

# All-New Event Presentation Switching Solutions

Seamless Switchers P80/P20/P20-DS/P10/Q8  
Event Management Software PixelFlow  
Event Controllers U5/U5 Pro




## User Manual

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# 1 General

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## Overview

- About This Manual
- Version History
- Symbols and Pictures

## 1.1 About This Manual

This user manual describes how to operate the P20/P20-DS/P10/Q8 seamless switchers and U5/U5 Pro event controllers, as well as how to use the matched all-new event management software PixelFlow. This manual is designed to be a reference for your daily use of our products. It contains a complete description of the hardware and control software.

### Note

Always check for the latest version of all documents at [www.pixelhue.com](http://www.pixelhue.com).

## 1.2 Version History





Version	Date	Changes
V2.0.0	2026-04-17	<ul style="list-style-type: none"><li>• Added system time display to the LCD home screen. (P80)</li><li>• Updated the fan mode screen. (P80)</li><li>• Changed <b>Antistatic</b> to <b>Electrostatic Protection</b>. (P80)</li><li>• Updated the descriptions related to electrostatic protection and fan mode. (P80)</li><li>• Added the Q8_1xST2110(100G)+4x12G-SDI Output Card. (Q8)</li><li>• Updated the gross weight and packing information.(Q8)</li><li>• Added the factory reset settings. (U5/U5 Pro)</li><li>• Updated the gross weight information. (U5/U5 Pro)</li><li>• Updated the PixelFlow software descriptions, such as live BKG, VPU, simulation device link, input view switch, etc..</li></ul>
V1.9.0	2026-01-15	<ul style="list-style-type: none"><li>• Added system time display to the LCD home screen. (Q8)</li><li>• Updated the fan mode screen. (Q8)</li><li>• Changed <b>Antistatic</b> to <b>Electrostatic Protection</b>. (Q8)</li><li>• Updated the function control area figure. (U5 Series)</li><li>• Added PTZ control descriptions to the Smart Touchscreen. (U5 Series)</li><li>• Updated the descriptions related to electrostatic protection and fan mode.</li><li>• Updated the descriptions related to test pattern settings.</li><li>• Updated the layer preset interface.</li><li>• Updated the Multiviewer interface.</li><li>• Added the skin changing section.</li></ul>
V1.8.0	2025-11-05	<ul style="list-style-type: none"><li>• Added the Q8_HDMI2.0+DP1.2+12G-SDI Input Card specifications in the rear panel description of the P80.</li></ul>

		<ul style="list-style-type: none"> <li>• Added a description of embedded audio for the input and output connectors of the P80.</li> <li>• Updated the description for the Dante connectors of the P80.</li> <li>• Updated the front and rear panel diagrams. (Q8)</li> <li>• Updated the LCD home screen diagram and added descriptions related to front panel status. (Q8)</li> <li>• Added descriptions of file management for the smart touchscreen. (U5 series)</li> <li>• Updated the PixelFlow software function descriptions.</li> </ul>
V1.7.2	2025-10-15	Updated the Q8_8xHDMI2.0+12G-SDI Input Card specifications.
V1.7.1	2025-09-25	<ul style="list-style-type: none"> <li>• EDID supports reduced blanking settings. (P10/P20/P20-DS/P80)</li> <li>• EDID supports audio settings. (P20-DS/Q8)</li> <li>• Added descriptions related to Mac mosaic.</li> <li>• Add descriptions related to OPT port transmission mode settings. (P10/P20/P20-DS)</li> <li>• Added the Q8_8xHDMI2.0+12G-SDI Input Card.</li> <li>• Updated the PixelFlow software function descriptions.</li> </ul>
V1.7.0	2025-08-22	<ul style="list-style-type: none"> <li>• Added a new model: P80</li> <li>• Updated the PixelFlow software function descriptions.</li> <li>• Updated the Q8 front panel diagram.</li> <li>• Added the touchscreen calibration description for the U5/U5 Pro.</li> <li>• Updated the U5/U5 Pro function descriptions.</li> </ul>
V1.6.0	2025-04-15	<ul style="list-style-type: none"> <li>• Added a new model, P20-DS, and updated its related descriptions.</li> <li>• Added descriptions for Dante audio networking. (P20-DS/Q8)</li> <li>• Added descriptions for connector groups. (P20-DS/Q8)</li> <li>• Added antistatic settings. (P10/P20/P20-DS/Q8)</li> <li>• Added support for 4x MAIN layers and 4x PIP layers. (P20/P20-DS)</li> <li>• Updated the operations in synchronization signal source, input backup settings and mode. (P10/P20/P20-DS)</li> <li>• Updated interlaced signal descriptions. (P10/P20/P20-DS/Q8)</li> <li>• Added the maximum output resolution of the AUX connectors. (P10/P20/P20-DS)</li> <li>• Added the front LCD lock feature. (Q8)</li> <li>• Added the 3D feature. (Q8)</li> <li>• Added the Q8_HDMI2.0x4+DP1.2x4+SFPx8 Output Card.</li> <li>• Updated the application diagram for the Q8.</li> <li>• Changed the maximum pixel height of the DP 1.2 and HDMI 2.0 connectors. (P10/P20/P20-DS/Q8)</li> </ul>

		<ul style="list-style-type: none"> <li>Updated the PixelFlow software function descriptions, including switching layer specifications, synchronization settings, input backup settings, Multiviewer HDCP function, audio matrix function and property settings, 3D function, layer shortcuts, and more.</li> </ul>
V1.5.0	2024-10-25	<ul style="list-style-type: none"> <li>Updated the P20/P10 hardware introduction and menu operations.</li> <li>Updated the PixelFlow software descriptions and added the Companion plugin support.</li> <li>Updated the hardware introduction and added the fan mode and plugin menu operations for the Q8.</li> </ul>
V1.4.2	2024-08-15	<ul style="list-style-type: none"> <li>Updated the typography and cross references.</li> <li>Updated the Q8+U5/U5 Pro+PixelFlow solution diagram.</li> </ul>
V1.4.1	2024-07-31	<ul style="list-style-type: none"> <li>Added the key customization feature for the U5/U5 Pro.</li> <li>Added the simulation event controller feature for PixelFlow.</li> </ul>

## 1.3 Symbols and Pictures

### Symbol Overview

	Danger	Indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury.
	Warning	Indicates a hazard with a medium or low level of risk, which if not avoided, could result in minor or moderate injury.
	Caution	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Note	Provides additional information to emphasize or supplement important points of the main text.

### Picture Overview

Images and pictures given in this manual are used for illustration purposes only. The actual product may vary due to product enhancement. The content of the images can be slightly different from reality, such as device types, installed modules, form and position of software windows on the screen.

# 2 Safety

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## Overview

- General Considerations
- Device Carrying
- Device Mounting
- Cable Requirements
- Electrical Safety
- Unpacking and Inspection
- Device Labels
- Notes and Cautions

## 2.1 General Considerations

To ensure that you can use this product correctly and safely, please be sure to observe the following precautions:

- Before performing any operation, make sure that you have read all the operating instructions provided by the device, especially the instructions that may endanger the personal safety and device safety, such as dangers, warnings and cautions, to minimize the probability of accidents.
- All the operations must conform to local safety codes. When the safety and precautionary measures described in this manual conflict with local safety codes, please follow the local codes.
- The personnel responsible for installing and maintaining the device must be professionals who have been trained and have mastered the correct operation methods and all safety precautions. Only trained and qualified personnel can perform device installation and maintenance.
- This device must be used in an environment that meets the design specifications; otherwise, it may cause device failure. The resulting device function abnormalities or component damage, personal safety accidents, property losses and other situations are not included within the scope of the device warranty.

### 2.1.1 General Safety

- When operating the device, you must strictly abide by the local laws and regulations. The safety precautions described in this manual are only a supplement to the local safety laws and regulations.
- The "Danger", "Warning" and "Caution" items described in this manual are only supplementary instructions for all safety precautions.
- To ensure personal and device safety, please strictly follow all the safety precautions on the device labels and described in this manual when installing the device.

### 2.1.2 Environmental Requirements

- Ensure adequate air flow in the equipment room.
- Take necessary measures to prevent dust, water and static electricity.
- Avoid long-term direct sunlight.
- Keep the device away from heat and ignition sources.
- Do not place the device in an explosive atmosphere.
- Do not place the device in a corrosive environment.
- Do not place the device in a strong electromagnetic environment.

### 2.1.3 Device Safety

- Before operating, fix the device on the floor or other stable objects, such as a wall or mounting bracket.

- During transportation and use of the device and its packaging, the device must be fixed stably to avoid falling.
- Do not step on, hit and violently operate the device and its packaging to prevent damage to the device or packaging box.
- Do not block the ventilation openings during operation.
- Tighten the board or card screws with a tool.
- After the installation, remove the empty packing materials from the device area.
- Save the packing box and materials for possible storage and transportation in the future.
- Always wear anti-static wrist bands and insulating gloves when touching the static-sensitive components.
- Avoid dropping any object into the chassis.
- Keep the device away from conductors that are easy to induce lightning to avoid lightning strikes to the device.
- Do not make the circuit faces of the boards or cards contact each other.
- Do not touch the circuit, components, connectors or wiring slots of the boards or cards with bare hands.
- Do not repair the device without authorization. Only trained professionals can maintain the device. You can contact PIXELHUE at any time if needed.
- Always use the spare parts recommended by PIXELHUE.
- Regularly clean the dust on the heat dissipation holes to prevent the dust from blocking the holes and thus affect the heat dissipation of the device.

### 2.1.4 Personal Safety

- Place the device in a stable location to prevent personal injury caused by falling.
- Avoid bare wires and maintain or replace them in time when they are damaged.
- Do not operate the device and connect cables outdoors under thunderstorms.
- Do not wear watches, rings, or other metal jewelry when installing spare parts or maintaining the device.

## 2.2 Device Carrying

- Do not relocate a powered device, and do not take any objects that may cause danger to the relocation.
- Always pay attention to the wheels at the bottom of the flight case during transportation to avoid them being jammed by stones or deformed due to external forces.
- Always hold the handles of the flight case firmly when pushing a flight case with wheels. Do not stack other devices on the flight case.
- The relocated device should be repacked in the original factory packaging.
- Do not disassemble the components during the transportation of the flight case.

- When handling or placing the boards or cards, bare board components or modules, always package them individually.
- When carrying the device with your bare hands, always wear protective gloves to avoid injury.
- When carrying the device, handle it gently and always hold the handles of the device or drag the bottom edge of the device. Do not hold the handles of a device component.
- When the device weight exceeds the carrying limit of a single person, carry it with multiple people or use a carrying tool.
- When using a forklift or handcart for transportation, place the device stably to ensure the device will not tip over.

The following table lists the maximum weights that adults can carry at a time specified by some organizations for your reference.

Organization	Weight
CEN (European Committee for Standardization)	25 kg/55.13 lb
ISO (International Organization for Standardization)	25 kg/55.13 lb
NIOSH (National Institute for Occupational Safety and Health)	23 kg/50.72 lb
HSE (Health and Safety Executive)	25 kg/55.13 lb
General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China	Male: 15 kg/33.08 lb Female: 10 kg/22.05 lb

## 2.3 Device Mounting

When the device is installed on a desktop, the desktop must bear at least 4 times the device weight.

### 2.3.1 Mounting on a Desktop

- Ensure the stability and grounding of the desktop or working table.
- Ensure that the device is placed horizontally and do not turn it over or hang it on the wall.
- Do not place other objects on the device.
- Do not put water cups, beverages and other containers with liquid close to or on the device to avoid liquid leakage and thus cause safety hazards.
- If any object or liquid accidentally enters the device, stop using the device and disconnect the power cord and all cables connected to the device immediately, and then contact the after-sales personnel.
- When handling a flight case with wheels, please lock and fix the wheels to prevent the device from sliding.
- When stacking, ensure all the devices are stacked stably to avoid device damage and personal injury caused by falling.

## 2.3.2 Grounding

- Connect the grounding wire first when installing a device, and disconnect the grounding wire at last when removing the device.
- The connecting surface of the grounding wire and the device must have good conductivity. Spray painting is strictly prohibited, and there must be sufficient fastening force between the connecting parts.
- Do not operate the device when the grounding conductor is not installed.
- There must be no joints in the middle of the grounding wire, and it is strictly prohibited to install a switch or fuse on the grounding wire.
- For devices using a three-pin socket, ensure that the ground terminal in the three-pin socket is well grounded.

## 2.4 Cable Requirements





### 2.4.1 Power Cords

 **Warning**

Do not install or remove the power cord when the device is powered on. When the power cord core contacts the conductor, an electric arc or spark will be generated which may result in fire or eye injury.

- Protect the power cord properly to prevent it from being punctured to avoid personal injury or fire caused by a short circuit.
- To ensure the safety of the device and personnel, be sure to use the matched power cord.
- User-supplied cables must comply with local cable regulations and device cable requirements.
- Before installing or removing the power cord, turn off the device power first.
- Check the electrical plug regularly and wipe off the dirt or dust accumulated on the plug.
- Before connecting the power cord, read the labels or markings on the power cord to make sure it is a matched one.

The device is intended to operate from an AC power source with a voltage range of AC 100–240V~, 50/60Hz. Various standard plugs are shown in the figure below.

US NEMA5/15	Europe CEE 7	China GB 2099	UK BS 1363
			

E Earth

N Neutral

L Live

## 2.4.2 Signal Cables

- Before using a DVI signal cable, check whether the pins on the cable connector are vertical and even. If not, please replace the cable.
- Before connecting the signal cable to the device, check whether there is any object in the device connector. If yes, remove the object first.
- If the signal cable has not been used for a long time, discharge static electricity before using it.
- Under normal working conditions of the device, it is recommended that non-technical professionals do not perform hot-swapping to avoid device damage.

## 2.4.3 Miscellaneous

- Signal cables must be bound separately from strong current cables or high voltage cables.
- When the temperature is too low, severe shock and vibration may cause brittle cracking of the plastic sheath of the cable. All cables should be laid and installed when the temperature is above zero.
- If the storage temperature of the cable is below zero, the cable must be moved to room temperature and stored for more than 24 hours before laying and installation.
- When carrying cables, especially in a low-temperature environment, always handle the cable with care. Violent handling, such as pushing down the cables directly from a high place, is prohibited.

## 2.5 Electrical Safety

### 2.5.1 Battery

- The battery is not intended to be replaced.
- Always follow the relevant instructions to dispose of batteries.
- Disposal of a battery into fire or a hot oven, or mechanically crushing or cutting of a battery can result in an explosion.
- Leaving a battery in an extremely high temperature surrounding environment can result in an explosion or the leakage of flammable liquid or gas.
- A battery subjected to extremely low air pressure may result in an explosion or the leakage of flammable liquid or gas.

### 2.5.2 Electromagnetic Interference

- Keep the device away from transformers, high-voltage power lines and high-current devices.
- Keep the device away from high-power broadcast transmitters.
- If there is a mobile communication transmitter around the device, its interference degree should meet the requirements of relevant standards. If needed, take necessary measures to prevent interference, such as shielding and isolation.

- When using hand-held wireless communication devices, such as interphones, keep at least 30 cm away from the device.

### 2.5.3 Anti-Static

- Always wear anti-static wrist bands and insulating gloves when touching the static-sensitive components.
- Always hold the board by the edges to avoid touching the circuits or components, and do not touch the chip with your hands.
- The disassembled board must be packaged with anti-static packaging material before storage or transportation.

## 2.6 Unpacking and Inspection


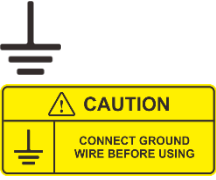

### 2.6.1 Unpacking



- After receiving the device, check whether the packing box is damaged. If there is any damage, do not open the box and contact the carrier in time to confirm the damage to the device and matters related to compensation.
- After unpacking, save the packing box and materials for possible storage and transportation in the future.

### 2.6.2 Inspection

- When the packing box is in perfect condition, unpack the box. Check the appearance of the device for damage. If there is damage, please contact the salesperson.
- Check the box contents according to the packing list described in the certificate of approval. If any item is missing, please contact the salesperson in time.

## 2.7 Device Labels

Labels	Description
	<p>Warranty void if removed</p> <p>Do not open the chassis. If this label is damaged, the device will not be covered by the warranty.</p>
	<p>Grounding</p> <p>The two ends of the grounding wire are connected to the device and the grounding point respectively, which means that the device must be grounded through the grounding point to ensure the normal operation of the device and the personal safety of the operators.</p>
	<p>Sensitive electronic device</p> <p>Keep the device away from areas with strong electromagnetic radiation to avoid electromagnetic</p>

Labels	Description
	interference and thus affect the image output quality.
	Device carrying The device needs to be carried by multiple people.
	Removing cards Remove cards before taking out the motherboard.

## 2.8 Notes and Cautions

### 2.8.1 FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### 2.8.2 Others

- This is Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.
- This product can only be placed horizontally. Do not mount vertically or upside-down.
- Please read the specifications thoroughly and use the product in accordance with the requirements. If you have any questions about the specifications, please contact us immediately. If you use the product improperly, not following the requirements, or for illegal purposes, you shall be solely responsible for any consequences arising therefrom.
- If the product does not have the relevant certifications required by the countries or regions where it is to be sold, please contact PIXELHUE to confirm or address the problem. Otherwise, the customer shall be responsible for the legal risks caused or PIXELHUE has the right to claim compensation.

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# 3 Terms and Definitions

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PVW	PVW is an abbreviation for Preview. The PVW area displays the pre-editing content before it is sent to PGM.
PGM	PGM is an abbreviation for Program. The PGM area displays the real-time output image.
Take	Take is an action of sending the PVW content to PGM with a transition effect.
Cut	Cut is an action of sending the PVW content to PGM directly, without any transition effect.
FTB	FTB (Fade to Black) is an action of making the screen fade to black.
T-Bar	T-bar is a lever that manually controls the progress of sending PVW to PGM.
LOGO	LOGO is a special layer with the highest priority and is displayed in front of all other layers. LOGO consumes no processing resources and displays an unscaled image on the screen.
BKG	BKG is an abbreviation for background. BKG is a special layer that has the lowest priority and is displayed beneath all other layers. BKG consumes no processing resources and fills the whole screen.
MVR	MVR is an abbreviation for Multiviewer. An MVR connector is used to connect a confidence monitor for displaying the specific input or output content, such as the presenter's laptop.
AUX	AUX is an abbreviation for auxiliary. An AUX connector is used to output the input source, PVW or PGM, to a specified monitor, such as a teleprompter.
AOI	AOI is an acronym for Area of Interesting. AOI allows users to view a specific output area they are interested in.
Aspect Ratio	Aspect ratio is the ratio of a layer/image width to its height. It is commonly expressed as two numbers separated by a colon, as in 16:9.
Contrast	Contrast defines the difference between the darkest and brightest areas of an image displayed on the screen. The greater this value is, the bigger this difference will be.
Gamma	Gamma defines the degree of distortion of the image color. The greater this value is, the more distorted the color will be.

Hue	Hue defines the gradation or variety of the image color. The greater this value is, the more intense the color will be.
Saturation	Saturation defines the purity or vividness of the image color. The greater this value is, the purer the color will be.
Color Space	Color space is a mathematical model that maps the colors that can be reproduced by a device to a standard color model, usually the RGB model.
Bit Depth	Bit depth refers to the color information stored in an image. The higher the bit depth of an image, the more colors it can store.
Frame Rate	Frame rate (expressed in frames per second, or FPS) is the frequency (rate) at which consecutive images called frames to appear on a display. Frame rate may also be called the frame frequency, and be expressed in hertz.
DSK	DSK (Downstream Keying) is an effect allowing one video signal to be keyed on top of another video signal. The lightest portions of the DSK signal replace the source video leaving the dark areas showing the original video image.
Luma Key	Luma key refers to a process to composite a foreground clip over a background clip based on the luma levels in a video or image. This is most often useful for still images, such as a picture of a logo over a black background.
Chroma Key	Chroma key refers to a process that a specific color is removed from an image, allowing that portion of the image to be replaced. This color can be any solid color, most commonly blue or green.
HDCP	HDCP stands for High-Bandwidth Digital Content Protection, a copy protection scheme to eliminate the possibility of intercepting digital data midstream between the source and the display. HDCP 1.4 is designed for full HD content, while HDCP 2.2 relates to ultra HD 4K media.

# 4 Overview

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## About This Chapter

This chapter is designed to introduce you to PIXELHUE event presentation switching solution.

