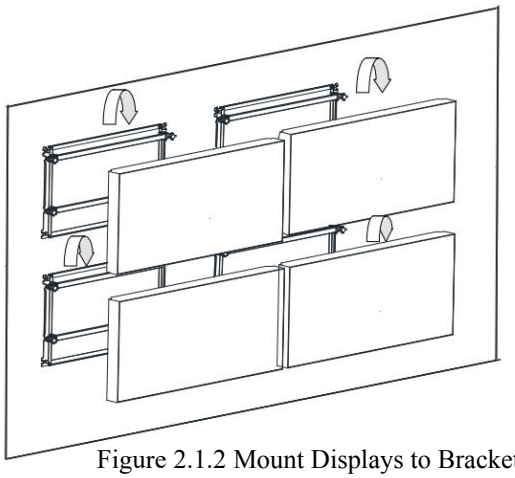


Figure 2.1.2 Mount Displays to Brackets

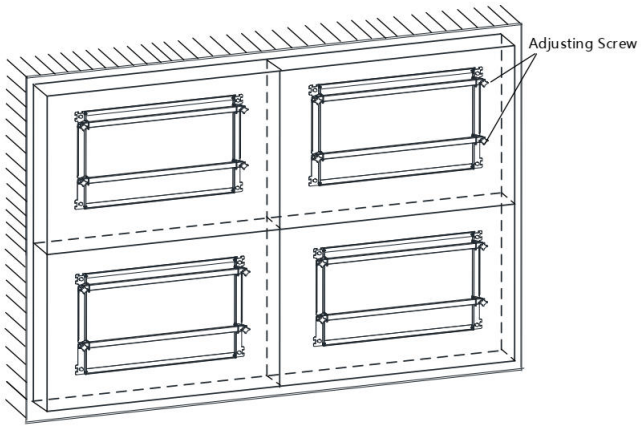


Figure 2.1.3 Adjust Displays

2.2 Adjust Gaps and Flatness

After all the displays are mounted, make the following adjustments if required.

Step 1 Slide the displays horizontally to adjust the vertical gaps between the displays. The perfect gap is about 0.5 mm, and make sure that an A4 paper can easily go through the gap.

Step 2 Tighten or loosen the hex socket head cap screws to adjust the horizontal gaps between the displays.

Step 3 Tighten or loosen the adjusting screws on the brackets to adjust the flatness of the screen surface.

