



Description

The all-in-one splicing matrix machine, based on FPGA hardware architecture and featuring a plug-in card design, offers flexible interfaces to meet specific needs, low failure rates, and high reliability. It integrates high-resolution acquisition, output customization, and visual management technologies into a comprehensive, visual audio and video control platform. It is primarily used in command and dispatch centers in government, military, and transportation sectors, as well as large, medium, and small conference rooms within government and enterprise organizations. It is a comprehensive display and control solution for conference rooms, defense and military, public security, electric power, rail transit, industrial automation, and other industries.

Features

- *Pure hardware plug-in architecture design, 19-inch standard rack installation, metal structure chassis;
- *Adopting 3U metal structure chassis, the enclosure protection grade of the chassis complies with the IP20 requirements in GB/T4208-2017;
- *Built-in 7-inch touch screen, which can be used to view monitoring status, set parameters, call plans, etc., and the touch screen supports online upgrades;
- *The device adopts a plug-in card design and a built-in data exchange backplane, which can detect the device temperature and power supply status;
- *The device supports 16-channel input, 8-channel output, and supports preview and echo functions;
- *A single device supports simultaneous access to 4 input cards, 2 output cards, 1 preview card, 1 display card, and 1 multi-function card; with corresponding boards, the resolution supports 4096×2160@60fps; at the same time, the display card supports monitoring output via the HDMI video interface, with a resolution of 1920×1080@60fps;
- *Supports multiple image interfaces including HDMI, SDI, DVI, FIBER, HDBaseT, DP, and IP; and has one multi-function card slot that can be connected to a central control card/server card/paperless server card/video recording card/digital conference card;
- *Supports full-link RGB4:4:4 transmission and 10-bit HDR image display;
- *Based on pure hardware FPGA architecture, the controller has splicing and matrix integration functions, the output end can choose splicing or matrix mode, and has audio intelligent management and control function, no independent audio card is required, and supports independent audio transmission. The HDMI board can choose external analog audio or HDMI embedded audio input or output;
- *Equipped with fan speed adjustment function, the speed can be adjusted according to the actual scenario;
- *With input and output port backup function, if any link of any link fails, the system will automatically switch to the backup link to ensure that the image of the display device is not affected;
- *It has a signal cropping function that can remove black edges and crop the input signal source to solve the problem of black edges in the front-end signal source, or partially amplify the signal. You can input pixel points for precise cropping or perform visual cropping by dragging the mouse;
- *Supports pre-installation on the wall function, allowing users to preset windows and plans for the large screen on the virtual wall in advance, and then apply them to the current large screen after confirmation;
- *It has a station logo setting function, which can be set as a text logo or a picture logo. Users can customize and upload high-definition pictures as the signal source logo, and can also change the logo position by dragging and dropping;
- *It has a base map setting function, and can upload 8K resolution pictures as large-screen base maps;