## Overview

- Solution Overview
- Control Overview
- Initial Inspection

## 4.1 Solution Overview

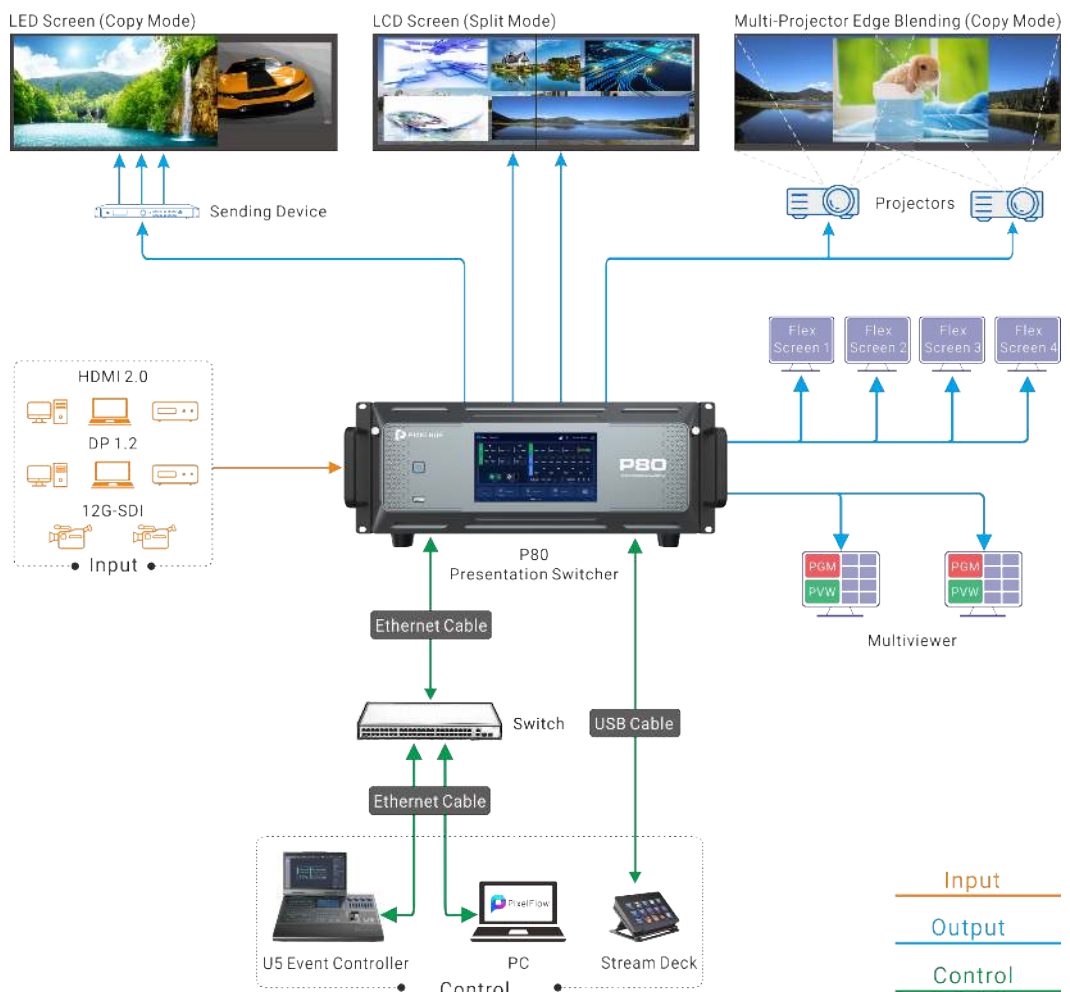
The event presentation switching solutions include two parts basically: seamless switchers and event controllers/PixelFlow (PC). The solutions are specifically designed for easy management of multi-display for small/medium/large-sized events or visual management systems.

### P80+U5/U5 Pro+PixelFlow

The P80 can work with the U5 or U5 Pro event controller. The following takes the U5 as an example for illustration.

Figure 4-1 P80+U5+PixelFlow

In copy mode, one of the connectors within a group copies the other's output content and the output resolution is up to 4K. In split mode, both connectors within a group collaborate to output content and the output resolution of each connector is half of the content resolution. The output resolution per connector is up to DL.



## P20/P20-DS+U5/U5 Pro+PixelFlow

The P20/P20-DS can work with the U5 or U5 Pro event controller. The following takes the U5 as an example for illustration.

Figure 4-2 Switcher mode (P20/P20-DS+U5+PixelFlow)

When the output capacity is 4K, two output connectors work as primary and the other six work as backup. When the output capacity is DL, four output connectors work as primary and the other four work as backup.

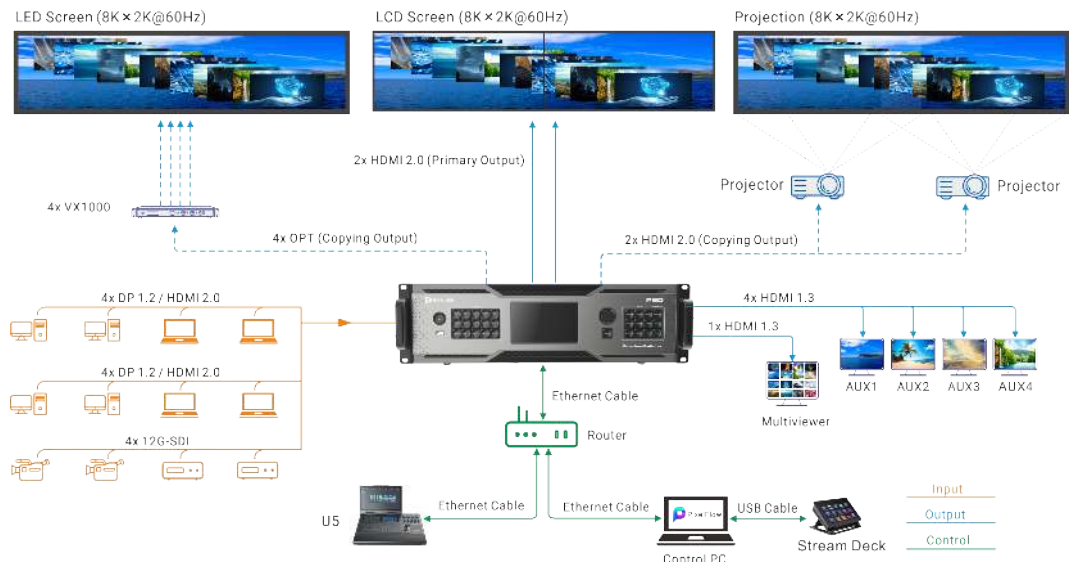
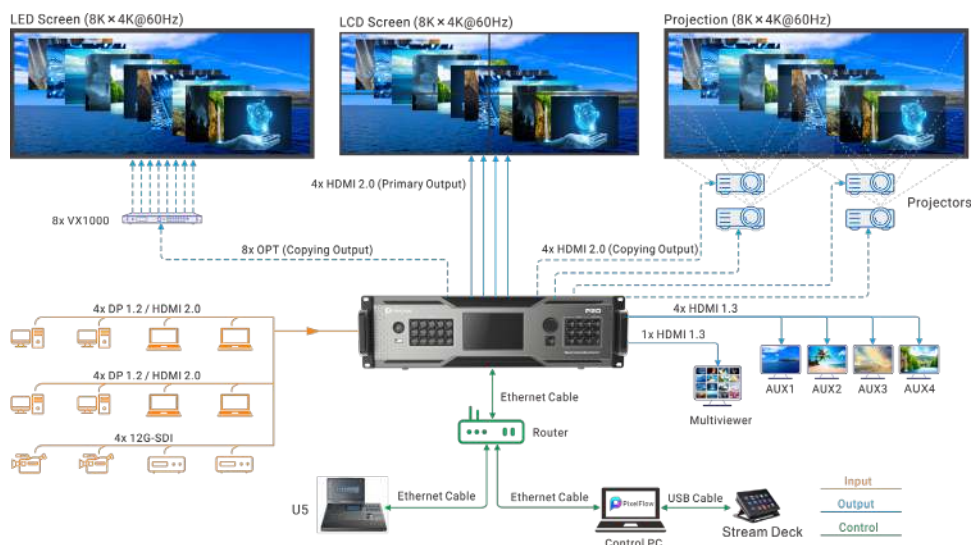


Figure 4-3 PGM only mode (P20/P20-DS+U5+PixelFlow)

When the output capacity is 4K, four output connectors work as primary and the other four work as backup. When the output capacity is DL, four output connectors work as primary and the other four work as backup.



## P10+U5/U5 Pro+PixelFlow

The P10 can work with the U5 or U5 Pro event controller. The following takes the U5 as an example for illustration.

Figure 4-4 Switcher mode (P10+U5+PixelFlow)

When the output capacity is 4K, one HDMI 2.0 connector works as primary and the other works as backup. When the output capacity is SL, four output connectors work as primary and the other four work as backup. SL output capacity is used as an example for illustration of projection

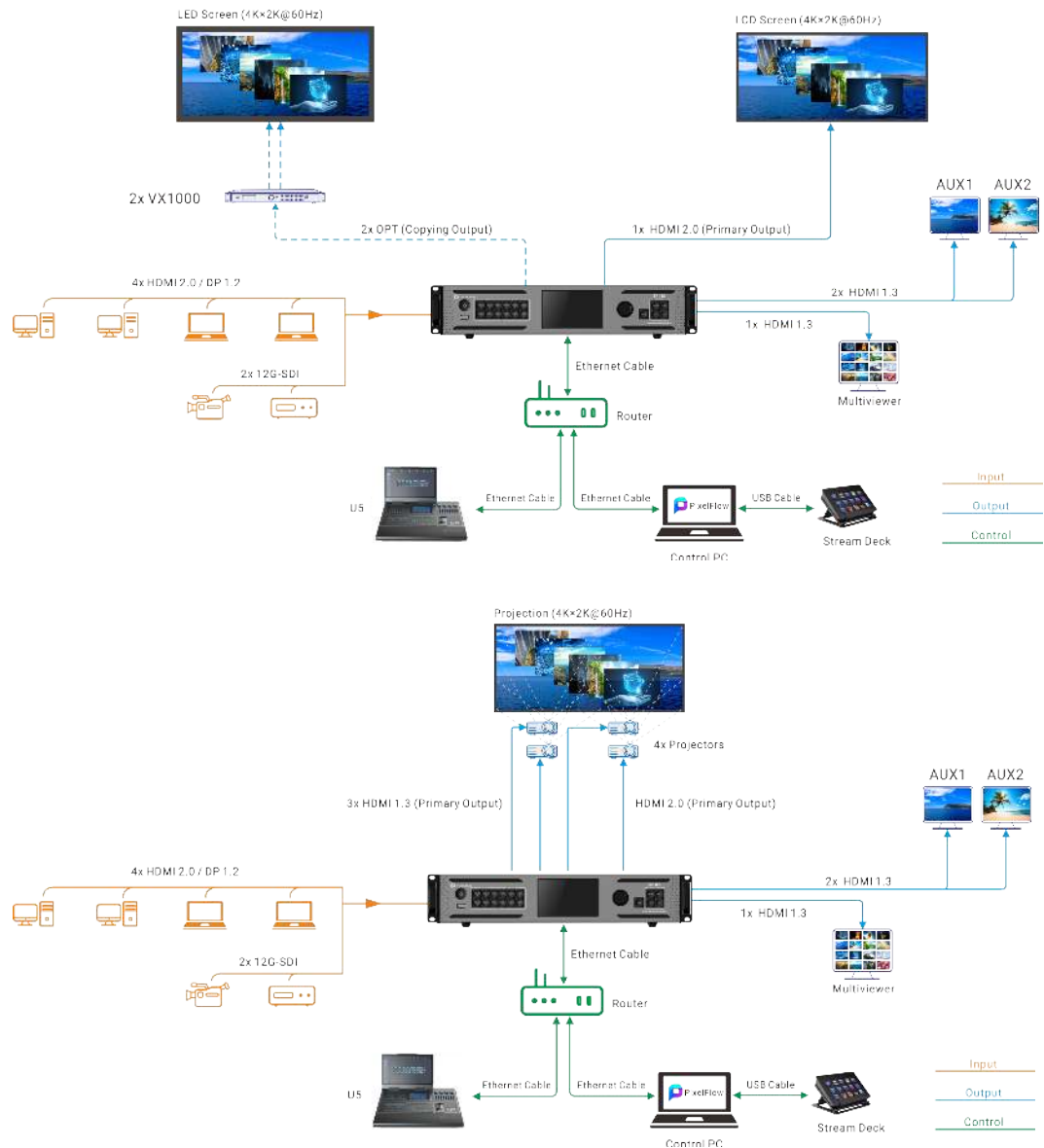
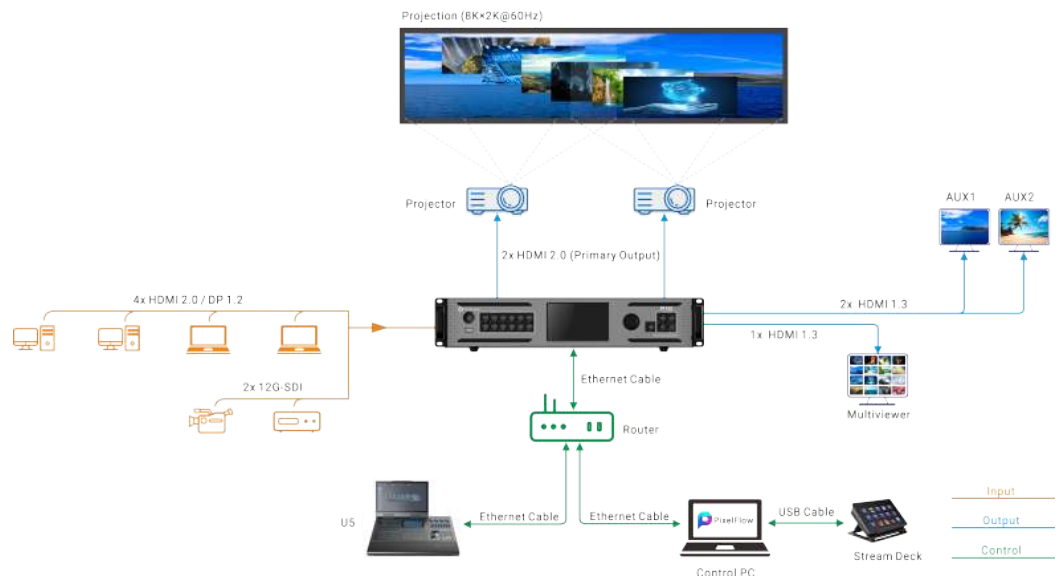
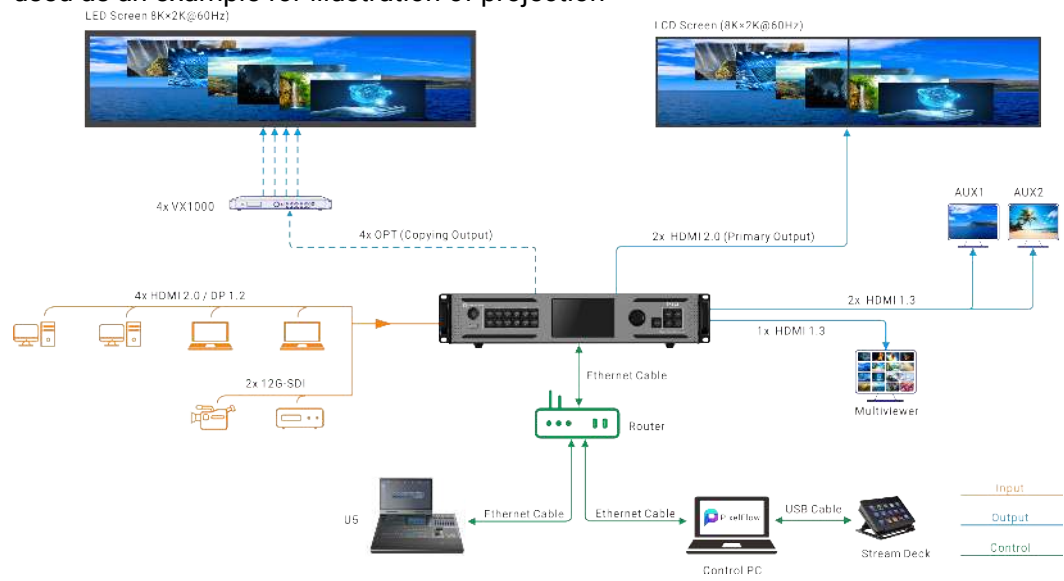


Figure 4-5 PGM only mode (P10+U5+PixelFlow)

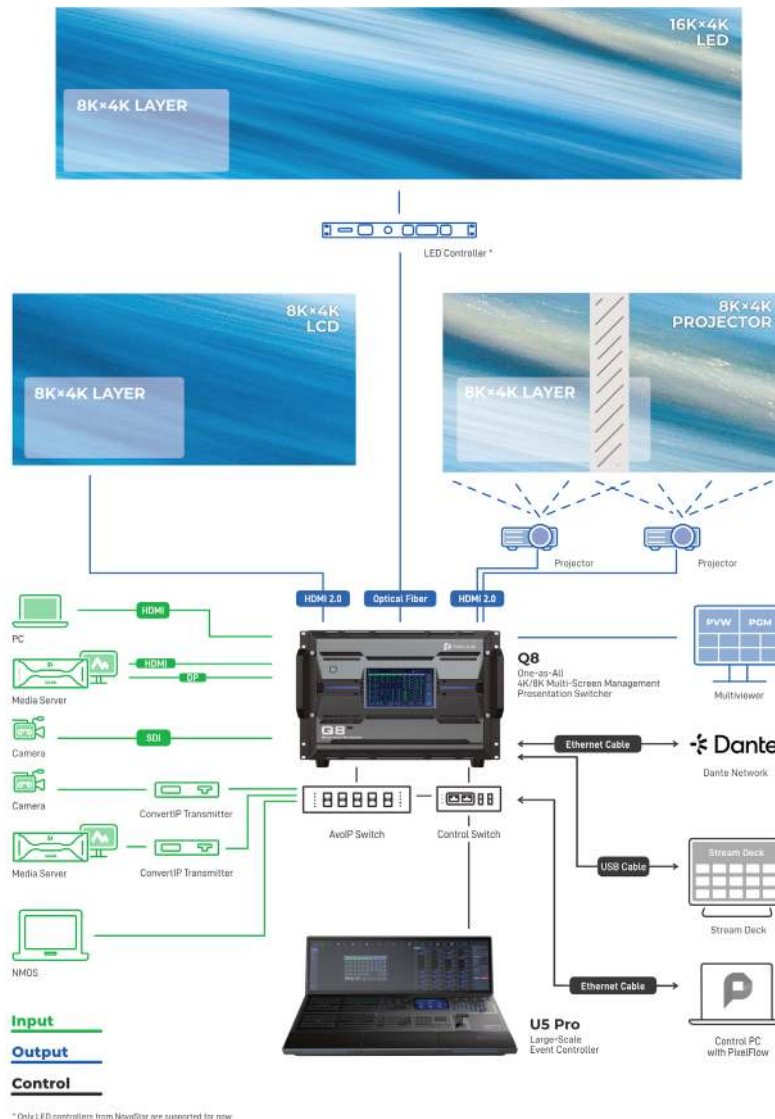
When the output capacity is 4K, two HDMI 2.0 connectors are used for 4K output. When the output capacity is SL, eight connectors are used for 2K output. 4K output is

used as an example for illustration of projection



Q8+U5/U5 Pro+PixelFlow

Figure 4-6 Q8+U5/U5 Pro+PixelFlow



\* Only LED controllers from NovaStar are supported for now.

P80

The P80 is PIXELHUE's new presentation switcher featuring versatile 4K connectivity including HDMI 2.0, DP 1.2 and 12G-SDI. With 12x fixed concurrent 4K inputs and a swappable input card that supports P\_HDMI2.0\_DP1.2\_OPT Link Card, Q8\_HDMI2.0+DP1.2+12G-SDI Input Card, and Q8\_8xHDMI2.0+12G-SDI Input Card, it delivers exceptional input flexibility. The P80 comes with 8x HDMI 2.0 main output connectors allowing for up to 4x 4K concurrent main outputs (copy mode) or 8x DL concurrent main outputs (split mode). It also supports 4x 4K flex outputs, 4x 12G-SDI matrix outputs, and 2x dedicated Multiviewer outputs. Additionally, 8x 10G SFP optical ports are offered to copy the HDMI 2.0 outputs, enabling long-distance 4K signal transmission without fiber converters. The P80 supports up to 8x 4K mixing main layers and 4x 4K mixing PIP layers. Up to 256 presets and 256 layer presets can be saved for easy recall. This powerful multi-screen and multi-layer presentation switcher is ideal for medium to large-scale live events such as summit meetings, annual meetings, launch events, concerts, music festivals and exhibitions, and permanent video wall installations in hotels, shopping malls, airports, etc.