2.3 Structural Dimension Diagram

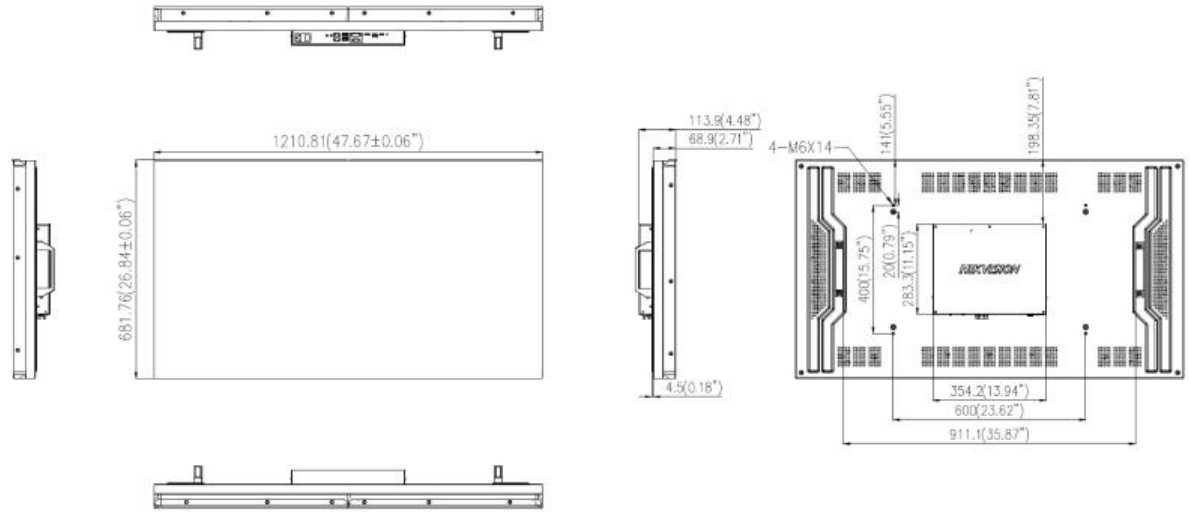


Figure 2.2.1 DS-D2055LR-E Cabinet Structure Dimension

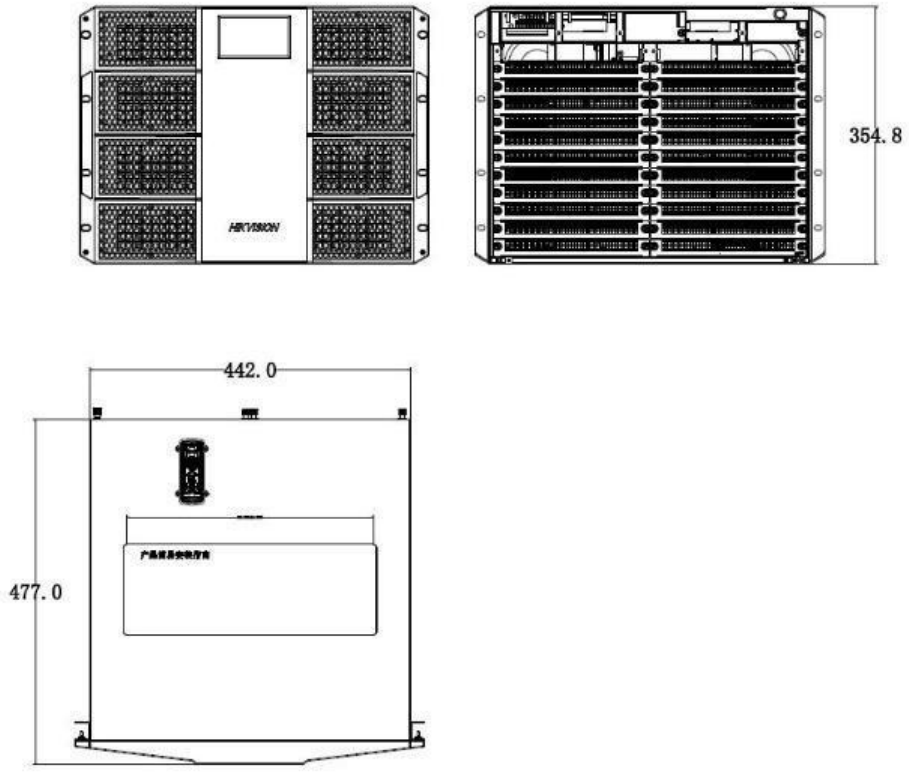


Figure 2.2.2 Structural Dimension Diagram

DS-C30S-S23
Video Wall Controller

The video wall controller is mainly used for screen splicing control system, and is the core control device of the system. As a new-generation FPGA-based pure hardware image processing device, it adopts the dual data switching technology and the structure of main control board and service boards. It supports processing and transmitting large data, processing multiple high-definition and ultra-high-definition signals in real time, and managing multiple screens.

Hardware Structure

- Adopts the 8 U standard rack design and operational-grade ATA chassis system.
- Adopts redundant power supply design, 6 intelligent fans for auto temperature adjustment, and 2 main control boards for expansion.
- Adopts the plug-in modular design and 23 slots for hot swappable service boards (23 slots for input and output boards).
- Adopts the 4.3-inch non-touch screen panel to allow you to view the device status information at any time.
- Provides the indicator lights to allow you to view the device online status and operating status.

Audio and Video Input

- Supports the video signal source input such as computers, video conference terminals, and ultra-high-definition (UHD) servers. Supports VGA, DVI, HDMI, 4K HDMI, and 4K DP signal input, and network signal source input such as network cameras and NVRs.
- Supports composite audio input and independent audio input. The audio input supports 16 bit, 48K Hz sampling, and dual channel.
- Supports YUV 444 in image collection and output with lossless image quality.
- Support ultra-high-definition fusion and up to sixteen 4K UHD signal access.
- Supports OSD on the input.
- Supports input image clipping to cut the black edge of the input image.

Audio and Video Output

- Supports DVI, HDMI, and 4K HDMI video signal output and the video signal output via network ports.
- Supports composite audio output and independent audio output.
- Adopts frame synchronization technology to ensure that the images of all output ports are completely synchronized to provide complete picture and smooth playback without stuttering, frame loss, tearing, or seams.

Video Decoding

- Supports using the installed decoding board to decode the signal sources of network cameras and NVRs.
- Supports main stream encoding, sub stream decoding, auto-switching to sub stream, and decoding exception prompt.
- Supports up to 256 decoding channels, and simultaneous decoding of 128 channels of 2 MP video to the video wall when the device is fully installed with service boards.
- Supports the mainstream decoding formats such as H.264, H.265, Smart264, Smart265, and MJPEG, and mainstream encapsulation formats such as PS, TS, ES, RTP, and HIK.
- Support 16 MP HD video decoding.