- *With subtitle display function, users can customize subtitle content, set subtitles to static or dynamic display, adjust scrolling speed and scrolling mode, as well as adjust subtitle size, position, background color, font color, font, and alignment;
- *Input boards, output boards, preview boards, and echo boards support hot-swappable functions. The device does not need to be shut down, restarted, or configured. After replacing a board, the previous layer data can be quickly restored to ensure normal playback. This allows for flexible board replacement and convenient maintenance.
- *The excellent heat dissipation system design adopts the left and right side air duct inlet and outlet design to optimize the air outlet rate and improve the heat dissipation capacity of the whole machine. It can ensure long-term stable operation of the equipment at an ambient temperature of 45°C.
- *The system adopts B/S and C/S management and control architecture, supports access to the system backend through a web browser for system management and real-time status monitoring; supports visual management of the system, signal switching, image overlay, picture-in-picture, image splicing, image roaming, image zoom in/out, image movement/closing, etc. through the web terminal and the matching iPad tablet software, Android tablet software, and Windows computer client software; supports real-time monitoring of the display control area; supports multi-user multi-platform synchronous operation, supports real-time synchronization of operation interfaces of different platforms; the client comes with a guide operation video;
- *The system is designed as a pure hardware architecture based on FPGA. The system runs efficiently and stably. The internal video data transmission adopts high-speed data parallel processing bus switching technology. Each HD signal has a serial bandwidth of up to 6.5Gbps. A single input card can reach a bandwidth of 58.5Gbps, a single output card can reach a bandwidth of 110.5Gbps, and the total backplane bandwidth can reach 494Gbps.
- *With an IP input card, it adopts a weighted round-robin load balancing algorithm, eliminating the need for additional streaming media servers. It supports unlimited access to monitoring signals compliant with the ONVIF protocol and GB/T 28181-2022 standard, enabling unified management and scheduling. It also supports visual preview and can decode 4096×2160@30fps IP streams.
- *In order to improve the efficiency of equipment troubleshooting, it has the function of monitoring controller temperature and power supply online status, intelligently identifying board interface combinations, monitoring board and interface status, and signal loss warning. It also has visual graphical management and control, and has the function of counting the number of connected boards and access channels.
- *Supports online firmware upgrades, with intelligent forward compatibility of firmware versions. The upgrade process is safe, stable, and fast. The firmware version information of the display device and each board can be refreshed in real time, facilitating quick confirmation of the upgrade results on site.
- *A single output board can open 16 layers, and a single output port can realize 8-layer output display, which can realize arbitrary window opening, overlay, roaming and zooming;
- *Equipped with image quality enhancement function, the brightness, contrast, saturation, gamma and hue of each output interface can be adjusted independently, and 3 color temperatures are available;
- *Supports simultaneous preview of all input sources and echo of all outputs;
- *When the video input source is 60Hz, the image delay time from video source input to output is 32ms;
- *Supports overlay display of multiple display windows of different video input signals on any video output display screen, with window image roaming, zooming and overlaying capabilities;
- *Supports multiple users online and sending data at the same time, with an operation response time of less than 1s, and can perform online firmware upgrade operations;
- *A single device card can create 4 screens, and a single device can create 8 screens; it has the function of irregular screen creation, which can realize screen creation with a single card and a single interface;
- *Support setting 3000 scene plans;
- *It has layer parameter setting functions, including zooming, placing layers on top or bottom, layout mode, and overlay; and uses an infinite zoom algorithm to ensure that details are not lost when the picture is zoomed in or out;
- *Supports custom settings for input and output resolutions, which can be saved as EDID templates and imported and exported. Multiple resolution setting modes are available, including preset resolutions and custom resolutions.
- *The device side can view the operating parameters and status information of the monitoring device in real time, including device name, device interface connection status, operating status, IP address, and firmware version;
- *The device can intelligently identify board and interface combinations, monitor board and interface status, and proactively report and warn when input source signal is lost.
- *Using deep neural network (DNN) and long short-term memory network (LSTM) algorithms, 30 customizable voice commands are available. When used with the client software, voice control can be used to turn on/off audio, turn on/off subtitles, perform scene polling, switch scene plans, clear the screen, lock the screen, and unlock the screen.
- *It has RS-232, RS-485, and network port interfaces, and supports docking with the central control system via RS-232, RS-485, and TCP/IP protocols to achieve visual interface management and control. Users can preview, zoom in, zoom out, drag, and switch the splicing matrix video signal in real time through the control terminal. The input signal source can be placed at the bottom or top, and the screen can be cleared with one click. It also supports setting touch and delivery trigger switching methods.
- *The Genlock synchronization interface with a BNC connector can use the signal received by the interface as the synchronization signal of the device, ensuring that the output content of the device is consistent with the phase of the front end and fully synchronized;

- *The controller supports access to paperless server cards, supports SM2 and SM4 domestic encryption algorithms for data encryption, supports normal and confidential meeting modes (including custom anti-screenshot, file watermark and read-and-burn mechanism), and the conference controller can divide any participants into multiple groups for screen broadcasting and document sharing through signal management. Grouped screen broadcasting can support 8 groups; the board has 1 HDMI output interface, 1 DB9 interface, 1 RJ45 interface, and 4 USB3.0 interface communications;
- *The controller supports access to digital conference cards. The card features audio clock synchronization transmission technology, with end-to-end audio transmission within 5ms. It can be expanded to carry 4096 wired conference microphones and 300 wireless conference microphones. The card has two RS-232 interfaces, one RS-485 interface, and four RJ45 interfaces. The audio input interface has one Phoenix terminal, and the audio output interface has one Phoenix terminal.
- *The controller supports access to the central control card, adopts a zero-code and low-code logic system architecture, and supports QR code scanning control. When the central control board is connected to the Internet, it will automatically generate a QR code on the cloud platform. Scanning the QR code through WeChat or a browser will enter the control interface and realize control of the central control board; it supports password permission setting; the board has 3 RS-485/RS-422, 3 RS-232, 2 IR_OUT, 2 IO, and 2 relays;
- *The controller supports the connection of video recording cards, adopts H.264/H.265 video codec technology, has adjustable bit rate, supports video encoding 256kbps~12Mbps, resolution 4K, the board has built-in 2TB of storage space, supports automatic deletion of old files, and loop recording; the board has 2 HDMI input interfaces, 2 3.5mm audio input interfaces, and 1 USB3.0 interface.

Specification

Power button	1 × power button
Input card slot	4
Output card slot	2
Preview card slot	1
Back to graphics card slot	1
Control card slot	1
Power card slot	1
Multi-function card slot	1
Touchscreen	1 piece
Technical architecture	Centralized , private protocol
Power supply	AC 220 V
Rated power consumption	200W
Dimensions (L×W×H)	482.6mm×325mm×132.5mm
Weight	7kg
Ambient temperature	0 °C—+45°C
Ambient humidity	10%-80%