## P20/P20-DS/P10

The P20, P20-DS and P10 are PIXELHUE's all-new 4K seamless switchers fully featured in a compact form factor. Featuring high-quality 4K processing, the P20, P20-DS and P10 switchers are designed with a wide variety of 4K connectors, including HDMI 2.0, DP 1.2, and 12G-SDI. The P20, P20-DS and P10 can work in switcher mode or PGM only mode. In switcher mode, a single P20/P20-DS supports up to two 4K×2K@60Hz outputs and a single P10 supports one 4K×2K@60Hz output. In PGM only mode, the output resolution per P20/P20-DS is up to 8K×4K@60Hz and P10 is up to 8K×2K@60Hz. Additionally, the P20, P20-DS and P10 come with dedicated AUX outputs connecting to auxiliary devices such as teleprompters, and a dedicated Multiviewer output is provided for live view of all the inputs and outputs from one display. High-performance image deinterlacing is supported.

## Q8

PIXELHUE's Q8 is a seamless switcher that operates at a full 4K standard and supports 8K video processing. It adopts a modular design with a plug-in structure and allows users to flexibly configure input and output cards according to their needs, accommodating various live video inputs with stable performance. Working with the professional intelligent management software PixelFlow and the event controller U5 or U5 Pro, it can easily achieve a wide array of visual effects. Thank to that, the Q8 can be employed in various settings, including stage performances, high-end auto shows, business conferences, television production, product launches, and large exhibitions.

The Q8 is built on a powerful hardware FPGA system architecture with a modular design, combining the stability and efficiency of a purely hardware-based approach with flexible input and output card configurations. It supports full 4K ultra-high-definition video inputs and outputs, multi-screen and multi-layer management, irregular screen loading, edge blending, input EDID management and output timing management, as well as image monitoring and input view. This provides a rich visual construction experience.

## Event Controller U5/U5 Pro

The U5 is a brand new compact-sized event controller and the U5 Pro is a flagship, large-scale event controller developed by PIXELHUE. Compared to their predecessors, they feature more innovative design highlights and more convenient, powerful and friendly operation and control over multiple different devices in the field, which will further facilitate your events today, such as corporate conferences, interactive live events or shows, music tours, immersive art exhibitions, and more.

## 4.2 Control Overview

The P80, P20, P20-DS, P10 and Q8 are exceptionally easy to operate. Various control options are supported:

- Front panel buttons and graphical LCD
- Event management software PixelFlow
- Event controller U5/U5 Pro

- Third-party control system Stream Deck (Companion integrated into the seamless switcher)

## Front Panel

The front panel of the P80 comes with a 7-inch graphical touchscreen allowing for basic device configuration from the touchscreen. The front panels of the P20, P20-DS and P10 come with a 5-inch graphical LCD, a knob and a variety of function buttons that allow for menu operations by pressing buttons. A USB port is provided on the front panel for updating device firmware, import and export files. For more information about the P80, P20, P20-DS and P10 front panels, please refer to [5 Hardware Introduction](#).

The front panel of the Q8 comes with a 7-inch graphical touchscreen that allows for menu operations. A USB port is provided on the front panel for cascading a second Q8 device. For more information about the Q8 front panels, please refer to [5 Hardware Introduction](#).

## PixelFlow

The event management software PixelFlow allows you to manage and control the seamless switchers uniformly. The software consists of several menus and tabs that allow you to configure the devices, inputs, outputs, screens and layers, as well as manage the presets and Multiviewer.

## Event Controller U5/U5 Pro

With the design concept of increasing operational efficiency and satisfying the various changing needs that may arise from event scenarios, the U5/U5 Pro event controllers come with all the crucial functionalities that you may need. Convenient control over multiple seamless switchers and media servers greatly simplifies your on-site deployment and brings more convenience and ease to your events.

## Stream Deck

The Q8, P10, P20, P20-DS, and P80 support control through a third-party device (Stream Deck). Stream Deck control enhances productivity and streamlining of tasks by providing easy access to shortcuts, commands, and actions with just a press of a button. For detailed operations, see [9 Companion Configuration](#).

# 4.3 Initial Inspection

## General

Before shipment, the devices were inspected and found to be free of mechanical and electrical defects. As soon as the devices are unpacked, inspect for any damage that may have occurred in transit, and make sure there are no broken parts and the unit is free of dents. Save all packing material until the inspection is completed. If any damage is found, please contact PIXELHUE or your local distributor immediately.

After unpacking, please always place the device on a stable, flat and insulated support for handling or using.

## Unpacking

After the unpacking, it is recommended you check carefully to see whether all accessories are included according to the provided packing list.

# 5 Hardware Introduction

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## About This Chapter

This chapter is designed to introduce you to the hardware configuration of the seamless switchers in detail.

## Overview

- P80 Hardware Introduction
  - Front Panel
  - Rear Panel
- P20/P20-DS Hardware Introduction
  - Front Panel
  - Rear Panel
- P10 Hardware Introduction
  - Front Panel
  - Rear Panel
- Q8 Hardware Introduction
  - Front Panel
  - Rear Panel

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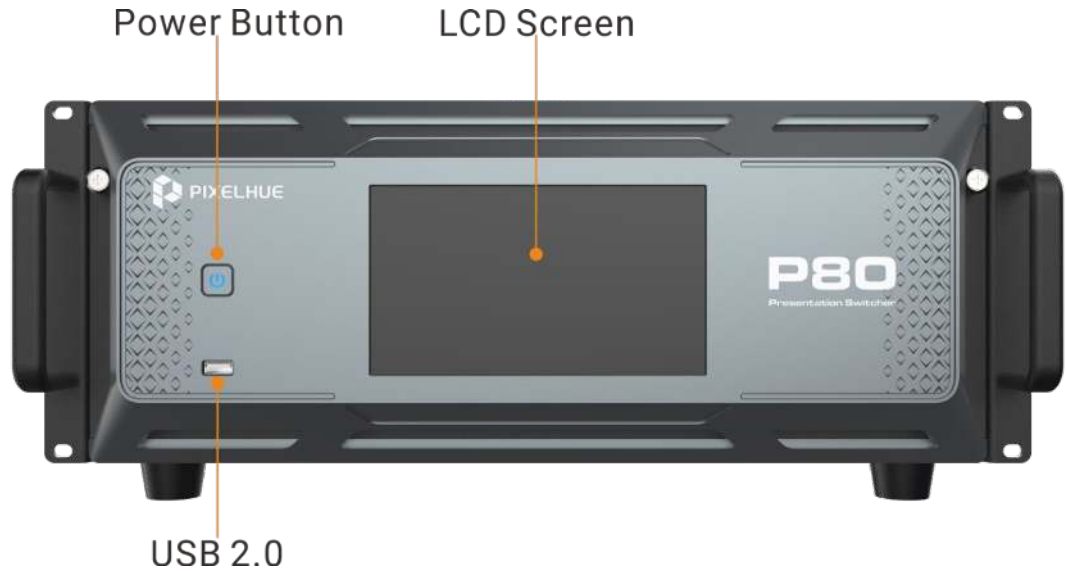
 **Note:**

All product pictures shown in this chapter are for illustration purposes only. Actual product may vary.

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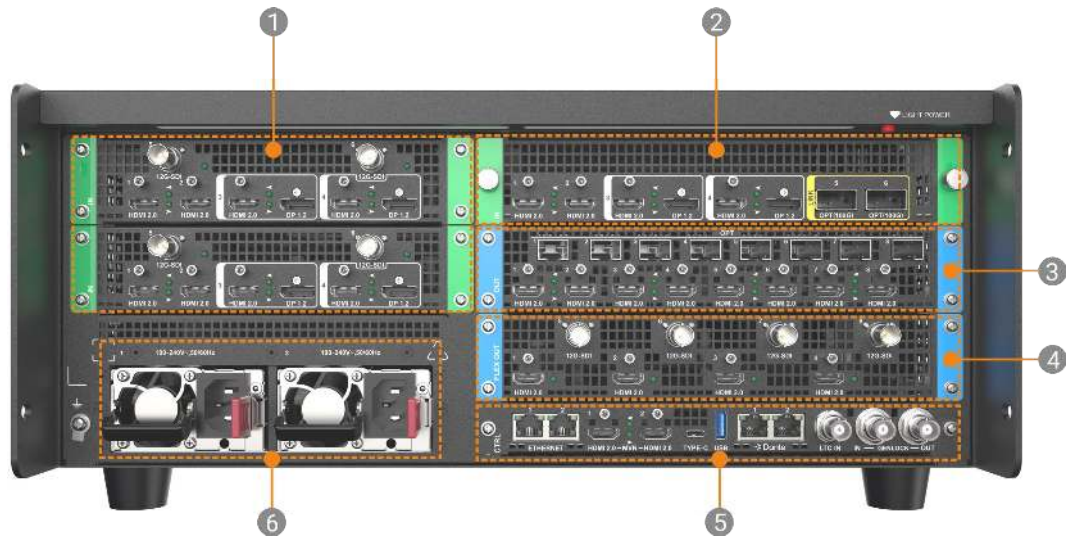
## 5.1 P80 Hardware Introduction

### 5.1.1 Front Panel



Name	Description
Power Button	<p>Press the button to power on/off the device. To power off the device, press the button and select <b>OK</b> from the confirmation dialog box displayed on the LCD screen.</p> <p>Button LED status:</p> <ul style="list-style-type: none"><li>• Breathing: The power supply is connected.</li><li>• Solid on: The device is powered on.</li></ul>
USB 2.0	<p>A USB 2.0 (Type A) port used to update the firmware, import and export files such as logs, projects and images, connect to Stream Deck, etc.</p>
LCD Screen	<ul style="list-style-type: none"><li>• A 7-inch graphical touchscreen for displaying all the menus, submenus and messages</li><li>• The device is configurable from the touchscreen.</li></ul>

### 5.1.2 Rear Panel



No.	Name	Qty	Description		
1	<b>Fixed input connectors</b>				
	For an input that contains an HDMI 2.0 and a DP 1.2, only one can be selected as the input source at the same time.				
	HDMI 2.0	8	Max resolution	4096×2160@60Hz 8bit 4:4:4	
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)	
			Dynamic range	HDR10/HLG/SDR	
			Quantization range	Full/Limited	
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions	
			HDCP	HDCP 2.2 and HDCP 1.4 compliant	
			Interlaced signal	Not supported	
	Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)			
DP 1.2	4	Max resolution	4096×2160@60Hz 10bit 4:4:4		
		Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)		

No.	Name	Qty	Description	
			Quantization range	Full/Limited
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions
			HDCP	HDCP 2.2 and HDCP 1.3 compliant
			Interlaced signal	Not supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
	12G-SDI	4	Standard	<ul style="list-style-type: none"> <li>Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD), and ST-259 (SD) video inputs</li> <li>Compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI</li> </ul>
			Max resolution	4096×2160@60Hz 10bit 4:2:2
			EDID management	Not supported
			Interlaced signal	Supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
2	<b>Swappable input card:</b> Currently, P_HDMI2.0_DP1.2_OPT Link Card, Q8_HDMI2.0+DP1.2+12G-SDI Input Card, and Q8_8xHDMI2.0+12G-SDI Input Card are supported.			
	<b>P_HDMI2.0_DP1.2_OPT Link Card</b> For an input that contains an HDMI 2.0 and a DP 1.2, only one type of connector can be selected as the input source at the same time.			
	HDMI 2.0	4	Max resolution	4096×2160@60Hz 8bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Dynamic range	HDR10/HLG/SDR
			Quantization range	Full/Limited
EDID management			Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions	

No.	Name	Qty	Description	
			HDCP	HDCP 2.2 and HDCP 1.4 compliant
			Interlaced signal	Not supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
	DP 1.2	2	Max resolution	4096×2160@60Hz 10bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Quantization range	Full/Limited
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions
			HDCP	HDCP 2.2 and HDCP 1.3 compliant
			Interlaced signal	Not supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
	OPT (100G)	2	Link to another P80 device to share input sources.	
<p><b>Q8_HDMI2.0+DP1.2+12G-SDI Input Card</b> The 12G-SDI connectors are not available.</p>				
	HDMI 2.0	4	Max resolution	4096×2160@60Hz 8bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Dynamic range	HDR10/HLG/SDR
			Quantization range	Full/Limited
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions
			HDCP	HDCP 2.2 and HDCP 1.4 compliant
			Interlaced signal	Supported

No.	Name	Qty	Description	
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
	DP 1.2	4	Max resolution	4096×2160@60Hz 10bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Quantization range	Full/Limited
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions
			HDCP	HDCP 2.2 and HDCP 1.3 compliant
			Interlaced signal	Not supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
<b>Q8_8xHDMI2.0+12G-SDI Input Card</b>				
The 12G-SDI connectors are not available.				
	HDMI 2.0	8	Max resolution	4096×2160@60Hz 8bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Dynamic range	HDR10/HLG/SDR
			Quantization range	Full/Limited
			EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions
			HDCP	HDCP 2.2 and HDCP 1.4 compliant
			Interlaced signal	Supported
			Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
<b>3</b>	<b>Main output connectors</b>			

No.	Name	Qty	Description																		
	HDMI 2.0	8	<p>8x HDMI 2.0 connectors are divided into four groups:</p> <ul style="list-style-type: none"> <li>• Group 1: HDMI 1 and HDMI 2</li> <li>• Group 2: HDMI 3 and HDMI 4</li> <li>• Group 3: HDMI 5 and HDMI 6</li> <li>• Group 4: HDMI 7 and HDMI 8</li> </ul> <p>The two connectors within a group can work in copy mode or split mode.</p> <ul style="list-style-type: none"> <li>• In copy mode, one of the connectors within a group copies the other's output content and the output resolution is up to 4K.                             <ul style="list-style-type: none"> <li>– Group 1: HDMI 2 copies HDMI 1.</li> <li>– Group 2: HDMI 4 copies HDMI 3.</li> <li>– Group 3: HDMI 6 copies HDMI 5.</li> <li>– Group 4: HDMI 8 copies HDMI 7.</li> </ul> </li> <li>• In split mode, both connectors within a group collaborate to output content and the output resolution of each connector is half of the content resolution. The output resolution per connector is up to DL.                             <ul style="list-style-type: none"> <li>– Group 1: HDMI 1 outputs the left half and HDMI 2 outputs the right half.</li> <li>– Group 2: HDMI 3 outputs the left half and HDMI 4 outputs the right half.</li> <li>– Group 3: HDMI 5 outputs the left half and HDMI 6 outputs the right half.</li> <li>– Group 4: HDMI 7 outputs the left half and HDMI 8 outputs the right half.</li> </ul> </li> </ul>																		
			<table border="1"> <tr> <td>Max resolution</td> <td>4096×2160@60Hz 8bit 4:4:4</td> </tr> <tr> <td>Max width/height</td> <td>Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)</td> </tr> <tr> <td>Bit depth</td> <td>8bit/10bit/12bit</td> </tr> <tr> <td>Sampling</td> <td>4:4:4/4:2:2</td> </tr> <tr> <td>Color space</td> <td>YCbCr/RGB</td> </tr> <tr> <td>Dynamic range</td> <td>HDR10/HLG/SDR</td> </tr> <tr> <td>EDID management</td> <td>Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions</td> </tr> <tr> <td>HDCP</td> <td>HDCP 2.2 and HDCP 1.4 compliant</td> </tr> <tr> <td>Interlaced</td> <td>Supported</td> </tr> </table>	Max resolution	4096×2160@60Hz 8bit 4:4:4	Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)	Bit depth	8bit/10bit/12bit	Sampling	4:4:4/4:2:2	Color space	YCbCr/RGB	Dynamic range	HDR10/HLG/SDR	EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions	HDCP	HDCP 2.2 and HDCP 1.4 compliant	Interlaced	Supported
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Bit depth	8bit/10bit/12bit																				
Sampling	4:4:4/4:2:2																				
Color space	YCbCr/RGB																				
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EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions																				
HDCP	HDCP 2.2 and HDCP 1.4 compliant																				
Interlaced	Supported																				

No.	Name	Qty	Description	
			signal	
			Embedded audio	
			Support for 8-channel embedded audio (24bit/48kHz)	
	OPT	8	<p>10G SFP optical ports are offered to copy HDMI 2.0 outputs.</p> <ul style="list-style-type: none"> <li>• Copy mode                             <ul style="list-style-type: none"> <li>– OPT 1 copies the left half of the HDMI 1 output image.</li> <li>– OPT 2 copies the right half of the HDMI 1 output image.</li> <li>– OPT 3 copies the left half of the HDMI 3 output image.</li> <li>– OPT 4 copies the right half of the HDMI 3 output image.</li> <li>– OPT 5 copies the left half of the HDMI 5 output image.</li> <li>– OPT 6 copies the right half of the HDMI 5 output image.</li> <li>– OPT 7 copies the left half of the HDMI 7 output image.</li> <li>– OPT 8 copies the right half of the HDMI 7 output image.</li> </ul> </li> <li>• Split mode                             <ul style="list-style-type: none"> <li>– OPT 1 copies HDMI 1.</li> <li>– OPT 2 copies HDMI 2.</li> <li>– OPT 3 copies HDMI 3.</li> <li>– OPT 4 copies HDMI 4.</li> <li>– OPT 5 copies HDMI 5.</li> <li>– OPT 6 copies HDMI 6.</li> <li>– OPT 7 copies HDMI 7.</li> <li>– OPT 8 copies HDMI 8.</li> </ul> </li> </ul> <p>Each port supports up to 4K output and the transmission distance is up to 10 km.</p>	
4	<b>Flex and matrix output connectors</b>			
	HDMI 2.0	4	Flex output connectors	
			Max resolution	4096×2160@60Hz 8bit 4:4:4
			Max width/height	Max width: 8192 pixels (8192×1080@60Hz) Max height: 7680 pixels (1080×7680@60Hz)
			Bit depth	8bit/10bit/12bit
			Sampling	4:4:4/4:2:2
			Color space	YCbCr/RGB

No.	Name	Qty	Description										
			<table border="1"> <tr> <td>Dynamic range</td> <td>HDR10/HLG/SDR</td> </tr> <tr> <td>EDID management</td> <td>Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions</td> </tr> <tr> <td>HDCP</td> <td>HDCP 2.2 and HDCP 1.4 compliant</td> </tr> <tr> <td>Interlaced signal</td> <td>Supported</td> </tr> <tr> <td>Embedded audio</td> <td>Support for 8-channel embedded audio (24bit/48kHz)</td> </tr> </table>	Dynamic range	HDR10/HLG/SDR	EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions	HDCP	HDCP 2.2 and HDCP 1.4 compliant	Interlaced signal	Supported	Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)
Dynamic range	HDR10/HLG/SDR												
EDID management	Support for standard resolutions up to 8192×1080@60Hz Support for custom resolutions												
HDCP	HDCP 2.2 and HDCP 1.4 compliant												
Interlaced signal	Supported												
Embedded audio	Support for 8-channel embedded audio (24bit/48kHz)												
	12G-SDI	4	<ul style="list-style-type: none"> <li>Matrix outputs of the input sources, Multiviewer, main outputs, and flex outputs.</li> <li>Compatible with HD-SDI, 3G-SDI and 6G-SDI</li> <li>No support for bit depth and color space settings</li> <li>Support for 8-channel embedded audio (24bit/48kHz)</li> </ul>										
<b>5</b>	<b>Control connectors</b>												
	ETHERNET	2	<ul style="list-style-type: none"> <li>Gigabit Ethernet ports for device control and input view (transmission at 10fps)</li> <li>One works as primary and the other as backup.</li> </ul>										
	MVR	2	<ul style="list-style-type: none"> <li>HDMI 2.0 connectors for Multiviewer.</li> <li>Two output modes are supported:</li> <li>Copy mode: 1x 4K output and 1x copying output are supported.</li> <li>Independent mode: 2x concurrent DL outputs are supported.</li> <li>The output resolution and frame rate can be changed.</li> <li>HDCP 2.2 and HDCP 1.4 compliant</li> </ul>										
	TYPE-C	1	USB 3.0 Type-C port for USB device connection (*to be implemented in future updates)										
	USB	1	USB 3.0 Type-A port used to update the firmware, import and export files such as logs, projects and images, connect to Stream Deck, etc.										
	Dante	2	Dual redundant Gigabit Ethernet ports for 48kHz 64x64 Dante audio networking										
	LTC IN	1	For timecode input (*to be implemented in future updates)										
	GENLOCK	2	Genlock synchronization signal connectors, supporting tri-level sync for input and output <ul style="list-style-type: none"> <li>IN: Synchronization signal input</li> <li>OUT: Synchronization signal output (with support for loop-through)</li> </ul>										
<b>6</b>	<b>Power connectors</b>												

No.	Name	Qty	Description
	100-240V~, 50/60Hz	2	<ul style="list-style-type: none"> <li>• 2x AC power connectors (100-240V, 50/60Hz)</li> <li>• One for primary power supply and the other as backup</li> </ul>

## 5.2 P20/P20-DS Hardware Introduction

### 5.2.1 Front Panel

The P20/P20-DS front panel is designed with a 5-inch graphical LCD, a knob and a variety of function buttons that allow for menu operations by button presses. A USB port is provided on the front panel for updating device firmware, import and export files.