Video Wall Function

- Supports any large screen splicing of 88 screens when the device is fully installed with service boards.
- Supports window opening and floating windows.
- Support up to eight 4K signal source windows per screen and each signal source window can be divided into 1, 4, 6, 8, 9, and 16 windows.
- Supports displaying the image of a video wall on the connected screen(s) or previewing the image of a video wall on a client.
- Supports 8 background images. The resolution of each background image is 8K.
- Supports 8 video walls. Each video wall allows one background image.
- Supports up to 12 subtitles for the device, up to 3 subtitles for one video wall and configuration of different types of subtitles.
- Supports up to 128 scenes. You can customize the video wall layout and save it as a scene.
- Supports the auto-switching of up to 100 view groups via the HCP client. Supports auto-switching on a single window, on some windows, and on all windows. You can save all auto-switch resources in the scenes and customize the location, scene, and time in each view group.
- Supports double-clicking the sub-window to enlarge its window size and double-clicking the sub-window again to restore its original window size.
- Supports using the HCP client to capture images on the screen and display the captured images on the video wall when the decoding board is installed in the device.
- Supports the live view of network signal sources over RTP or RTSP.

Device Access and Control

- Supports using the network keyboard or serial port keyboard to control the device, and to realize sub-window changing, group operation and auto-switching, scene changing, PTZ control, and video wall playback.
- Supports using the ONVIF protocol to access the network source devices for decoding.
- Supports using the software to control LCD screens, including screen switch, screen signal source changing, and the adjustment on brightness, contrast, color, sharpness, picture horizontal position, and picture vertical position.
- Supports using the software to control LED screens, including screen switch and screen signal source changing.
- Supports API/SDK for integration with other video management solutions.
- Supports PTZ control and movement of the cameras.

Maintenance Support

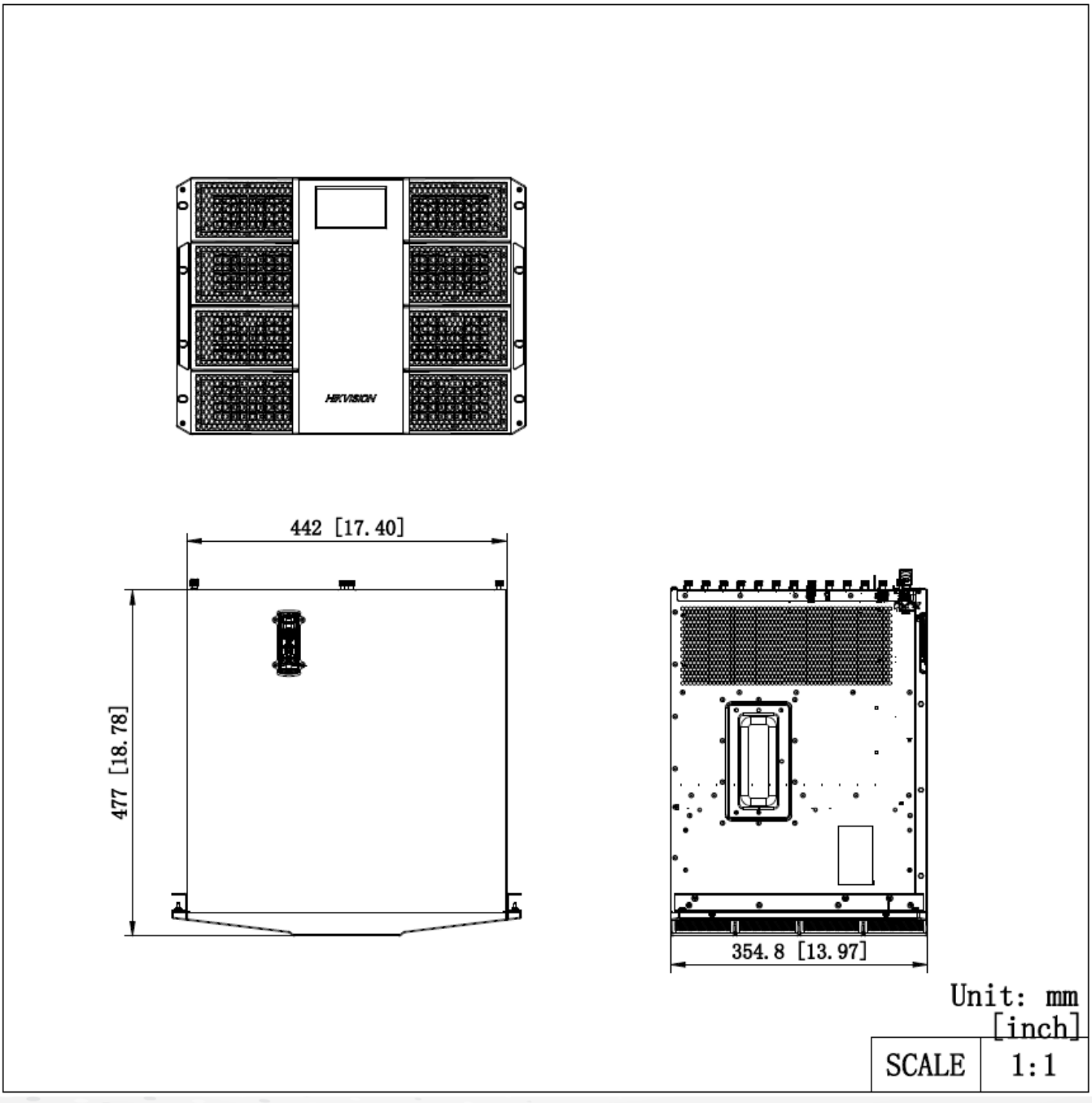
- Supports the access and operation via the control client and web client. The web browser should be IE 8, Chrome 45 and above.
- Supports the access and operation via the mobile client (Android or iOS).
- Supports NAT.
- Supports obtaining and configuring parameters remotely, importing parameters remotely, and exporting parameters remotely.
- Supports obtaining system running status and system logs remotely.
- Supports restarting the device remotely, restoring the default settings, and upgrading the device.
- Supports auto detection and alarm for failures and the device exception alarm function when the boards are online, including network disconnection, IP conflict, invalid access, temperature threshold exceeding, and fan exception.
- Supports user permission management. Different users are assigned with different permissions to use the specified resources and operate the specified video wall modules.
- Supports manual time sync or NTP time sync.

