Controller TV- 6820S

Embedded software for splicing matrix controllerV3.085

Description

The splicing matrix all-in-one machine is based on FPGA hardware architecture, adopts plug-in design, and has different interfaces that flexibly match actual needs. It is characterized by low failure rate and high reliability. It is a comprehensive, visual audio and video control platform that integrates high-resolution acquisition, output customization, and visual management. It is mainly used in command and dispatch centers in the fields of government, military, and transportation, as well as large, medium and small conference rooms of government and enterprise units . It is a display and control solution for conference rooms, national defense and military, public security, electric power, rail transportation, industrial automation and other industries.

Feature

*Pure hardware card-based architecture design, 19-inch standard rack installation, metal structure chassis ;
*The prototype adopts a 6U metal structure chassis, and the shell protection level meets the IP20 requirements of GB/T4208-2017 ;
*Built-in 7-inch touch screen, through which monitoring status viewing, parameter setting, plan calling and other operations can be performed , and the touch screen supports online upgrades ;
*The device adopts a card-type design and has a built-in data exchange backplane, which can detect the device temperature and power supply online status ;
*The device supports 44 inputs, 20 outputs, and supports preview and echo functions ;
*A single device supports simultaneous access to 11 input cards, 5 output cards, 1 preview card, and 1 display card ; when paired with corresponding boards, it supports 4096*2160@60fps, RGB4:4:4; at the same time, the display card supports monitoring output through the HDMI video interface, and the resolution supports 1920*1080@60fps.
*Supports HDR image input and output functions, support HDR signal transmission with resolution of 4096*2160@30Hz 12bit/10bit/8bit and below;
*Based on pure hardware FPGA architecture, the host has the functions of splicing and matrix integration, the output end can choose splicing or matrix mode, and has the function of intelligent audio control. It does not require an independent audio card and supports separate 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 , when 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 ;
*Support signal cropping function, which 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, input pixel points for precise cropping, or perform visual cropping by dragging the mouse;
*Supports pre-walling function, users can preset the windows and plans of the large screen on the virtual wall in advance, and apply them to the current large screen after confirmation;
*Supports station logo setting function, which can be set as text station logo or image station logo. Users can customize and upload high-definition pictures as the station logo of the signal source, and can change the position of the station logo by dragging and dropping;
*Supports background image setting function, and can upload 8K resolution pictures as large-screen background images;
*Support subtitle display function. Users can customize subtitle content. Subtitles can be set to static or dynamic display, and the scrolling speed and scrolling mode can be adjusted, as well as the size, position, background color, font color, font, and alignment of subtitles.

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*Input boards, output boards, preview boards, and echo boards support hot-swap functions. The device does not need to be shut down, restarted, or set up. After replacing the board, the previous layer data can be quickly restored to ensure normal playback of the image. The board can be flexibly replaced, making maintenance convenient.

*Supports multiple image interfaces such as HDMI, SDI, DVI, FIBER, HDBaseT, VGA, DP, IP, etc.

*Excellent heat dissipation system design, adopting the side left and right air duct inlet and outlet design, optimizes the air outlet rate and improves the heat dissipation capacity of the whole machine. At an ambient temperature of 45℃, can ensure long-term stable operation of the equipment;

*The system adopts B/S and C/S management and control architecture, supports web access to system backend management, and supports system management and real-time status monitoring through web browser. It can be expanded to support the use of iPad tablet software, Android tablet software, and Windows computer client to perform visual management of the system, signal switching, screen overlay, picture-in-picture, screen splicing, screen roaming, screen zoom in/out, screen movement/closing, and other operations, and supports real-time monitoring of the display control area; supports multi-user multi-platform synchronous operation, and supports real-time synchronization of operation interfaces on 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. The input and output bus bandwidth is up to 1014Gbps . The video bus transmission bandwidth of a single input board is up to 4× 6.5 Gbps, and the video bus transmission bandwidth of a single output board is up to 16×6.5Gbps.

*Configure IP input card, adopt weighted polling load balancing algorithm, no need to configure additional streaming media server, support unlimited access to ONVIF protocol, GB/T 28181 standard monitoring signals, unified management and scheduling, and support visual preview, and can decode 4096*2160@30fps IP stream;

*In order to improve the troubleshooting efficiency of the equipment, it has the function of monitoring the host temperature and power supply online status, intelligently identifying the board interface combination, board and interface status monitoring, signal loss warning, and visual graphic management and control, and has the function of counting the number of access boards and the number of access channels.

*Supports online firmware upgrades, with intelligent forward compatibility of firmware versions. The upgrade process is safe, stable, and fast, with a success rate of up to 100%. It can also refresh the firmware version information of the display device and each board in real time, making it easy to quickly confirm the upgrade results on site.

*A single output board can open 16 layers, which can realize arbitrary window opening, overlay, roaming and zooming;

*Supports previewing all input sources simultaneously and echoing all outputs;

*When the video input source is 60Hz, the image delay time from video source input to output is 32ms;

*Supports overlaying multiple display windows of different video input signals on any video output display screen, with window image roaming, zooming, and overlaying functions; in addition, by configuring the corresponding output board, a single output port can also support 16 layers, and the layers can be set to the top or bottom;

*Supports multiple users to be online and send 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 20 screens; it can create irregular screens and realize single card and single interface screen creation;

*Support setting 3,000 scenario plans;

*It has layer parameter setting functions, including zooming, layer placement, layout mode, and overlay; and adopts 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 resolution and custom resolution;

*Supports real-time viewing of monitoring equipment operating parameters and status information on the device side, including device name, device SN, device interface connection status, operating status, IP address, and firmware version;

*The device can intelligently identify the board interface combination, monitor the board and interface status, and actively report the loss of input source signal.

*Supports dual control card backup function. When the main control card fails during operation, it will automatically and seamlessly switch to the backup control card. There will be no black screen and no audio jam during the switching process, achieving high stability of the equipment.

*Supports dual power backup function. The dual power supply can be switched at will. If one power supply fails, the other power supply can provide support, thus achieving high reliability of the equipment.

*Adopting deep neural network (DNN) and long short-term memory network (LSTM) algorithms, 30 voice commands can be customized. When used with the client software, voice control can be used to turn on/off audio, turn on/off subtitles, scene polling, switch scene plans, clear screen, lock screen, unlock screen, etc.

*It supports docking with the central control system through RS-232 and TCP/IP to achieve visual interface management and control. Users can preview, zoom in, zoom out, drag and switch the spliced matrix video signal in real time through the control terminal. The input signal source can be placed at the bottom, top and clear the screen with one click. It supports setting touch and delivery trigger switching methods.

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Specification

Power button	1×Power button
Input card slot	11
Output card slot	5
Preview card slot	1
Echo card slot	1
Control card slot	2
touchscreen	1 block
Technical Architecture	Centralized , private protocol
Power supply	AC 220V
Rated power consumption	450 W
Dimensions (L x W x H)	482.6mm × 315mm × 265.9mm
Weight	17Kg
Ambient temperature	0 ℃—+45℃
Ambient humidity	10%-80%