Figure 5-1 P20/P20-DS front panel



- |   |                       |   |                            |
|---|-----------------------|---|----------------------------|
| 1 | Chassis handles (L+R) | 5 | LCD screen                 |
| 2 | Power button          | 6 | Knob                       |
| 3 | USB port              | 7 | BACK button                |
| 4 | Source buttons        | 8 | Layer and function buttons |

#### Chassis Handles

Two handles are provided for easy installation and transportation.

#### Power Button

Press the button to turn on/off the device. To turn off the device, press the button and select **OK** from the dialog box displayed on the LCD screen to confirm your operation.

- Breathing dim white: The power supply is connected.
- Bright white: The device is turned on.

## USB Port

A Type-A USB 2.0 port is provided for updating device firmware, importing and exporting project files, EDID files, BKG files, LOGO files and logs via USB drive.

## Source Buttons

Press a button to access the input settings menu or select the source. These buttons can also be used to enter numbers.

Button LED color and source status (INPUT 1 to 14):

- Dim white: No signal and not in use
- Breathing blue: Signal accessed and not in use
- Blue: Signal accessed and in use

AUDIO: The audio function will be implemented in future updates.

## LCD Screen

A 5-inch graphical LCD screen is designed for displaying all the menus, submenus and messages.

After startup, the screen displays the home screen. For detailed information on the home screen, refer to [6.2 P20/P20-DS/P10 Menu Operations](#).

## Knob

Rotate the knob to scroll up or down through the menus.

- Rotate the knob clockwise to scroll down.
- Rotate the knob counter-clockwise to scroll up.

Press the knob to select menu items.

Press and hold the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

## Back Button

Press the **BACK** button to exit a menu without making changes, to cancel an operation, or to return to the home screen. Each press takes you back up the menu tree one level.

Press and hold the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

## Layer and function buttons

- LAYER 1 to 7: Press a button to open the layer and access the layer menu. Press and hold the button to close the layer.

Button LED color and source status:

- Dim white: The layer is closed.
- Bright blue: The layer is open.

- Blinking blue: The layer is in edit mode.
- PRESET: Press the button to access the preset settings menu.
  - Dim white: The preset settings menu is not displayed.
  - Blinking blue: The preset settings menu is displayed.
- SCALE: Press the button to enable the full screen scaling of the layer at the back of the Z-order.
  - Blinking blue: Full screen scaling is enabled successfully.
- BKG: Press the button to turn on BKG (there are pictures in the gallery). Press and hold the button to turn off BKG.

Button LED color and source status:

  - Dim white: BKG is disabled.
  - Bright blue: BKG layer is enabled.
- FN: This is a custom shortcut button and users can assign a function to the **FN** button.

When Freeze, FTB (Fade to Black) or Genlock synchronization is assigned, press the button to enable or disable the assigned function.

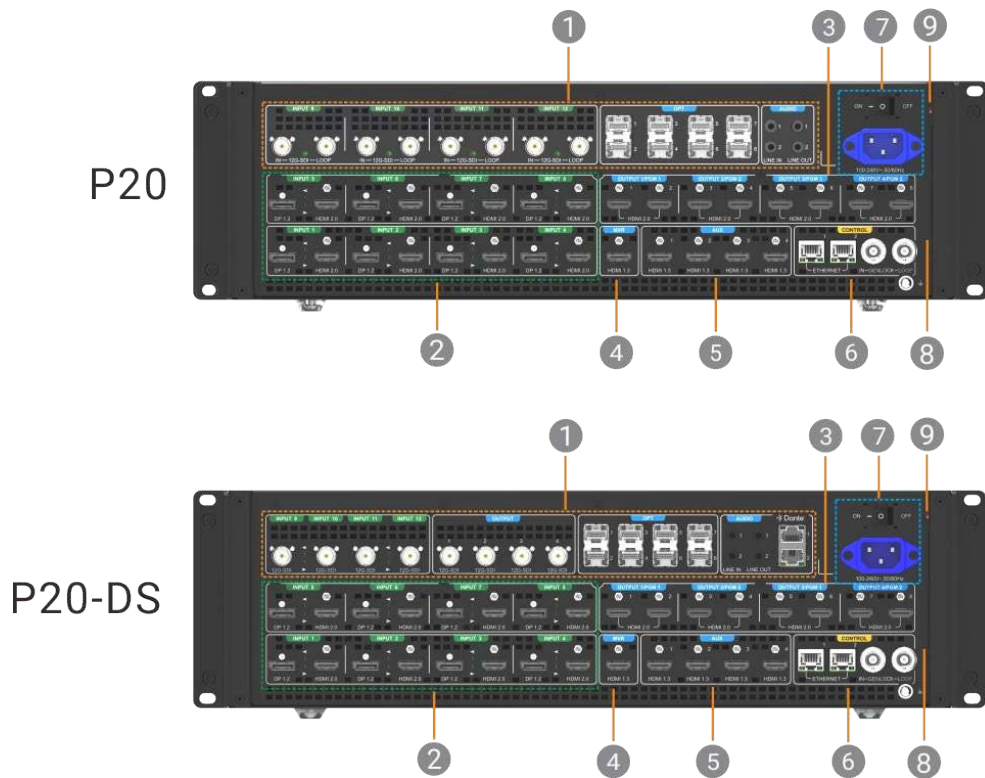
Button LED color and source status:

  - Dim white: The function is disabled.
  - Blue: The function is enabled.
- When **Capture** is assigned, press the button to access the **Capture** menu.
  - Dim white: The **Capture** menu is displayed.
  - Blinking blue: Capturing...
- TAKE: Press the button to switch content from PVW to PGM with a specified transition effect.
  - Dim white: Content is not switched.
  - Blinking blue: Content is being switched.

## 5.2.2 Rear Panel

The P20/P20-DS rear panel provides a variety of 4K I/O connectors including 12x 4K inputs (HDMI 2.0, DP1.2, 12G-SDI), 4x HDMI 2.0 outputs, 8x 10G optical fiber ports, and 4x 12G-SDI outputs (P20-DS).

Figure 5-2 P20/P20-DS rear panel



- |   |  |
|---|--|
| 1 | P_4K_12G SDI Audio-OPT Combo Card (P20)<br>P_12G SDI_DANTE Audio-OPT Combo Card (P20-DS) |
| 2 | Inputs 1 to 8  |
| 3 | Outputs 1 to 4   |
| 4 | Multiviewer output   |
| 5 | AUX outputs  |
| 6 | Control connectors   |
| 7 | Power connector and switch   |
| 8 | LED work light   |
| 9 | LED work light switch  |

### P\_4K\_12G SDI Audio-OPT Combo Card (P20)

The P20 is designed with a P\_4K\_12G SDI Audio-OPT Combo Card which offers the following input and output connectors.

- 4x 12G-SDI IN & LOOP (INPUT 9 to 12)
- 8x optical fiber output ports (OPT)

4K:

Switcher mode

- OPT 1 copies the left half of the output image of HDMI 1.
- OPT 2 copies the right half of the output image of HDMI 1.
- OPT 3 copies the left half of the output image of HDMI 1.
- OPT 4 copies the right half of the output image of HDMI 1.
- OPT 5 copies the left half of the output image of HDMI 5.
- OPT 6 copies the right half of the output image of HDMI 5.
- OPT 7 copies the left half of the output image of HDMI 5.

- OPT 8 copies the right half of the output image of HDMI 5.

PGM only mode

- OPT 1 copies the left half of the output image of HDMI 1.
- OPT 2 copies the right half of the output image of HDMI 1.
- OPT 3 copies the left half of the output image of HDMI 3.
- OPT 4 copies the right half of the output image of HDMI 3.
- OPT 5 copies the left half of the output image of HDMI 5.
- OPT 6 copies the right half of the output image of HDMI 5.
- OPT 7 copies the left half of the output image of HDMI 7.
- OPT 8 copies the right half of the output image of HDMI 7.

DL:

Switcher and PGM only modes

- OPT 1 copies HDMI 1.
  - OPT 2 copies HDMI 1.
  - OPT 3 copies HDMI 3.
  - OPT 4 copies HDMI 3.
  - OPT 5 copies HDMI 5.
  - OPT 6 copies HDMI 5.
  - OPT 7 copies HDMI 7.
  - OPT 8 copies HDMI 7.
- 4x 3.5 mm audio jacks (AUDIO) including 2x line in & 2x line out (The audio function will be implemented in future updates.)

## P\_4K\_12G SDI Audio-OPT Combo Card (P20-DS)

The P20-DS is designed with a P\_4K\_12G SDI Audio-OPT Combo Card which offers the following input and output connectors.

- 4x 12G-SDI inputs (INPUT 9 to 12)
- 4x 12G-SDI outputs for copying HDMI outputs (OUTPUT)
- 8x optical fiber output ports (OPT)

4K:

Switcher mode

- OPT 1 copies the left half of the output image of HDMI 1.
- OPT 2 copies the right half of the output image of HDMI 1.
- OPT 3 copies the left half of the output image of HDMI 1.
- OPT 4 copies the right half of the output image of HDMI 1.
- OPT 5 copies the left half of the output image of HDMI 5.
- OPT 6 copies the right half of the output image of HDMI 5.
- OPT 7 copies the left half of the output image of HDMI 5.
- OPT 8 copies the right half of the output image of HDMI 5.

PGM only mode

- OPT 1 copies the left half of the output image of HDMI 1.
- OPT 2 copies the right half of the output image of HDMI 1.

- OPT 3 copies the left half of the output image of HDMI 3.
- OPT 4 copies the right half of the output image of HDMI 3.
- OPT 5 copies the left half of the output image of HDMI 5.
- OPT 6 copies the right half of the output image of HDMI 5.
- OPT 7 copies the left half of the output image of HDMI 7.
- OPT 8 copies the right half of the output image of HDMI 7.

DL:

Switcher and PGM only modes

- OPT 1 copies HDMI 1.
  - OPT 2 copies HDMI 1.
  - OPT 3 copies HDMI 3.
  - OPT 4 copies HDMI 3.
  - OPT 5 copies HDMI 5.
  - OPT 6 copies HDMI 5.
  - OPT 7 copies HDMI 7.
  - OPT 8 copies HDMI 7.
- 4x 3.5 mm audio jacks (AUDIO) including 2x line in & 2x line out
  - 2x Dante connectors for Dante audio networking
    - Dual redundancy Gigabit Ethernet ports (AES67 compliant)
    - Audio de-embedding/embedding on every input & output (raw audio)
    - De-embedded audio channels can be routed directly to the Dante network
    - Audio channels from external Dante audio processor can be re-embedded for sending to display, streaming or recording device
    - 32x32 Dante channels @48 kHz

## Inputs 1 to 8

Each includes a DP 1.2/HDMI 2.0. When two connectors have signals, only one can be used as the input source at the same time.

## Outputs 1 to 4

Each includes two HDMI 2.0:

- 4K
  - In switcher mode, connectors 1 and 5 work as primary. Connectors 2, 3 and 4 copy connector 1, and connectors 6, 7 and 8 copy connector 5. The resolutions of connectors 1 and 5 can be set independently.
  - In PGM only mode, connectors 1, 3, 5 and 7 work as primary and connectors 2, 4, 6 and 8 copy connectors 1, 3, 5 and 7, respectively. Connector 1 and 3 are in the same group and connectors 5 and 7 are in the same group. Connectors in the same group have the same resolution.
- DL
  - In both switcher and PGM only modes, connectors 1, 3, 5 and 7 work as primary and connectors 2, 4, 6 and 8 copy connectors 1, 3, 5 and 7, respectively. Connector 1 and 3 are in the same group and connectors 5 and 7 are in the same group.

7 are in the same group. Connectors in the same group have the same resolution.

The output connectors of the P20-DS are divided into four groups and each group include two HDMI 2.0 connectors, one 12G-SDI connector, and two OPT ports:

- Group 1: HDMI 2.0 connectors 1 and 2, 12G-SDI connector 1, OPT ports 1 and 2
- Group 2: HDMI 2.0 connectors 3 and 4, 12G-SDI connector 2, OPT ports 3 and 4
- Group 3: HDMI 2.0 connectors 5 and 6, 12G-SDI connector 3, OPT ports 5 and 6
- Group 4: HDMI 2.0 connectors 7 and 8, 12G-SDI connector 4, OPT ports 7 and 8

Connectors within the same group copy the output of one another. When the HDMI 2.0 connector is set to a custom resolution, the 12G-SDI connector does not output.

## Multiviewer output

The P20/P20-DS is designed with an HDMI 1.3 for Multiviewer output. A Multiviewer display can be connected, allowing for live monitoring of all the inputs and outputs from one display. The output resolution defaults to 1920×1080@60Hz and the frame rate can be changed.

## AUX Outputs

The P20/P20-DS comes with four HDMI 1.3 for AUX outputs with support for interlaced video signal. Auxiliary devices such as teleprompters can be connected. The default output resolution is 1920×1080@60Hz and the maximum output resolution is 2048×1152@60Hz.

## Ethernet Ports

- Two Ethernet ports are provided for control and live input view.
- One works as primary and the other as backup.
- They have the same function and share the same IP address.

## Genlock IN & LOOP

Genlock synchronization signal connectors are provided.

- GENLOCK IN: Synchronization signal input
- GENLOCK LOOP: Synchronization signal loop output

## Power Connector and Switch

- Power connector and rocker switch
- 100-240V~, 50/60Hz

## LED Work Lights and Switches

At some event venues, the lights may be very dim. For users' convenience, the P20/P20-DS is designed with two LED work lights to provide adequate light for rear panel operations. The LED work lights come with pushbutton switches (red) next to them.

## Specifications of input and output video connections

### Inputs

- DP 1.2
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 240 Hz
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 1.3 compliant
  - No support for interlaced video signal
  - (P20-DS) Support for dual-channel embedded audio (24bit/48kHz)
- HDMI 2.0
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 240 Hz
  - Support for HDR
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 2.2 compliant and downward compatible
  - Support for interlaced video signal
  - (P20-DS) Support for dual-channel embedded audio (24bit/48kHz)
- 12G-SDI
  - Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD)
  - Maximum resolution: 4096×2160@60Hz
  - Maximum frame rate: 60 Hz
  - Support for interlaced video signal
  - (P20-DS) Support for dual-channel embedded audio (24bit/48kHz)

### Outputs

- HDMI 2.0
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 120 Hz
  - Support for HDR
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 2.2 compliant and downward compatible
  - Support for interlaced video signal

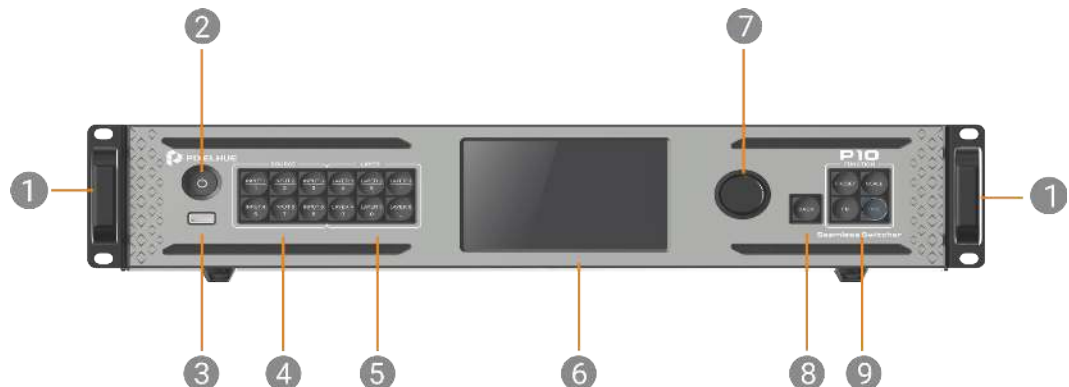
- (P20-DS) Support for dual-channel embedded audio (24bit/48kHz)
- 12G-SDI (P20-DS)
  - Copying HDMI outputs
  - Compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI
  - Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD)
  - Maximum resolution: 4096×2160@60Hz
  - Support for interlaced video signal
  - Support for dual-channel embedded audio (24bit/48kHz)

## 5.3 P10 Hardware Introduction

### 5.3.1 Front Panel

The P10 front panel is designed with a 5-inch LCD, a knob and a variety of function buttons that allow for menu operations by button presses. A USB port is provided on the front panel for updating device firmware, import and export files.

Figure 5-3 P10 front panel



- |   |                       |   |                  |
|---|-----------------------|---|------------------|
| 1 | Chassis handles (L+R) | 6 | LCD screen       |
| 2 | Power button          | 7 | Knob             |
| 3 | USB port              | 8 | BACK button      |
| 4 | Source buttons        | 9 | Function buttons |
| 5 | Layer buttons         |   |                  |

#### Chassis Handles

Two handles are provided for easy installation and transportation.

#### Power Button

Press the button to turn on/off the device. To turn off the device, press the button and select **OK** from the dialog box displayed on the LCD screen to confirm your operation.

- Breathing dim white: The power supply is connected.
- Bright white: The device is turned on.

## USB Port

A Type-A USB 2.0 port is provided for updating device firmware, importing and exporting project files, EDID files, BKG files, LOGO files and logs via USB drive.

## Source Buttons

Press a button to access the input settings menu or select the source. These buttons can also be used to enter numbers.

Button LED color and source status (INPUT 1 to 6):

- Dim white: No signal and not in use
- Breathing blue: Signal accessed and not in use
- Blue: Signal accessed and in use

## Layer Buttons

LAYER 1 to 6: Press a button to open the layer and access the layer menu. Press and hold the button to close the layer.

Button LED color and source status:

- Dim white: The layer is closed.
- Bright blue: The layer is open.
- Blinking blue: the layer is in edit mode.

## LCD Screen

A 5-inch LCD screen is designed for displaying all the menus, submenus and messages.

After startup, the screen displays the home screen. For detailed information on the home screen, see [6.2 P20/P20-DS/P10 Menu Operations](#).

## Knob

Rotate the knob to scroll up or down through the menus.

- Rotate the knob clockwise to scroll down.
- Rotate the knob counter-clockwise to scroll up.

Press the knob to select menu items.

Press and hold the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

## Back Button

Press the **BACK** button to exit a menu without making changes, to cancel an operation, or to return to the home screen. Each press takes you back up the menu tree one level.

Press and hold the knob and **BACK** button simultaneously for 3s or longer to lock or unlock the front panel buttons.

## Function buttons

- **PRESET**: Press the button to access the preset settings menu.
  - Dim white: The preset settings menu is not displayed.
  - Blinking blue: The preset settings menu is displayed.
- **SCALE**: Press the button to enable the full screen scaling of the layer at the back of the Z-order.
  - Blinking blue: Full screen scaling is enabled successfully.
- **FN**: This is a custom shortcut button and users can assign a function to the **FN** button.

When Freeze, FTB (Fade to Black), or Genlock synchronization is assigned, press the button to enable the assigned function.

Button LED color and source status:

- Dim white: The function is disabled.
- Blue: The function is enabled.

When **Capture** is assigned, press the button to access the **Capture** menu.

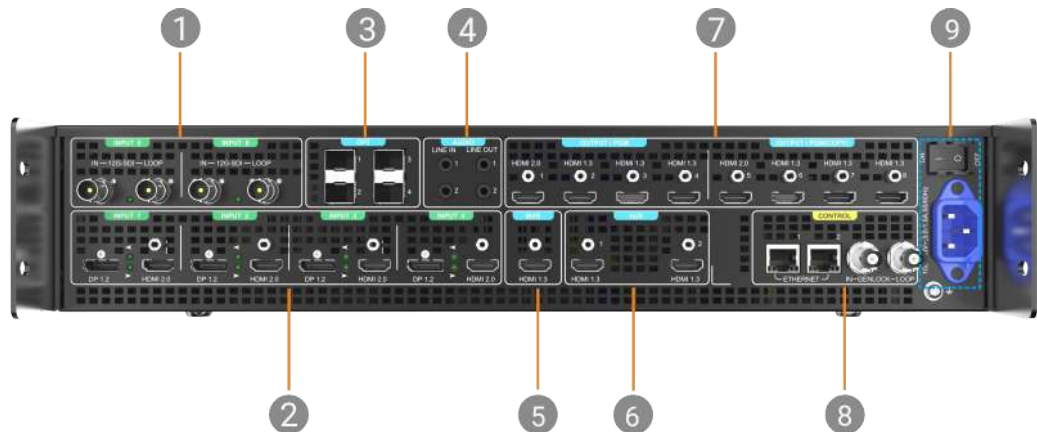
- Dim white: The **Capture** menu is displayed.
- Blinking blue: Capturing...