▪ Specification

Model		DS-C30S-S23
Chassis	Chassis Height	8 U
	Bus Type	10 GB network switching
	Signal Sampling Quality	YUV 444
	Mixed Installation of Service Boards	Supported
	Main Control Board Slot	2
	Service Board Slot	23
	Installed Main Control Boards	1
	Max. Input Slot	22
	Max. Output Slot	22
	Device Decoding Capability	Up to 8 decoding boards. Supports 128 channels of 1080p 30 fps and simultaneously decoding of 256 channels of network videos to the video wall.
	Device Splicing Capability	88 channels
	Power Supply Slot	3
	Installed Power Supplies	2
	Fan	6
	Dual Device Hot Backup	Supported
Interface	Management Network Port	2 × 10/100/1000 Mbps auto-sensing Ethernet interface (2 network ports on the switching board and 1 network port reserved on the main control board)
	USB Interface No.	2 × USB 2.0
	Serial Interface	2 × Console port (RJ-45) + 1 × RS-485/RS-232 multiplex interface (RJ-45, baud rate:115200, valid data bit: 8 bit)
	Screen Type	4.3 inch non-touch screen, length × width: 105.42 mm × 67.07 mm (4.15 inch × 2.64 inch), resolution: 480 × 272
Power	Power Interface	100 VAC to 240 VAC, 50/60 Hz
Network	Transmission Protocol	SDK, RTSP, ONVIF
Video Wall	Video Walls	8
	Video Wall Scale	88
	Split Window	Supported
	Open Windows	16
	Window Division per Screen	1, 4, 6, 8, 9, 16
	Input Source Copy Capability	Each output board can duplicate eight 2K images from the input source but the LED controller board does not have copy capability.
	Layers Per Screen	8 × 1080p layers or 4 × 4K layers
	Layers per Device	512 (fully installed with the output boards)
	Scenes	128
	Scene Auto-Switch Delay	400 ms
	Plans	128
	Preview Resolution	16-channel D1 or 32-channel CIF; 4-channel D1 or 16-channel CIF when previewing the image of a video wall on a client with all service boards installed in the device
	UHD Fusions	≤ 16
	Background Image	Total: 8; One background image on each video wall. Resolution: 16382 × 8192 Format: JGP, JPEG
	Subtitles	Total: ≤ 12; Single video wall: ≤ 3
	Input OSD	Supported
	Input Image Clipping	Supported 200 pixel points on top, bottom, left, and right.
	Local Signal Source Decoding Delay	50 ms
	Network Signal Source Decoding Delay	200 ms
	Signal Source Live View	Supported