- **TAKE**: Press the button to switch content from PVW to PGM with a specified transition effect.
  - Dim white: Content is not switched.
  - Blinking blue: Content is being switched.

## 5.3.2 Rear Panel

The P10 rear panel provides a variety of I/O connectors including 6x 4K inputs (4x DP1.2/HDMI 2.0 and 2x 12G-SDI), 8x outputs (2x HDMI 2.0 and 6x HDMI 1.3), and 4x 10G optical fiber ports.

Figure 5-4 P10 rear panel



1	Inputs 5 and 6	6	AUX outputs
2	Inputs 1 to 4	7	Outputs 1 to 8
3	OPT outputs 1 to 4	8	Control connectors
4	Audio jacks	9	Power connector and switch
5	Multiviewer output		

## Inputs 5 and 6

Two 12G-SDI IN & LOOP connectors are provided.

## Inputs 1 to 4

Each includes a DP 1.2 and HDMI 2.0. When both have signals, only one can be used as the input source at the same time.

## OPT Outputs 1 to 4

Four optical fiber ports are provided for copying the output of the HDMI connectors.

4K:

- Switcher mode
  - OPT 1 copies the left half of the output image of HDMI 1.
  - OPT 2 copies the right half of the output image of HDMI 1.
  - OPT 3 copies the left half of the output image of HDMI 5.
  - OPT 4 copies the right half of the output image of HDMI 1.
- PGM only mode
  - OPT 1 copies the left half of the output image of HDMI 1.
  - OPT 2 copies the right half of the output image of HDMI 1.
  - OPT 3 copies the left half of the output image of HDMI 5.
  - OPT 4 copies the right half of the output image of HDMI 5.

SL:

- Switcher mode

- OPT 1 copies HDMI 1 and HDMI 2.
- OPT 2 copies HDMI 3 and HDMI 4.
- OPT 3 copies HDMI 1 and HDMI 2.
- OPT 4 copies HDMI 3 and HDMI 4.
- PGM only mode
  - OPT 1 copies HDMI 1 and HDMI 2.
  - OPT 2 copies HDMI 3 and HDMI 4.
  - OPT 3 copies HDMI 5 and HDMI 6.
  - OPT 4 copies HDMI 7 and HDMI 8.

## Audio Jacks (The audio function will be implemented in future updates.)

Four 3.5 mm dual-channel audio jacks are provided, including two line in jacks and two line out jacks.

## Multiviewer Output

The P10 is designed with an HDMI 1.3 for Multiviewer output. A Multiviewer display can be connected, allowing for live monitoring of all the inputs and outputs from one display. The output resolution defaults to 1920×1080@60Hz and the frame rate can be changed.

## AUX Outputs

The P10 comes with two HDMI 1.3 connectors for AUX outputs with support for interlaced video signal output. Auxiliary devices such as teleprompters can be connected. The default output resolution is 1920×1080@60Hz and the maximum output resolution is 2048×1152@60Hz.

## Outputs 1 to 8

The P10 provides eight HDMI output connectors including two HDMI 2.0 and six HDMI 1.3.

4K:

- In switcher mode, connector 1 works as primary connector for 4K output and connector 5 copies connector 1.
- In PGM only mode, connectors 1 and 5 can work as primary connectors and have the same resolution.

SL:

- In switcher mode, connectors 1 to 4 work as primary and connectors 5 to 8 copy connectors 1 to 4, respectively. Connectors 1, 2, 3 and 4 have the same resolution.
- In PGM only mode, eight connectors work as primary. All the connectors have the same resolution.

## Control Connectors

The P10 provides two Ethernet ports and a Genlock connector with loop-through.

### **Ethernet**

Two Ethernet ports are used for control and live input view (One works as primary and the other as backup. They share the same IP address.).

### **Genlock IN & LOOP**

Genlock synchronization signal connectors are provided.

- GENLOCK IN: Synchronization signal input
- GENLOCK LOOP: Synchronization signal loop output

### **Power Connector and Switch**

- Power connector: 100-240V~, 3.0-1.5A, 50/60Hz
- Power switch:
  - ON: Power on
  - OFF: Power off

### **Specifications of input and output video connections**

#### **Inputs:**

- DP 1.2
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 240 Hz
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 1.3 compliant
  - No support for interlaced video signal
- HDMI 2.0
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 240 Hz
  - Support for HDR
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 2.2 compliant and downward compatible
  - Support for interlaced video signal
- 12G-SDI
  - Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD)
  - Maximum resolution: 4096×2160@60Hz
  - Maximum frame rate: 60 Hz
  - Support for interlaced video signal

**Outputs:**

- HDMI 2.0
  - Maximum resolution: 4096×2160@60Hz/8192×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 8192 pixels (8192×1080@60Hz)
  - Maximum height: 7680 pixels (1080×7680@60Hz)
  - Maximum frame rate: 240 Hz
  - Support for HDR
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 2.2 compliant and downward compatible
  - Support for interlaced video signal
- HDMI 1.3
  - Maximum resolution: 1920×1080@60Hz/2048×1080@60Hz
  - Minimum resolution: 800×600@60Hz
  - Maximum width: 2048 pixels (2048×1080@60Hz)
  - Maximum height: 2048 pixels (1080×2048@60Hz)
  - Maximum frame rate: 240 Hz
  - EDID management (support for standard resolutions and custom resolutions)
  - HDCP 2.2 compliant and downward compatible
  - Support for interlaced video signal

## 5.4 Q8 Hardware Introduction

### 5.4.1 Front Panel

Figure 5-5 Q8 front panel

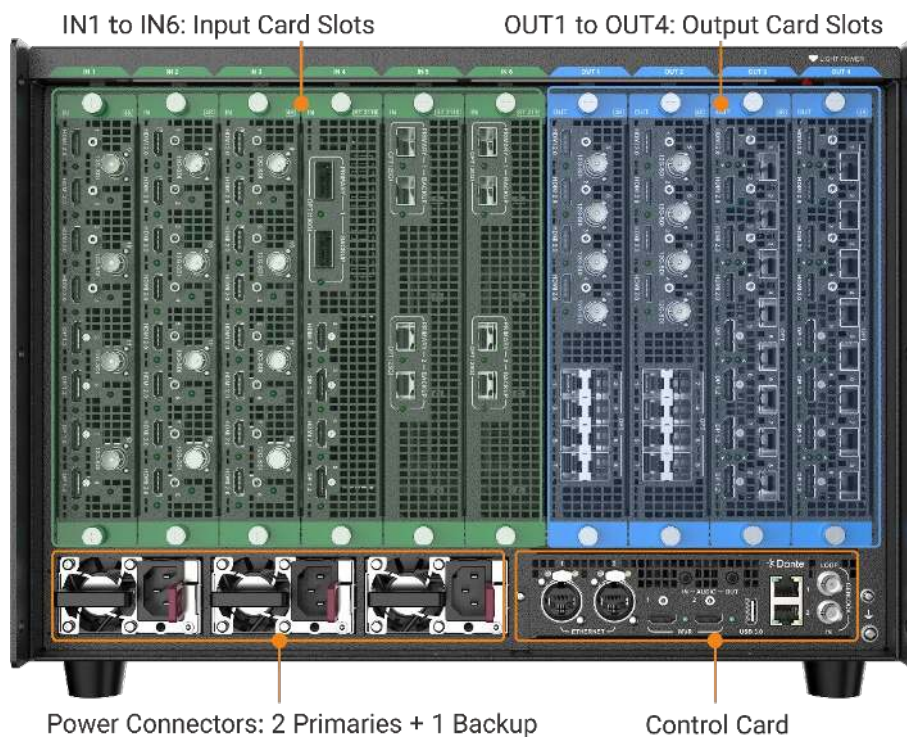


No.	Type	Description
1	Power button	<ul style="list-style-type: none"> <li>Power on: Press the button to turn on the device.</li> <li>Power off: Press the button, and a shutdown prompt window appears on the LCD screen. Tap <b>Yes</b> to shut down the device.</li> </ul>
2	LED strip	<p>Indicate the device running status.</p> <ul style="list-style-type: none"> <li>Blue: The device is operating normally. The strip supports breathing and flashing effects.</li> <li>Off: The device is either not powered or is malfunctioning.</li> </ul>
3	LCD screen	Display the device status, menus, submenus and messages for parameter settings.
4	USB 3.0	<p>1x USB 3.0 (Type-A) port</p> <ul style="list-style-type: none"> <li>Update device firmware via USB drive.</li> <li>Export logs, and import and export projects.</li> </ul>
5	LINK port	<p>Link two Q8 units for cascading and control.</p> <ul style="list-style-type: none"> <li>8x QSFP ports <ul style="list-style-type: none"> <li>They enable the sharing of input sources between two devices.</li> <li>Each port can share up to two 4K input sources, allowing up to 16 4K input sources to be shared across all eight ports.</li> </ul> </li> </ul>

No.	Type	Description
		<ul style="list-style-type: none"> <li>1x LINK IN It accepts the synchronization control signal in scenarios where a single event controller or control software controls multiple switchers.</li> <li>1x LINK OUT It loops the synchronization control signal in scenarios where a single event controller or control software controls multiple switchers.</li> <li>1x OPT, 10 optical port (reversed)</li> </ul> <p>Note:</p> <p>The LINK IN and LINK OUT ports are designed to enable control cascading among switchers in scenarios where they are controlled by a single event controller or control software. In these scenarios, one switcher should be set as the master and the others as slaves. By connecting the LINK IN and LINK OUT ports among the switchers using Ethernet cables, control commands can be synchronized effectively.</p>
6	LINK port cover	Cover the LINK ports.

### 5.4.2 Rear Panel


Figure 5-6 Q8 rear panel





 **Note**

- The picture above is the rear panel of the device when it is fully loaded. Users can configure input and output cards as needed.
- The input and output cards do not support hot-swappable installation. The system must be powered off before installation, and only powered back on after the installation is complete. Additionally, input and output cards must be installed in ascending order based on their slot numbers, with no empty slots between adjacent cards.
- The input and output cards are replaceable. Up to 6 input cards and 4 output cards can be installed.

Table 5-1 Rear panel description

Input Card	
<p>Q8_HDMI2.0+DP1.2+12G-SDI Input Card</p>	 <ul style="list-style-type: none"> <li>• 8x 4K×2K@60Hz concurrent inputs per input card</li> <li>• Deinterlacing for up to 4 inputs per input card</li> <li>• Providing up to 4 sync sources per input card</li> </ul> <p><b>4x HDMI 2.0</b></p> <ul style="list-style-type: none"> <li>• Up to 4K×2K@60Hz 8bit 4:4:4, 4K×2K@60Hz 12bit 4:2:2, or 4K×2K@60Hz 12bit 4:2:0</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit inputs</li> <li>• Support for 4:2:0, 4:2:2 and 4:4:4 inputs</li> <li>• Support for processing of Full and Limited range videos</li> <li>• Support for HDR and 3D inputs</li> <li>• HDCP 1.4 and HDCP 2.2 compliant</li> <li>• Support for deinterlacing processing</li> <li>• Support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions                         <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>4x DP 1.2</b></p> <ul style="list-style-type: none"> <li>• Up to 4K×2K@60Hz 10bit 4:4:4 or 4K×2K@60Hz 12bit 4:2:2</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit inputs</li> <li>• Support for 4:2:2 and 4:4:4 inputs</li> <li>• Support for processing of Full and Limited range videos</li> <li>• Support for HDR and 3D inputs</li> <li>• HDCP 1.3 and HDCP 2.2 compliant</li> <li>• No support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> </ul>

	<ul style="list-style-type: none"> <li>• Custom resolutions                         <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>4x 12G-SDI</b></p> <ul style="list-style-type: none"> <li>• Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs</li> <li>• Compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI</li> <li>• Support for interlaced video signal</li> <li>• No support for EDID management or bit depth settings</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> </ul> <p><b>Status LEDs</b></p> <p>Each input connector has a status LED which indicates source access status.</p> <ul style="list-style-type: none"> <li>• On: The source is accessed.</li> <li>• Off: The source is not accessed or it is abnormal.</li> </ul>
<p>Q8_ST2110_4xSFP25 G Input Card_I</p>	 <ul style="list-style-type: none"> <li>• 25G OPT for video source transmission, control, and synchronous clock input.</li> <li>• The video interface and control interface are combined into one.</li> <li>• Simultaneous input of primary and backup video sources, enabling seamless transition when necessary.</li> </ul> <p><b>4x 25G OPT</b></p> <ul style="list-style-type: none"> <li>• 2 primaries and 2 backups per input card</li> <li>• Up to 4Kx2K@60Hz 12bit 4:4:4</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit inputs</li> <li>• Support for 4:2:2 and 4:4:4 inputs</li> <li>• Standard: Support SMPTE ST 2110 (-10, -20) and SMPTE 2059 (-1, -2).</li> <li>• Backup: Support the SMPTE 2022-7 standard.</li> <li>• Custom resolutions                         <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> <li>• PixelFlow control: Support loading video stream configuration by SDP file or directly inputting.                          Support setting the resolution when managing ST 2110 source in PixelFlow.                         <ul style="list-style-type: none"> <li>– Support standard resolutions up to 4096x2160@60Hz.</li> <li>– Allow for custom input resolutions.</li> </ul> </li> <li>• Color gamut: Rec.601/Rec.709/Rec.2020/DCI-P3</li> <li>• PTP settings: Support the IEEE 1588-2008 standard, enabling high-precision synchronization across different input sources when Lock Input to PTP is activated.</li> </ul>

	<ul style="list-style-type: none"> <li>• IP address: IPv4 DHCP and static IP</li> <li>• Ethernet:             <ul style="list-style-type: none"> <li>– 25 GbE IEEE 802.3cc (25GBASE-LR)</li> <li>– 25 GbE IEEE 802.3by (25GBASE-SR)</li> </ul> </li> <li>• Port configuration              You can configure the port information through the following two methods:             <ul style="list-style-type: none"> <li>– Import the SDP file in PixelFlow for configuration.</li> <li>– Directly input the video stream configuration in PixelFlow: Video stream destination IP (primary/backup), port (primary/backup), video source IP (primary/backup), and video source details (resolution, frame rate, color/sample, bit depth)</li> </ul> </li> </ul>
<p>Q8_ST2110              (100G)+HDMI2.1+DP              1.4 Input Card</p>	 <ul style="list-style-type: none"> <li>• 100G OPT for video source transmission, control, and synchronous clock input.</li> <li>• The video interface and control interface are combined into one.</li> <li>• Simultaneous input of primary and backup video sources, enabling seamless transition when necessary.</li> </ul> <p><b>2x 100G OPT</b></p> <ul style="list-style-type: none"> <li>• 1 primary and 1 backup per input card</li> <li>• Up to 4x 4Kx2K@60Hz 12bit 4:4:4</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit inputs</li> <li>• Support for 4:2:2 and 4:4:4 inputs</li> <li>• Standard: Support SMPTE ST 2110 (-10, -20) and SMPTE 2059 (-1, -2).</li> <li>• Backup: Support the SMPTE 2022-7 standard.</li> <li>• Custom resolutions             <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> <li>• PixelFlow control: Support loading video stream configuration by SDP file or directly inputting. Exporting SDP file is also supported.              Support setting the resolution when managing ST 2110 source in PixelFlow.             <ul style="list-style-type: none"> <li>– Support standard resolutions up to 4096x2160@60Hz.</li> <li>– Allow for custom input resolutions.</li> </ul> </li> <li>• Color gamut: Rec.601/Rec.709/Rec.2020/DCI-P3</li> <li>• PTP settings: Support the IEEE 1588-2008 standard, enabling high-precision synchronization across different input sources when Lock Input to PTP is activated.</li> </ul>


- FEC configuration: With parameters set at the card level, this feature can automatically detect and correct errors during data transmission, enhancing the reliability of video signal transfer. Support RS-FEC and NO-FEC encoding methods. This feature requires configuration on the switch before it can be used.
- IP address: IPv4 DHCP and static IP
- Multicast protocol: IGMPv3
- Ethernet:
  - 100 GbE IEEE 802.3ba (100GBASE-LR)
  - 100 GbE IEEE 802.3ba (100GBASE-SR)
  - 100 GbE IEEE 802.3ba (100GBASE-CR)
- Port configuration  
You can configure the port information through the following two methods:
  - Import the SDP file in PixelFlow for configuration.
  - Directly input the video stream configuration in PixelFlow: Video stream destination IP (primary/backup), port (primary/backup), video source IP (primary/backup), and video source details (resolution, frame rate, color/sample, bit depth)


#### **2x HDMI 2.1**


- One HDMI 2.1 and one DP 1.4 form a group, with only one usable at a time
- Up to 8K×4K@30Hz 10bit 4:4:4 (Currently limited to 4K×2K@60Hz 8bit 4:4:4)
- Support for processing of 8-bit, 10-bit and 12-bit inputs
- Support for 4:2:0, 4:2:2 and 4:4:4 inputs
- Support for processing of Full and Limited range videos
- Support for HDR and 3D inputs
- HDCP 1.4 and HDCP 2.3 compliant
- Support for deinterlacing processing
- Support for interlaced video signal
- Support for 8-channel embedded audio (24bit/48kHz)
- Custom resolutions
  - Maximum width: 8192 pixels
  - Maximum height: 7680 pixels


#### **2x DP 1.4**

- One HDMI 2.1 and one DP 1.4 form a group, with only one usable at a time
- Up to 8K×4K@30Hz 10bit 4:4:4 (Currently limited to 4K×2K@60Hz 10bit 4:4:4)
- Support for processing of 8-bit, 10-bit and 12-bit inputs
- Support for 4:2:2 and 4:4:4 inputs
- Support for processing of Full and Limited range videos
- Support for HDR and 3D inputs
- HDCP 1.3 and HDCP 2.3 compliant

	<ul style="list-style-type: none"> <li>• No support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>Status LEDs</b></p> <p>Each input connector has a status LED which indicates source access status.</p> <ul style="list-style-type: none"> <li>• On: The source is accessed.</li> <li>• Off: The source is not accessed or it is abnormal.</li> </ul>
Q8_8xHDMI2.0+12G-SDI Input Card	 <ul style="list-style-type: none"> <li>• 8x 4Kx2K@60Hz concurrent inputs per input card</li> </ul> <p><b>8x HDMI 2.0</b></p> <ul style="list-style-type: none"> <li>• Up to 4Kx2K@60Hz 8bit 4:4:4, or 4Kx2K@60Hz 10bit 4:2:2</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit inputs</li> <li>• Support for 4:2:0, 4:2:2 and 4:4:4 inputs</li> <li>• Support for processing of Full and Limited range videos</li> <li>• Support for HDR inputs</li> <li>• HDCP 1.4 and HDCP 2.2 compliant</li> <li>• Support for deinterlacing processing</li> <li>• Support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>4x 12G-SDI</b></p> <ul style="list-style-type: none"> <li>• Support for ST-2082 (12G), ST-2081 (6G), ST-424 (3G), ST-292 (HD) and ST-259 (SD) standard video inputs</li> <li>• Compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI</li> <li>• Support for interlaced video signal</li> <li>• No support for EDID management or bit depth settings</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> </ul> <p><b>Status LEDs</b></p> <p>Each input connector has a status LED which indicates source access status.</p> <ul style="list-style-type: none"> <li>• On: The source is accessed.</li> <li>• Off: The source is not accessed or it is abnormal.</li> </ul>

Output Card	
<p>Q8_HDMI2.0+12G-SDI+Fiber Output Card</p>	 <p>The 4x HDMI 2.0 and 4x 12G-SDI connectors are divided into 4 groups. Each group includes 1x HDMI 2.0 and 1x 12G-SDI, and connectors within the same group copy each other's output. The 12G-SDI connector supports only standard resolutions under the protocol. When the HDMI 2.0 connector is set to a custom resolution, the 12G-SDI connector does not output.</p> <ul style="list-style-type: none"> <li>• Connector 1 (HDMI 2.0) and connector 5 (12G-SDI) form Group 1.</li> <li>• Connector 2 (HDMI 2.0) and connector 6 (12G-SDI) form Group 2.</li> <li>• Connector 3 (HDMI 2.0) and connector 7 (12G-SDI) form Group 3.</li> <li>• Connector 4 (HDMI 2.0) and connector 8 (12G-SDI) form Group 4.</li> </ul> <p><b>4x HDMI 2.0</b></p> <ul style="list-style-type: none"> <li>• Up to 4Kx2K@60Hz 8bit 4:4:4, or 4Kx2K@60Hz 12bit 4:2:2 output</li> <li>• Support for 8-bit, 10-bit and 12-bit output settings</li> <li>• Support for 4:2:2 and 4:4:4 output settings</li> <li>• Support for YCbCr and RGB color space settings</li> <li>• Support for HDR outputs</li> <li>• Support for color gamut adjustment</li> <li>• Support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions             <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>4x 12G-SDI</b></p> <ul style="list-style-type: none"> <li>• Compatible with SD-SDI, HD-SDI, 3G-SDI and 6G-SDI</li> <li>• Support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> </ul> <p><b>8x 10G OPT</b></p> <ul style="list-style-type: none"> <li>• Support for single-mode and multi-mode optical outputs</li> <li>• Transmission distance up to 10km in single mode</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• OPT ports copy outputs on video connectors             <ul style="list-style-type: none"> <li>– OPT 1 and OPT 2 copy the output from Group 1.</li> <li>– OPT 3 and OPT 4 copy the output from Group 2.</li> <li>– OPT 5 and OPT 6 copy the output from Group 3.</li> <li>– OPT 7 and OPT 8 copy the output from Group 4.</li> </ul> </li> </ul>

	<p><b>Status LEDs</b></p> <p>Each HDMI output connector has a status LED which indicates the connection status of backend device. The 12G-SDI and optical port do not have status LEDs.</p> <ul style="list-style-type: none"> <li>• On: The output connection is normal.</li> <li>• Off: The output connection is abnormal.</li> </ul>
<p>Q8_HDMI2.0x4+                  DP1.2x4+SFPx8                  Output Card</p>	 <p>The 4x HDMI 2.0 and 4x DP 1.2 connectors are divided into 4 groups. Each group includes 1x HDMI 2.0 and 1x DP 1.2, and connectors within the same group copy each other's output.</p> <ul style="list-style-type: none"> <li>• Connector 1 (HDMI 2.0) and connector 5 (DP 1.2) form Group 1.</li> <li>• Connector 2 (HDMI 2.0) and connector 6 (DP 1.2) form Group 2.</li> <li>• Connector 3 (HDMI 2.0) and connector 7 (DP 1.2) form Group 3.</li> <li>• Connector 4 (HDMI 2.0) and connector 8 (DP 1.2) form Group 4.</li> </ul> <p><b>4x HDMI 2.0</b></p> <ul style="list-style-type: none"> <li>• Up to 4Kx2K@60Hz 8bit 4:4:4 or 4Kx2K@60Hz 12bit 4:2:2 output</li> <li>• Support for 8-bit, 10-bit and 12-bit output settings</li> <li>• Support for 4:2:2 and 4:4:4 output settings</li> <li>• Support for YCbCr and RGB color space settings</li> <li>• Support for HDR outputs</li> <li>• Support for color gamut adjustment</li> <li>• Support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions                         <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul> <p><b>4x DP 1.2</b></p> <ul style="list-style-type: none"> <li>• Up to 4Kx2K@60Hz 10bit 4:4:4 or 4Kx2K@60Hz 12bit 4:2:2 output</li> <li>• Support for 8-bit, 10-bit and 12-bit output settings</li> <li>• Support for 4:2:2 and 4:4:4 output settings</li> <li>• Support for YCbCr and RGB color space settings</li> <li>• Support for 3D outputs</li> <li>• No support for interlaced video signal</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• Custom resolutions                         <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> </ul>

	<p><b>8x 10G OPT</b></p> <ul style="list-style-type: none"> <li>• Support for single-mode and multi-mode optical outputs</li> <li>• Transmission distance up to 10km in single mode</li> <li>• Support for 8-channel embedded audio (24bit/48kHz)</li> <li>• OPT ports copy outputs on video connectors             <ul style="list-style-type: none"> <li>– OPT 1 and OPT 2 copy the output from Group 1.</li> <li>– OPT 3 and OPT 4 copy the output from Group 2.</li> <li>– OPT 5 and OPT 6 copy the output from Group 3.</li> <li>– OPT 7 and OPT 8 copy the output from Group 4.</li> </ul> </li> </ul> <p><b>Status LEDs</b></p> <p>Each HDMI and DP output connector has a status LED which indicates the connection status of backend device. The optical port does not have status LEDs.</p> <ul style="list-style-type: none"> <li>• On: The output connection is normal.</li> <li>• Off: The output connection is abnormal.</li> </ul>
<p>Q8_1xST2110(100G)+ 4x12G-SDI Output Card</p>	 <ul style="list-style-type: none"> <li>• 100G OPT for video source transmission, control, and synchronous clock input.</li> <li>• Simultaneous input of primary and backup video sources, enabling seamless transition when necessary.</li> <li>• Support for edge blending, output rotation, 3D, virtual pixel configuration, and LCD bezel compensation.</li> <li>• No support for creating screens with other output cards or HDCP settings.</li> </ul> <p><b>2x 100G OPT</b></p> <ul style="list-style-type: none"> <li>• 1 primary and 1 backup per output card</li> <li>• Up to 4x 4Kx2K@60Hz 12bit 4:4:4</li> <li>• Support for processing of 8-bit, 10-bit and 12-bit outputs</li> <li>• Support for 4:2:2 and 4:4:4 outputs</li> <li>• No support for interlaced video signal</li> <li>• Standard: Support SMPTE ST 2110 (-10, -20) and SMPTE 2059 (-1, -2).</li> <li>• Backup: Support the SMPTE 2022-7 standard.</li> <li>• Custom resolutions             <ul style="list-style-type: none"> <li>– Maximum width: 8192 pixels</li> <li>– Maximum height: 7680 pixels</li> </ul> </li> <li>• PixelFlow control: Support loading video stream configuration by SDP file or directly inputting. Exporting SDP file is also supported.             <p>Support setting the resolution.</p> <ul style="list-style-type: none"> <li>– Support standard resolutions up to 4096x2160@60Hz or 7680x1080@60Hz.</li> <li>– Allow for custom output resolutions.</li> </ul> </li> </ul>

	<ul style="list-style-type: none"><li>• PTP settings: Support the IEEE 1588-2008 standard, enabling high-precision synchronization across different video streams when Lock to PTP is activated.</li><li>• FEC configuration: With parameters set at the card level, this feature can automatically detect and correct errors during data transmission, enhancing the reliability of video signal transfer. Support RS-FEC and NO-FEC encoding methods. This feature requires configuration on the switch before it can be used.</li><li>• IP address: IPv4 DHCP and static IP</li><li>• Multicast protocol: IGMPv3</li><li>• Ethernet:<ul style="list-style-type: none"><li>– 100 GbE IEEE 802.3ba (100GBASE-LR)</li><li>– 100 GbE IEEE 802.3ba (100GBASE-SR)</li><li>– 100 GbE IEEE 802.3ba (100GBASE-CR)</li></ul></li><li>• Port configuration You can configure the port information through the following two methods:<ul style="list-style-type: none"><li>– Import the SDP file in PixelFlow for configuration.</li><li>– Directly input the video stream configuration in PixelFlow.</li></ul></li></ul> <p><b>4x 12G-SDI</b></p> <ul style="list-style-type: none"><li>• These connectors copy the 4x 4K outputs of the 100G OPT ports</li><li>• Up to 4K×2K@60Hz 10bit YCbCr 4:2:2 outputs</li><li>• Support for YCbCr 4:2:2 output settings</li><li>• Support for interlaced video signal</li><li>• Support for 8-channel embedded audio (24bit/48kHz)</li><li>• No support for standard or custom resolutions</li></ul> <p><b>Status LEDs of 100G OPT</b></p> <ul style="list-style-type: none"><li>• On: The output connection is normal.</li><li>• Off: The output is not connected or it is abnormal.</li></ul>
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**Control Card**



**ETHERNET**

**2x Neutrik Gigabit Ethernet ports**

- The two Ethernet ports work as a copy channel for each other.
- Connect to the U5, U5 Pro or control computer.
- Transmit the input view information to the control computer or U5/U5 Pro event controller.
- Support control by central control command.

**MVR**

2x HDMI 2.0

Connect to the monitor to display the Multiviewer image in copy or independent mode.

- In independent mode, the two HDMI connectors are used to display two different MVR images.
- In copy mode, HDMI 2 copies the output on HDMI 1.

**USB 3.0**

1x USB 3.0

- Export device logs.
- Update the device and perform system repairs.

**AUDIO**

1x 3.5mm audio input, 1x 3.5mm audio output

- IN for external audio input connection.
- OUT for audio output.

Dante

2x digital network audio ports for audio input and output.

- RJ45 port
- Support network audio input and output.
- Support 8-channel audio.
- Support 64x64 audio swapping.

**GENLOCK**

1x GENLOCK IN, 1x GENLOCK LOOP

Support Bi-Level and Tri-Level.

- GENLOCK IN: Accept the external sync signal.
- GENLOCK LOOP: Loop the sync signal.

**Power Connector**

Support 2 primary and 1 backup power supplies. Before powering on the device, connect at least two power supplies.

Power specifications: 100-240V~, 50/60Hz, 10A-5A

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# 6 Menu Operations

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## About This Chapter

This chapter introduces you to the system menus of the P80/P20/P20-DS/P10/Q8, including how the menus are accessed and the available functions and parameters. The menu pictures are presented throughout the chapter.

## Overview

- P80 Menu Operations
  - Startup and Shutdown
  - Home Screen
  - Network Settings
  - Device Information
  - Advanced Settings
  - Language
  - About Us
- P20/P20-DS/P10 Menu Operations
  - Startup and Shutdown
  - Home Screen
  - Input
  - Output
  - Screen
  - Layer
  - Transition
  - Preset
  - Multiviewer (MVR)
  - Network
  - Advanced
  - Mode
  - About Us
  - Language
- Q8 Menu Operations

- Startup and Shutdown
  - Home Screen
- 

 **Note:**

All menu pictures shown in this chapter are for illustration purposes only. Actual product may vary.

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## 6.1 P80 Menu Operations

The 7-inch touchscreen on the front panel of the P80 allows for pretty darn simple operations. The following sections will introduce the operations in detail.

### 6.1.1 Startup and Shutdown

To turn on the P80, connect all the necessary cables and power cords properly, and press the power button on the front panel.

To turn off the P80, press the power button, and a shutdown prompt window appears on the LCD screen. Tap **OK** to shut down the device.




### 6.1.2 Home Screen

After the startup, the home screen is displayed.

Figure 6-1 Home screen



Table 6-1 Home screen description

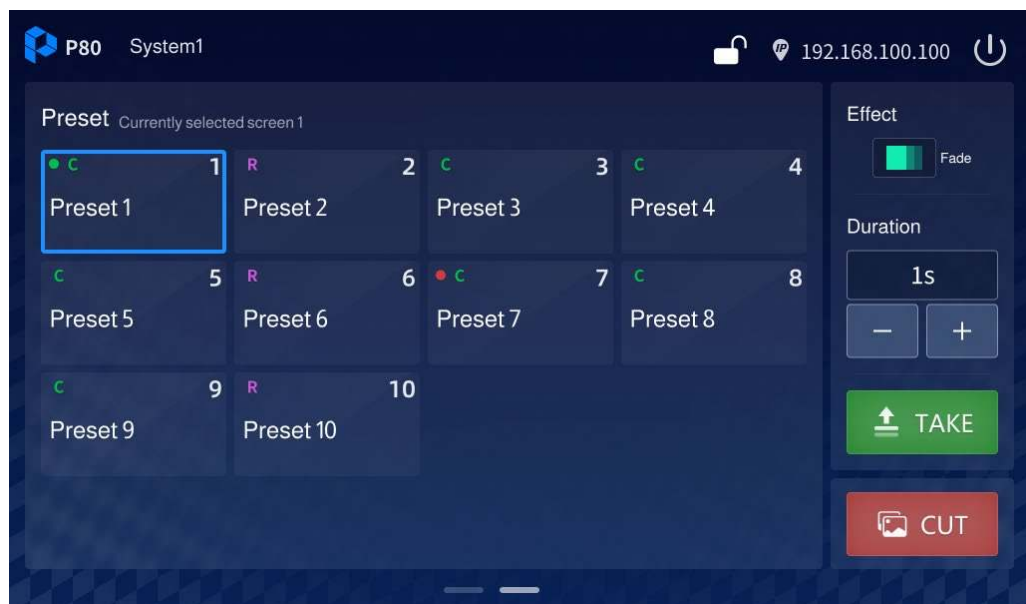
No.	Content	Description
1	Information bar	<ul style="list-style-type: none"> <li>: Logo of PIXELHUE</li> <li><b>P80</b>: Device model</li> <li><b>System1</b>: Device name, which can be modified in PixelFlow</li> <li><b>2025-11-11 10:03:26</b>: System time</li> <li>Front panel LCD lock status:                             <ul style="list-style-type: none"> <li>: Locked</li> <li>: Unlocked</li> </ul> </li> <li><b>192.168.100.100</b>: Device IP address, which can be modified on the device LCD or in PixelFlow.</li> </ul>

No.	Content	Description
		<ul style="list-style-type: none"> <li>⏻: Tap the button, and a shutdown prompt window appears on the LCD screen. Tap <b>OK</b> to shut down the device.</li> </ul>
2	Input connectors	<p>Show the input connector status.</p> <ul style="list-style-type: none"> <li>Green: A source is connected to the connector and the source is normal.</li> <li>White: No source is connected to the connector.</li> <li>Gray: The connector is unavailable.</li> <li>Blue: The source connected to the connector is unstable.</li> <li>Orange: The source connected to the connector is abnormal.</li> <li>Red: The connector is overloaded.</li> </ul>
3	Output connectors	<p>Show the output connector status.</p> <ul style="list-style-type: none"> <li>Green: The connector is connected to a device.</li> <li>White: The connector is not connected to a device.</li> <li>Gray: The connector is unavailable.</li> <li>Red: The connector is overloaded.</li> <li>Orange border: Copy.</li> </ul>
4	Flex output connectors	<p>Show the flex output connector status.</p> <ul style="list-style-type: none"> <li>Green: The connector is connected to a device.</li> <li>White: The connector is not connected to a device.</li> <li>Gray: The connector is unavailable.</li> <li>Red: The connector is overloaded.</li> <li>Orange border: Copy.</li> </ul>
5	Control connectors	<p>Show the control connector status.</p> <ul style="list-style-type: none"> <li>Green: A device is connected and the connector is functioning normally.</li> <li>Gray: No device is connected.</li> <li>Red: The connector is overloaded.</li> <li>Orange border: Copy.</li> </ul>
6	Power connector	<p>Show the power supply connection status.</p> <ul style="list-style-type: none"> <li>Green: A power supply is connected.</li> <li>White: No power supply is connected.</li> </ul>
7	Front panel USB port	<p>Show the front panel USB port status.</p> <ul style="list-style-type: none"> <li>Green: A USB drive is connected and the connector is functioning normally.</li> <li>Gray: No USB drive is connected.</li> </ul>
8	Voltage status	<p>Show the device working voltage status.</p> <ul style="list-style-type: none"> <li>Normal: The voltage of each module in the device is normal.</li> <li>Abnormal: The voltage of one or some modules in the device is abnormal, and the device needs troubleshooting.</li> </ul>
9	Temperature status	<p>Show the device working temperature status.</p> <ul style="list-style-type: none"> <li>Normal: The temperature of each module in the device is</li> </ul>

No.	Content	Description
		normal. <ul style="list-style-type: none"> <li>Abnormal: The temperature of one or some modules in the device is too high, and the device needs troubleshooting.</li> </ul>
10	Fan status	Indicate whether the fan speed is normal when the device is working. <ul style="list-style-type: none"> <li>Normal: The speed of each fan in the device is normal.</li> <li>Abnormal: The speed of one or more fans in the device is abnormal, and the device needs troubleshooting.</li> </ul>
11	Settings	Tap to enter the device settings menu where you can do the following: <ul style="list-style-type: none"> <li>Network settings: Configure the device IP address.</li> <li>Device information: Check the device's chassis and card versions, and fan status.</li> <li>Advanced settings: Perform factory reset settings, firmware update, project file import and export, log export, AC back settings, fan mode settings, time to return to home, antistatic settings, plugin update, lock screen.</li> <li>Language: Set the user interface language.</li> <li>About us: Check the firmware version of the device, contact email address and official website of PIXELHUE.</li> </ul>

On the home screen, swipe left to go to the **Preset** screen. The presets saved in PixelFlow or the event controller will be displayed. Tap a preset to load it to the PVW screen and tap **TAKE** or **CUT** to send it to the PGM screen. Users can tap **+/-** under **Duration** to set the effect duration.

Figure 6-2 Preset



To go back to the home screen, swipe right on the **Preset** screen.

## 6.1.3 Network Settings


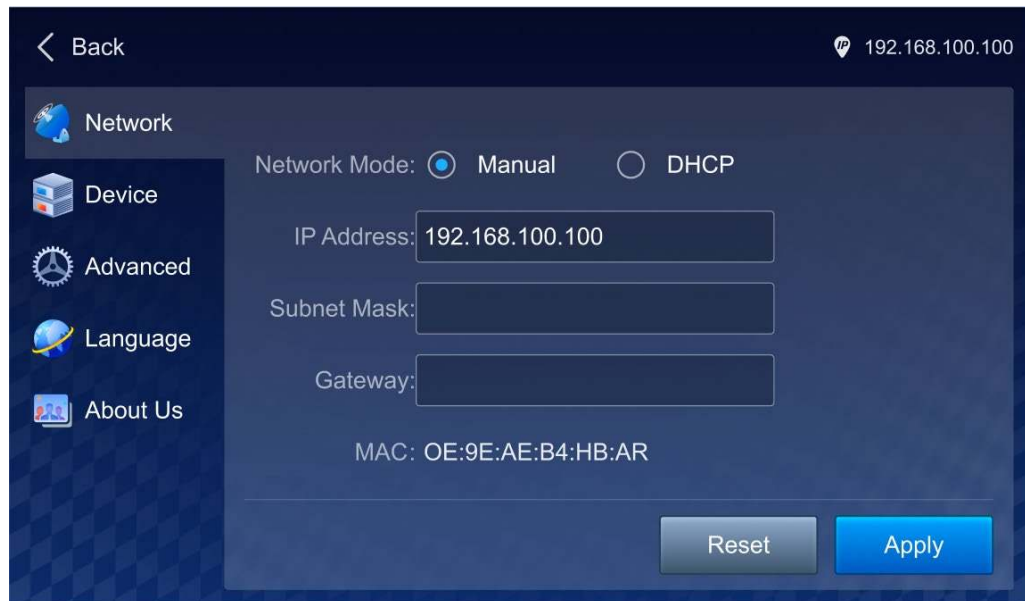
- Step 1 On the home screen, tap  located at the bottom right corner to enter the settings screen.
- Step 2 Select **Network** to enter the network settings screen.
- Step 3 Configure the device IP address information.

Figure 6-3 IP address settings



The device supports both automatic (DHCP) and manual IP configuration. When the device is connected via router or switch, DHCP is recommended. The router or switch will automatically assign an IP address to the device. When the network mode is set to **Manual**, you need to set **IP Address**, **Subnet Mask** and **Gateway**.

### Note

When you manually set the IP address, the device IP address and the control computer IP address must be on the same network segment.

- Step 4 Tap **Apply** to complete the settings.





## 6.1.4 Device Information

On the **Device** screen, you can check the power voltage status, card temperature, version and serial number (SN), and fan running status of the device.

Figure 6-4 Device information



Two ways to enter the **Device** screen:

- On the home screen, tap  located at the bottom right corner to enter the settings screen. Then, tap **Device** on the left.
- On the home screen, tap the icon in the status bar on the right to enter the corresponding screen under **Device**.
  - : Displays the voltage status of the connected power supply. Tap this icon to enter the **Voltage** screen under **Device**, where you can check the connection status of the power supplies and whether the power connector voltage is normal.
  - : Displays the device card temperature. Tap this icon to enter the **Cards** screen under **Device**, where you can check the card temperature, version and SN.
  - : Displays whether the device fans are running normally. Tap this icon to enter the **Fans** screen under **Device**, where you can check the status of all the fans.