General	Working Humidity	10% to 90%
	Working Temperature	0 °C to 50 °C
	Dimensions (W × H × D)	442 mm × 354.8 mm × 447 mm (17.4 inch × 13.97 inch × 17.59 inch)
	Net Weight	≤ 57.54 kg (126.87 lb.) Full configuration, including 31.14 kg (68.65 lb.) chassis and 1.05 kg (2.31 lb.) for each service board
	Gross Weight	≤ 105.81 kg (233.48 lb.) Full configuration, including 59.35 kg (130.88 lb.) chassis and 2.02 kg (4.45 lb.) for each service board
	Packing List	1 × grounding cable, 1 × audio adapter cable, 1 × serial port cable, 1 × AC power cord, 2 × power supply, 1 × regulatory compliance and safety information manual
	Power Consumption	≤ 1000 W (full configuration)

▪ Dimension



KEY FEATURES

Flexible Monitoring and Accommodating a Low Bandwidth Scenario

Auto/Manual Switch of Stream Type

- Stream type automatically switched between main and sub according on the self-defined threshold of screen splits to save bandwidth.
- Manual switch also applicable for exceptional case.

Screen Split and Roaming

- Video wall supports 4/9/16/25 window split display mode, operators monitor video wall daily.
- Operator creates a roaming window to display the key area.

Keyboard Control

- Operators choose to display any surveillance channels by PC keyboard, USB keyboard, network keyboard.

Alarm Pop-Up Onto Smart Wall.

As there are too many streams on smart wall, it's hard for the operators to focus on all of them. So, when some cameras trigger an alarm, it is really hard for operators to be aware of the event. To solve this problem, this solution provides alarm pop up functions.

Alarm Notification

- **Option1:** Once alarm is triggered, the related camera stream will pop up on video wall and cover the whole screen to give an obvious alarm notification.
- **Option2:** Once alarm is triggered, related camera and nearby cameras will pop up on video wall.

Alarm Handling

- Operators receive alarm and double check via live view. Once alarm is handled, the pop-up alarm video will disappear.

View and View Groups

View defines which camera streams are displayed on the smart wall. In this way, operators can quickly access the frequently used cameras on smart wall for an excellent overview.

A view group on a smart wall manages multiple streams in collective groups whilst performing auto-switch from one group to the next.

Automatically Calling Certain Views by Schedule

View Scheduled Play

View Schedule is used to define when to automatically display the view on a smart wall. According to the schedule, the view will play on the smart wall at the time point(s) or the fixed time point(s) on regular date(s) in one week repeatedly.

Desktop One-Key Displayed on Smart Wall

Health Monitoring

- Display health monitoring interface on the wall, and device status automatically refresh by user-defined interval. Any device abnormal status will be noticed at once.

Map Monitoring

- Display Map on the wall, operators can easily check every surveillance spots' status and alarms.

Live News Stream

- Display any news stream/information on Smart Wall for group attention.

DS-C30S-SPDU

Smart Power Supply

Smart Power Distribution unit is the world-advanced new generation network power distribution and monitoring device. Through LAN or WAN, the manager can monitor,control and manage the power of many equipment in the cabinet of the data room located all over the world.

Hikvision SPDU contains two series:DS-C30S-SPDU(standard size), DS-C30S-SPDUx (non standardsize) , and each series include FOUR levels:A,B,C and D which can meet the requirement of different environment and customers. Hikvision SPDU are widely applied to 19" standard and non-standard server rack or network cabinet.

- 0RU, Vertical installation
- locking outlet modular, to avoid accident break
- SPCC Steel shell, can be colored upon requirements
- Modular made from un-inflammable PC
- Compliant to SNMP IP, TCP,DHCP, HTTP,HTTPS protocol
- LCD screen for local monitoring
- Control remotely to each outlet
- Buzzing and warning when abnormal data.

PDU information

Input	• Volt - 220~250V	• Current - 32A	• Frequency - 50~60Hz
Output	• Volt - 220~250V	• Current - 32A	Max 10A #1~24
Mechanical	• Size - 1350 x 60 x 100 mm • Outlet - 24 ports IEC60320 C13		• Color - Black • Power lead - 2M
Working environment	• Temperature - 0 ~50°C		• Humidity- 30~70% RH non-condensed
Features	• Measure volt & current of each outlet • ON/OFF remotely control function for each outlet • Status display LCD screen on front • LED indicator light for each outlet • Warning alarm		

Parameter

Outlet	24 x IEC 60320 C13
Input	1 x IEC 60309 plug [32A]
Max output power	4000W
RJ45 port	10/100 M Ethernet port
Guage	H05VV-F 3G*4.0mm^2*2M length
Peripheral connector	4 x RJ11 ports 1x USB2 port
IP rate	IP-44
Provision for earthing	Standard earthing contact
Type of connections	Welded-solder
Mounting application	19” rack horizontal installation

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