## 6.1.5 Advanced Settings

In advanced settings, you can do the following operations:

- Factory reset
- Update firmware
- Import and export project files
- Export log files
- Set the device status after AC power back
- Select a fan mode
- Set the time to return to home

- Configure electrostatic protection
- Update the plugin
- Set the time to lock the front panel LCD


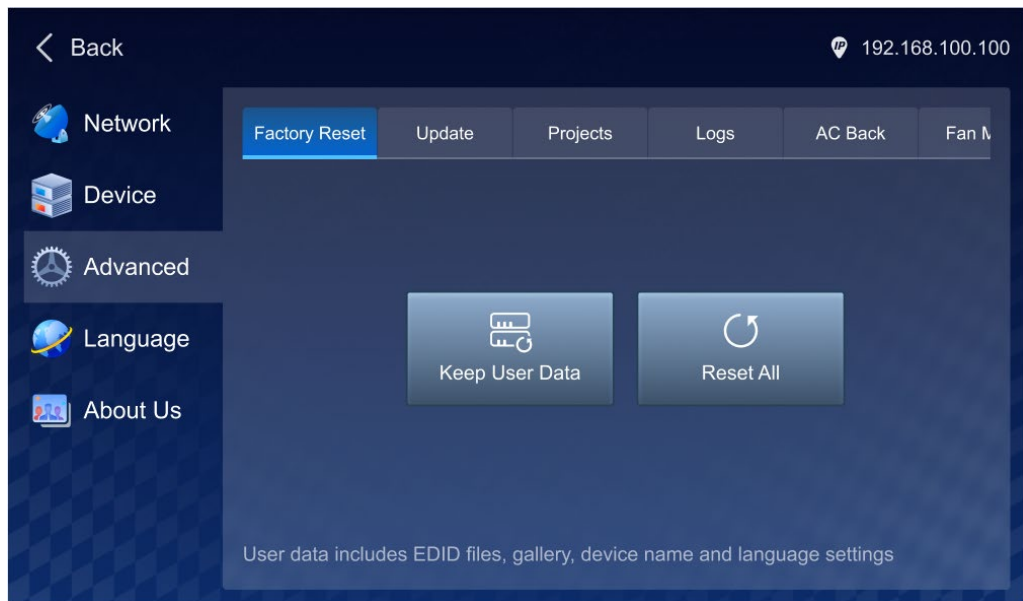
On the home screen, tap  located at the bottom right corner to enter the settings screen. Then, tap **Advanced** to enter the advanced settings screen.

Figure 6-5 Advanced settings



## Factory Reset

This function is used to quickly clear the data saved in the device. All parameters will be restored to the default values.

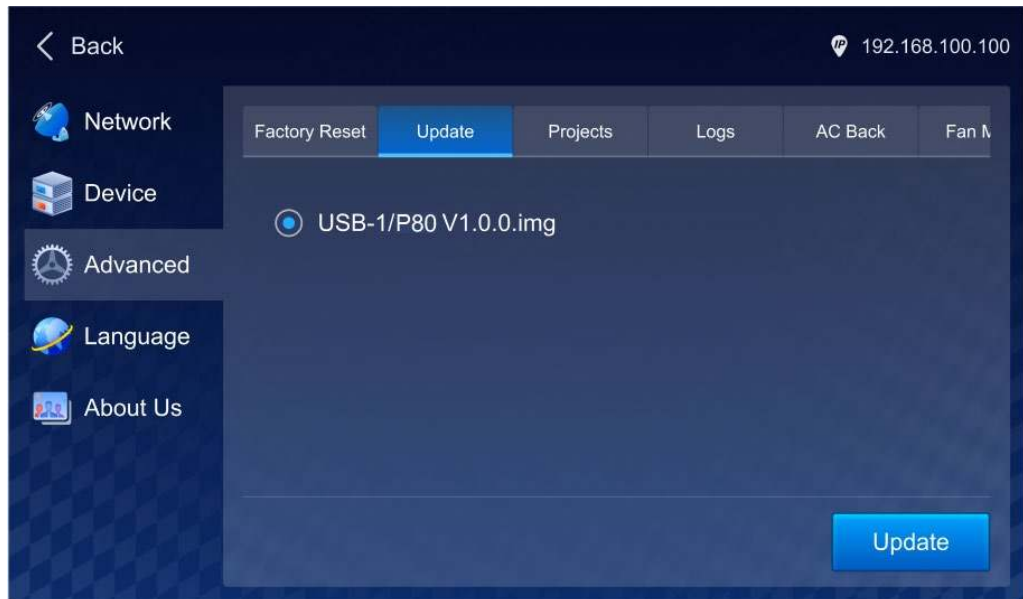
- **Keep User Data:** During factory reset, the network configuration, EDID files, gallery, device name and language settings will be kept, while other parameters will be restored to the default values.
- **Reset All:** All device parameters will be restored to the default values.

## Update Firmware

The P80 supports firmware update via USB drive. To do that, save the update file in the root directory of the USB drive and then insert the drive into the USB port on the P80.

On the **Advanced** screen, tap **Update** to enter the firmware update screen and the system will automatically detect and read the update file in the USB drive.

Figure 6-6 Firmware update



Select the target update file, tap **Update**, and the system will automatically update the device.

The device will automatically restart during the update.

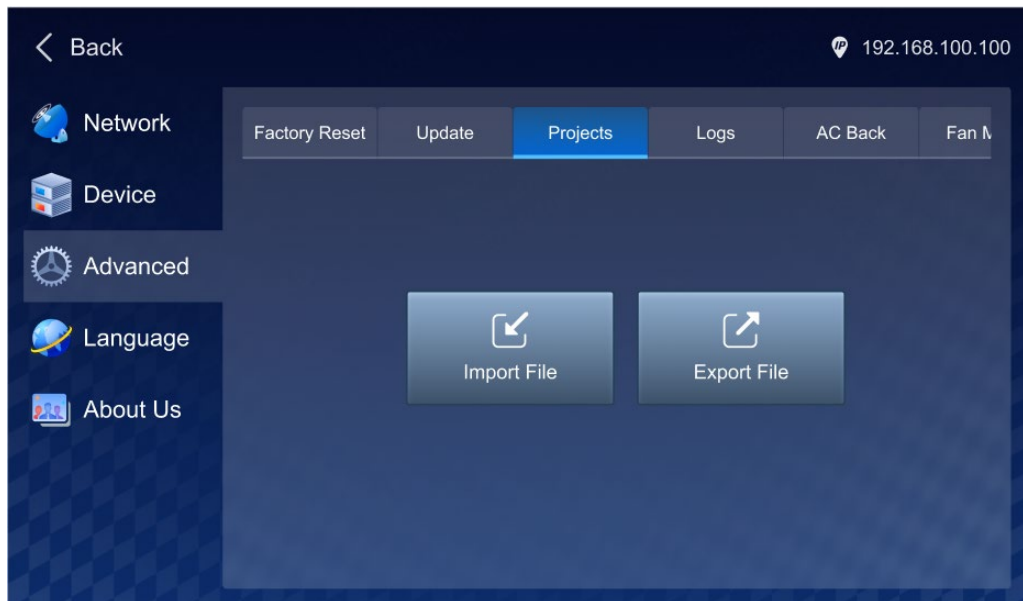
## Import and Export Project Files

The P80 supports import and export of configured project information via USB drive, allowing you to quickly complete device configuration.

- To import project files, save the files in the root directory of the USB drive and then insert the drive into the USB port on the P80.
- To export project files, insert the USB drive that is used to save the files into the USB port on the P80.

On the **Advanced** screen, tap **Projects** to enter the project file import and export screen.

Figure 6-7 Importing and exporting project file



- Import a project files: Tap **Import File**, and the system will automatically read the project files in the USB drive. After selecting the target file, tap **OK**, and the system will automatically import the file to the device. After the import is complete, the device will automatically restart.
- Export a project file: Tap **Export File**, and the system will automatically export the current configured project file to the selected USB drive.

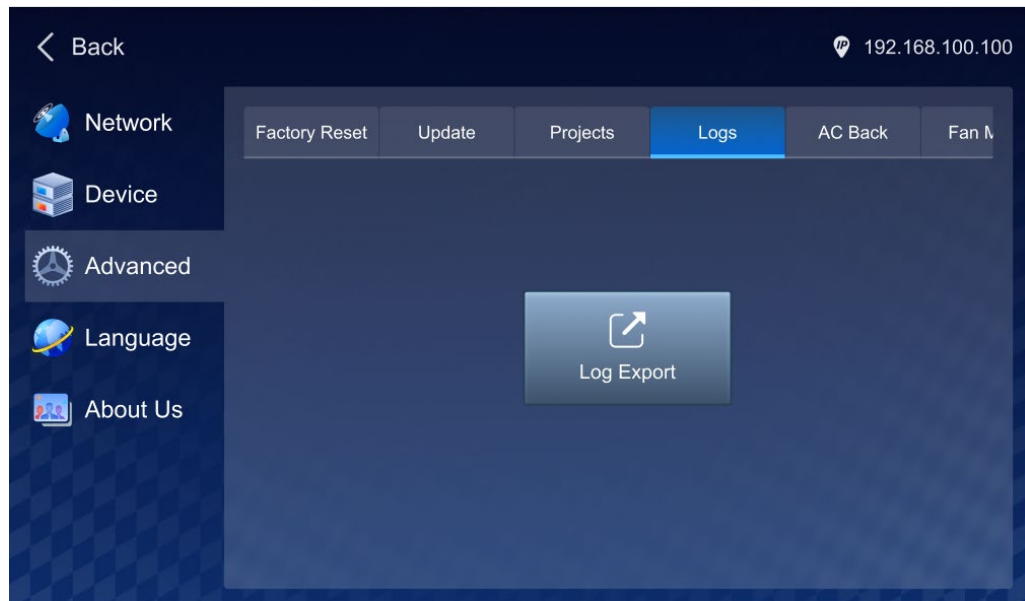
## Export Logs

The P80 supports export of the device running logs via USB drive. When the device has an exception, the logs can be used for quick troubleshooting.

To export logs, insert the USB drive that is used to save the logs into the USB port on the P80.

On the **Advanced** screen, tap **Logs** to enter the log export screen.

Figure 6-8 Exporting logs

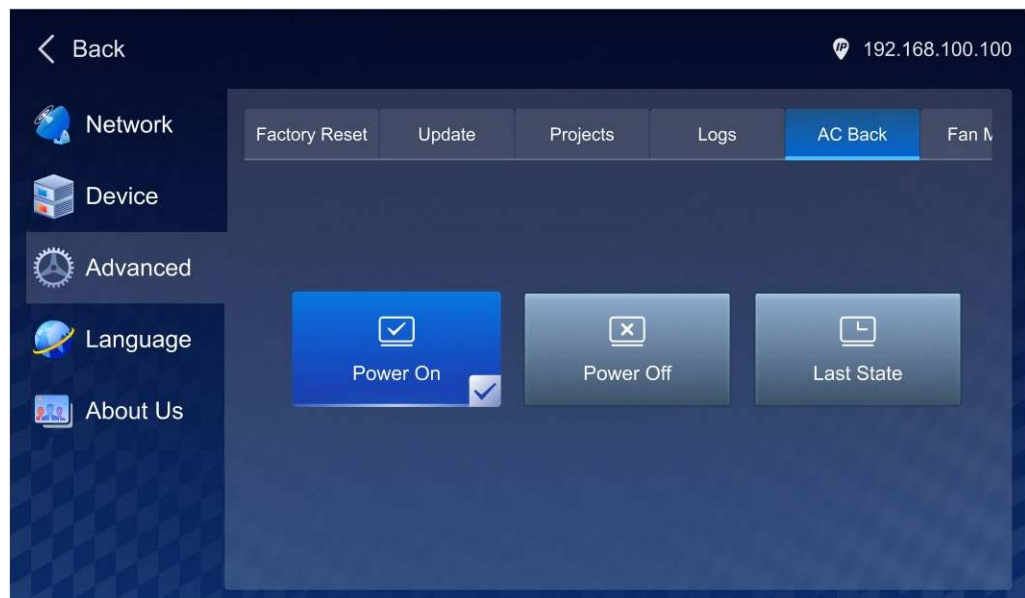


Tap **Log Export** to export the device logs to the selected USB drive.

## Set Device Status After AC Back

Set whether the device automatically powers on after the power is supplied.

Figure 6-9 AC back

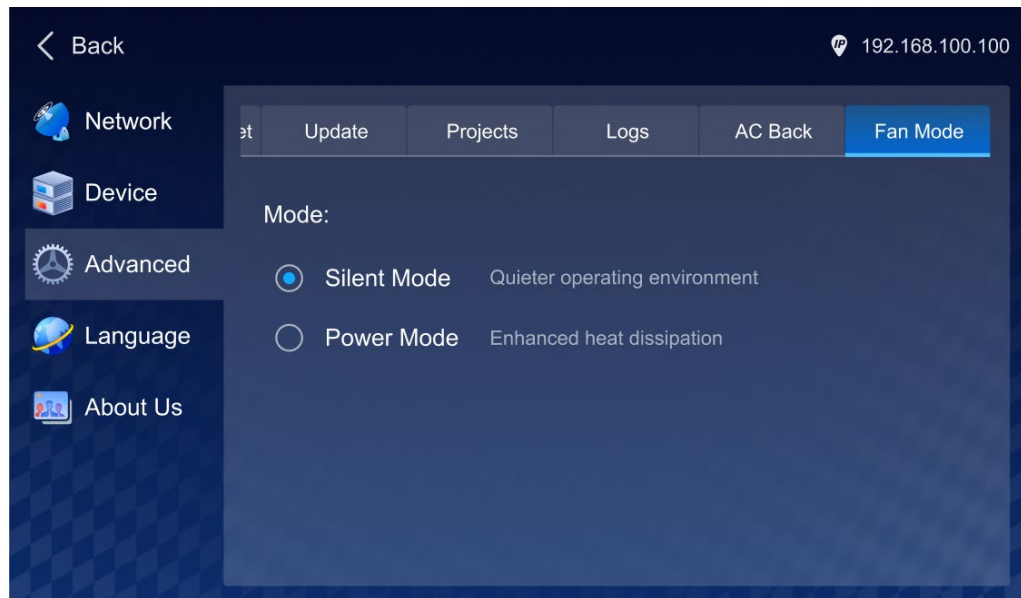


- **Power On:** After the power is supplied, the device automatically powers on.
- **Power Off:** After the power is supplied, the device remains powered off. To power on the device, press the power button on the device front panel.
- **Last State:** After the power is supplied, the device remains in the last state.

## Fan Mode

On the **Fan Mode** screen, select the appropriate mode based on the different operating scenarios of the device.

Figure 6-10 Fan mode



- **Silent Mode:** Achieves a quieter operating environment.
- **Power Mode:** Provides enhanced heat dissipation.

---

### Note

In performance mode, the device noise level may become higher.

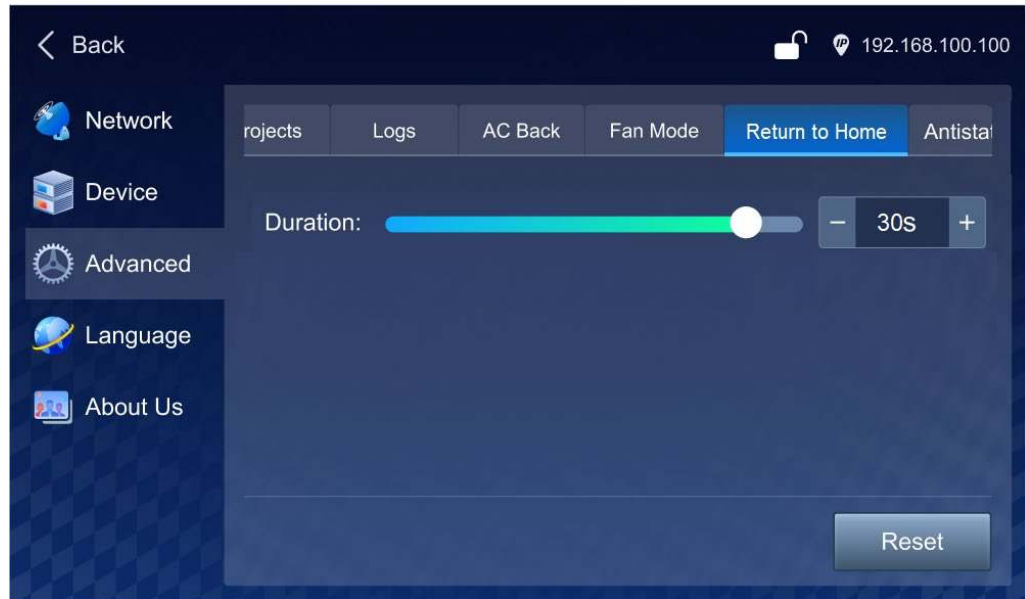
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## Return to Home

The P80 allows users to set to return to the home screen automatically after a specified period of inactivity.

On the **Advanced** screen, tap **Return to Home** to access the settings.

Figure 6-11 Return to home



Drag the slider or tap **-/+** to adjust the duration. The duration ranges from 30s to 3600s and defaults to 30s.

You can tap **Reset** to set the duration to the default value (30s).

---

 **Notes:**

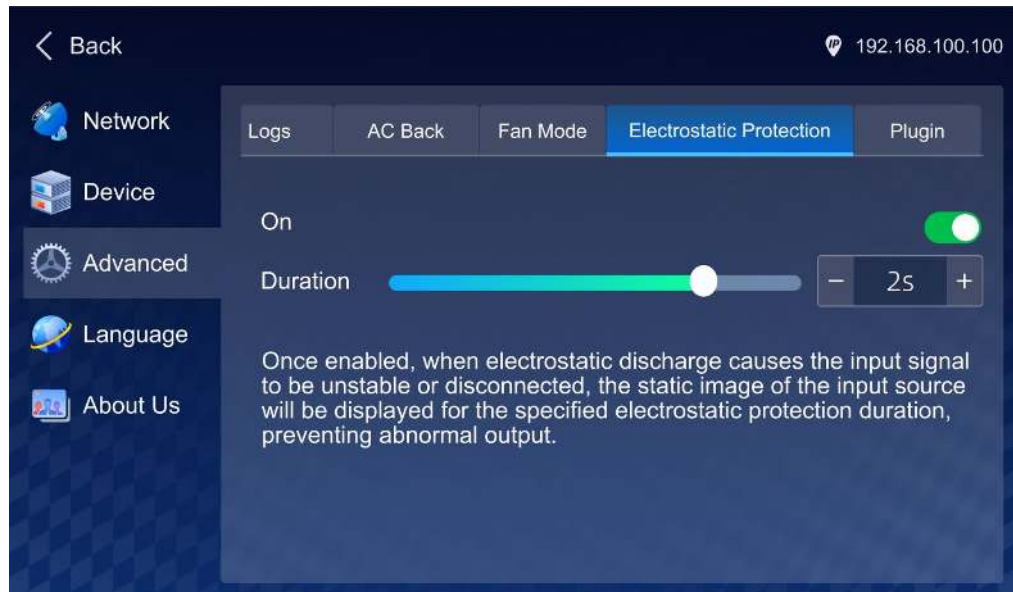
When there is a pop-up window on the LCD, the home screen will not be displayed automatically even if the set time has elapsed.

## Electrostatic Protection

The P80 provides an electrostatic protection feature, effectively preventing issues such as unstable input or frequent input disconnection due to static electricity.

On the **Advanced** screen, tap **Electrostatic Protection** to access the antistatic settings.

Figure 6-12 Electrostatic protection



Choose to turn on or off the antistatic switch (off by default) and set the antistatic duration.

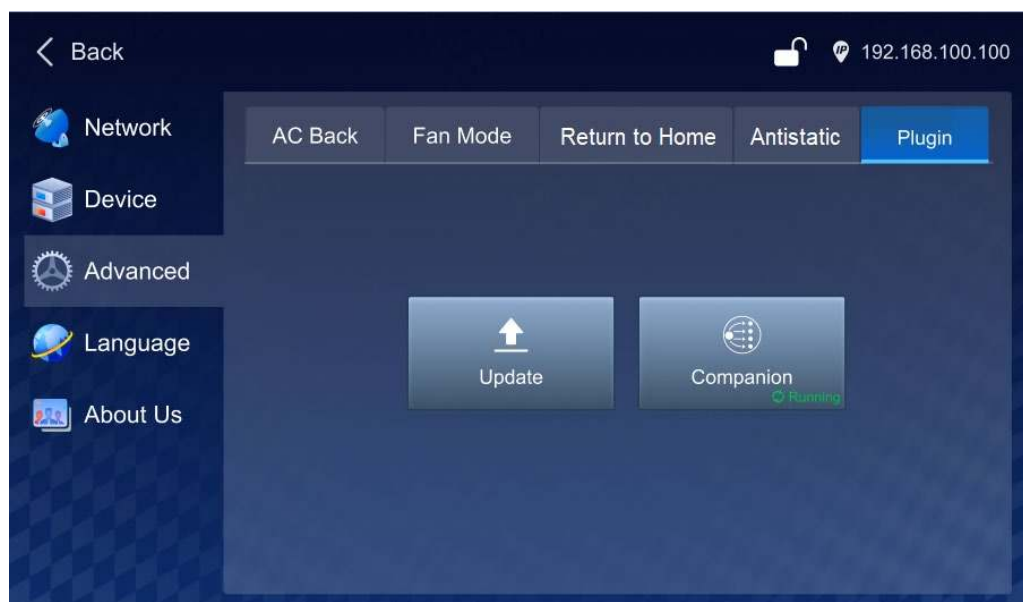
- **On:** If the primary source fails, it will freeze on the last frame before the failure throughout the specified protection duration. The backup source will become active if the failure of the primary source remains beyond this duration.
- **Off:** Upon the failure of the primary source, the backup source will become active immediately.

## Plugin

The P80 can run the Companion plugin, enabling the third-party device Stream Deck to intelligently control the P80 through simple configuration.

On the **Advanced** screen, tap **Plugin** to enter the plugin screen.

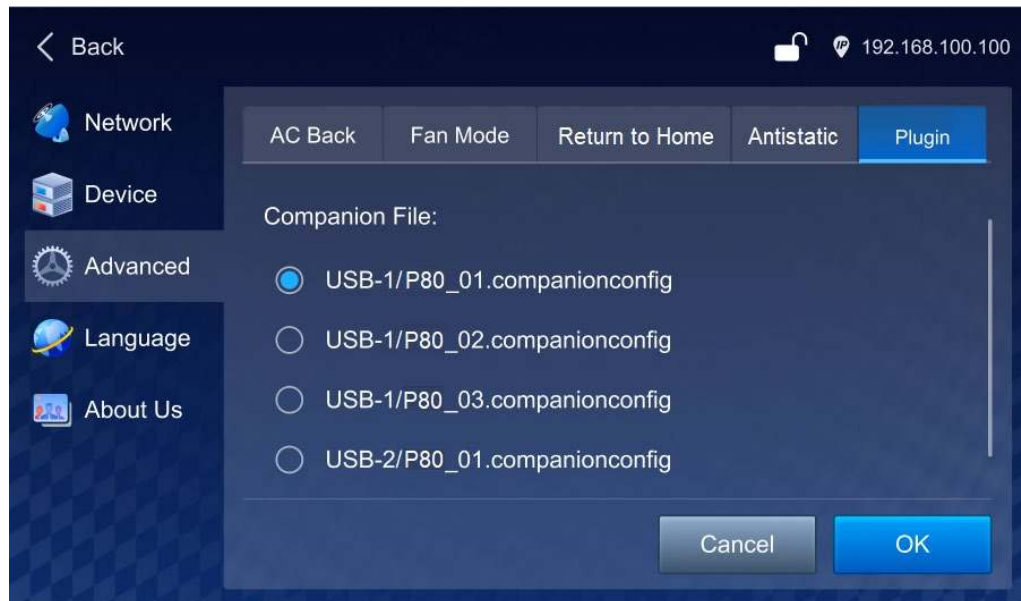
Figure 6-13 Plugin



The P80 supports plugin update via USB drive. To do that, first save the update file in the root directory of the USB drive, and then insert the USB drive into the USB port on the P80.

- Update: Tap **Update**, and the system will automatically read the plugin files from the USB drive. Select the desired plugin file and tap **OK** to proceed with the plugin update.

Figure 6-14 Plugin update

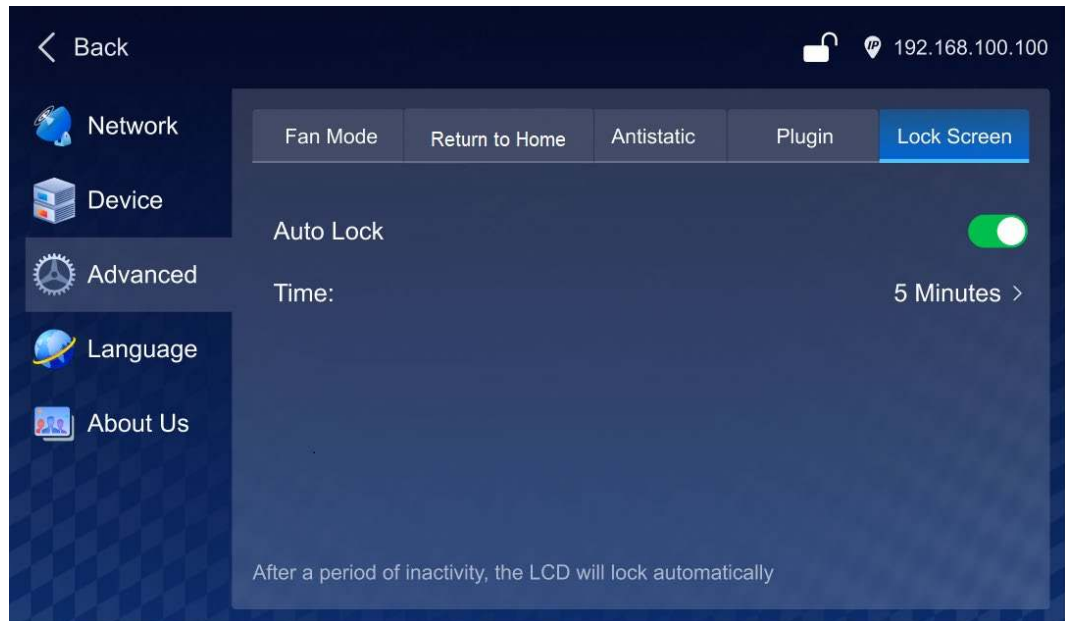


- Companion: Tap the **Companion** icon to launch the Companion plugin. The plugin status will update from **Inactive** to **Running**, indicating that the plugin has been activated.

## Lock Screen

The P80 offers a front panel LCD lock feature, including automatic and scheduled lock modes. Once enabled, it helps prevent accidental operations due to unintended touches, enhancing the device's security and stability.

Figure 6-15 Lock screen




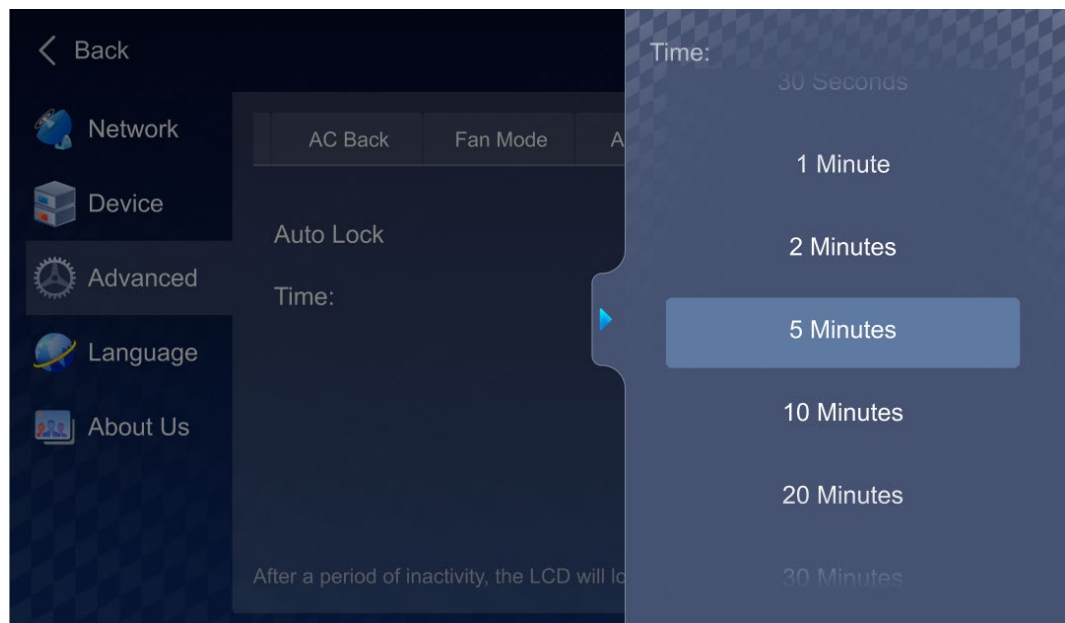
- Manual lock: Tap the  icon in the upper right corner of the home screen to lock the screen.
- Automatic lock: On the **Lock Screen** interface, tap to enable **Auto Lock**, and set the lock screen time.

Figure 6-16 Auto lock



 **Notes:**

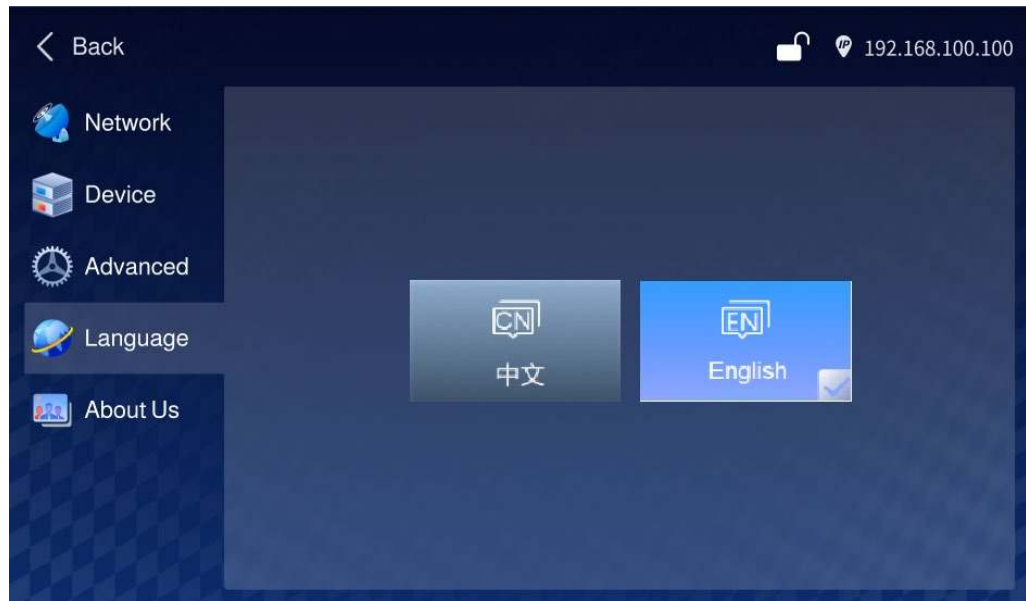
When performing an automatic lock, ensure all interface pop-ups are closed; otherwise, the screen will not lock automatically even if the set time has elapsed.

- **Unlock:** Tap the screen on the home screen, and when the slide button appears, swipe up to unlock.

## 6.1.6 Language

The P80 supports both Chinese and English UI languages. You can choose your preferred language on the **Language** screen.

Figure 6-17 Language

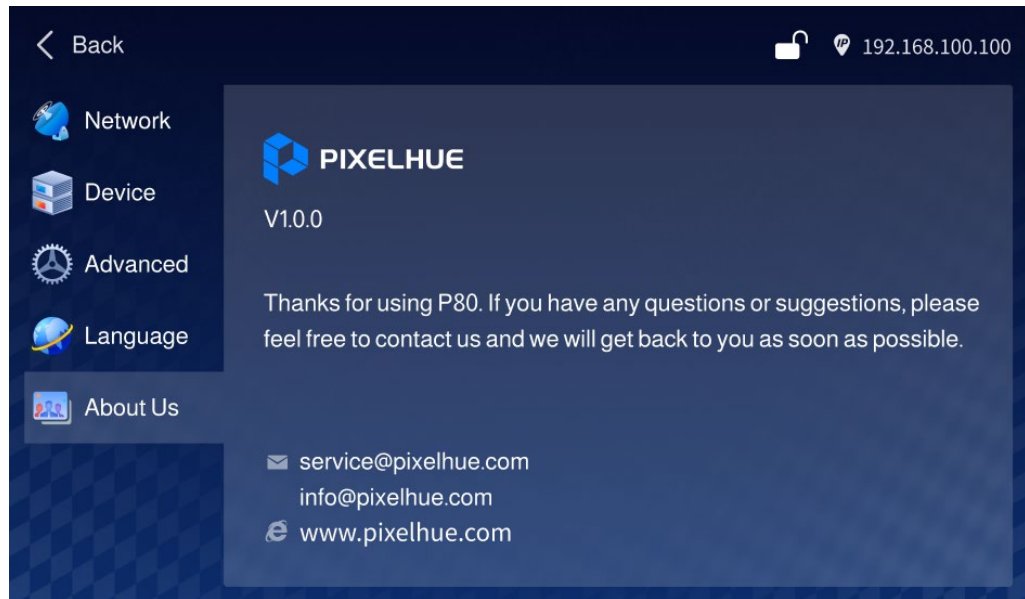


After a language is selected, ✓ appears at the bottom right.

## 6.1.7 About Us

On the **About Us** screen, you can check the device firmware version and the contact information of PIXELHUE.

Figure 6-18 About us



## 6.2 P20/P20-DS/P10 Menu Operations

The 5-inch LCD and a variety of buttons on the front panel of the P20/P20-DS/P10 allow for pretty darn simple operations. The following sections will introduce the operations in detail.

### 6.2.1 Startup and Shutdown

Connect all the necessary cables and power cords properly, locate and turn on the rocker switch on the rear panel. The startup screen appears, as shown in [Figure 6-19](#). The P20/P20-DS/P10 front panel provides a 5-inch LCD screen allowing for more intuitive operations.

Figure 6-19 Startup screen



To turn off the P20/P20-DS/P10, press the power button on the front panel and select **OK** from the dialog box displayed on the LCD screen.





## 6.2.2 Home Screen





After the startup, the home screen is displayed. The following descriptions use the P20/P20-DS home screen as an example, as show in [Figure 6-20](#) and [Table 6-2](#).

Figure 6-20 Home screen (P20)



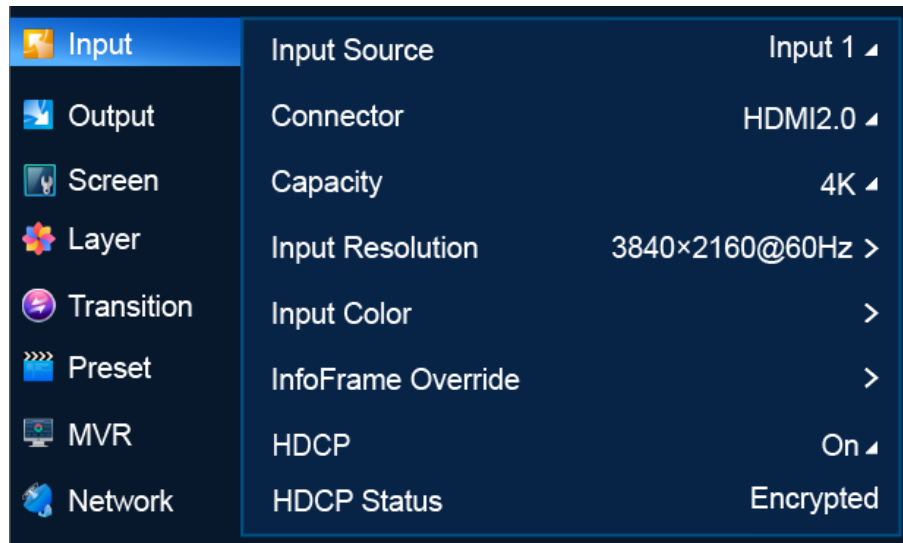
Table 6-2 Home screen description

No.	Description	
1	Displays the device information.	
		Logo of PIXELHUE
	P20	Device model
	SYSTEM	Device name
		<p>Front panel lock</p> <ul style="list-style-type: none"> <li>When this icon is displayed, the front panel buttons are locked.</li> <li>When this icon is not displayed, the front panel buttons are unlocked.</li> </ul> <p>Press and hold the knob and <b>BACK</b> button simultaneously for 3s or longer to lock or unlock the front panel buttons.</p>
	192.168.100.100	<p>Device IP address</p> <p>For details, see <a href="#">6.2.10 Network</a>.</p>
	<p>Connection status of the Ethernet port on the rear panel</p> <ul style="list-style-type: none"> <li>: An Ethernet cable is connected.</li> </ul>	

No.	Description	
		<ul style="list-style-type: none"> <li>: No Ethernet cable is connected.</li> </ul>
		Connection status of the USB drive on the front panel <ul style="list-style-type: none"> <li>: A USB drive is inserted.</li> <li>: No USB drive is inserted.</li> </ul>
2	SCREEN 1	Displays the information of common and AUX screens. When there are multiple screens, you can rotate the knob to switch between the screens. <ul style="list-style-type: none"> <li>When Test Pattern, FTB or Freeze is turned on, <b>Test Pattern FTB</b> or <b>FRZ</b> is displayed at the top of this section.</li> <li>The screen resolution is displayed on the right of this section.</li> <li>The layer resource usage is displayed at the bottom of this section.</li> </ul> Layer source status: <ul style="list-style-type: none"> <li>When an input source name is displayed, it indicates that the source is selected. When the source name is in green, the source is normal. When the source name is in gray, it indicates no signal. <b>M</b> denotes that it is a MAIN layer.</li> <li>When <b>N/A</b> is displayed, no input source is selected and the layer is blank.</li> </ul>
3	GENLOCK	Signal synchronization status For details, see <a href="#">6.2.11.1 Set Synchronization Signal Source</a> .
	BACKUP	Device backup on/off
	MODE	Working mode of the device <ul style="list-style-type: none"> <li>Switcher</li> <li>PGM Only</li> </ul> For details, see <a href="#">6.2.12 Mode</a> .
	EFFECTS	Transition effect <ul style="list-style-type: none"> <li>Cut</li> <li>Fade</li> </ul> For details, see <a href="#">6.2.7 Transition</a> .
4	OUTPUT	Displays the output connector statuses. <ul style="list-style-type: none"> <li>When an output connector icon is in green, an output device is connected.</li> <li>When an output connector icon is in blue, no output device is connected.</li> <li>When the border of an output connector icon is in orange, the connector is used for copying output.</li> </ul>

On the home screen, press the knob to access the main menu screen and complete relevant settings. The following sections will describe menu operations in detail.

Figure 6-21 Main menu (P20)



## 6.2.3 Input

The **Input** menu allows you to do the following:

- Select Connector Type
- Select Connector Capacity
- Set EDID
- Set Mac EDID Compatibility and Mosaic
- Import and Export EDID
- Set Input Color
- Set InfoFrame Override
- Set HDCP
- View HDCP Status

### 6.2.3.1 Select Connector Type

Select the desired input connector to use it as the input source.

#### Prerequisites

- For a DP 1.2/HDMI 2.0 input, only one connector can be selected as the input source at the same time.
- Connector type selection is not available for the 12G-SDI connectors.

#### Notes:

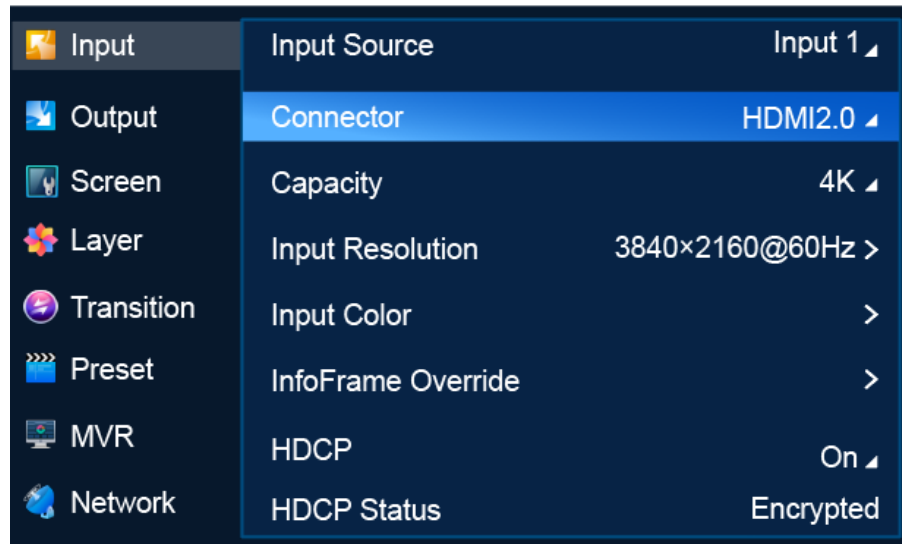
After the input connector is changed:

- The layers on the common screen and AUX screen become blank.
- The connector properties such as the resolution and color settings are reset to the defaults.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Connector**.

Figure 6-22 Input connector selection (P20)



## Description

Menu Item	Description
Input Source	Select an input source. <ul style="list-style-type: none"> <li>P20/P20-DS Includes 12x input sources. Inputs 1 to 8 contain 8x DP 1.2/HDMI 2.0 and Inputs 9 to 12 contain 4x 12G-SDI.</li> <li>P10 Includes 6x input sources. Inputs 1 to 4 contain 4x DP 1.2/HDMI 2.0 and Inputs 5 to 6 contain 2x 12G-SDI.</li> </ul>
Connector	Select the type of the input connector. Either DP 1.2 or HDMI 2.0 can be selected.

### 6.2.3.2 Select Connector Capacity

Select a connector capacity so that the device can calculate the number of layers that can be added on the common screen according to the selected connector capacity.

## Prerequisites

An input source and connector type are selected. Connector type selection is not available for 12G-SDI.

## Notes

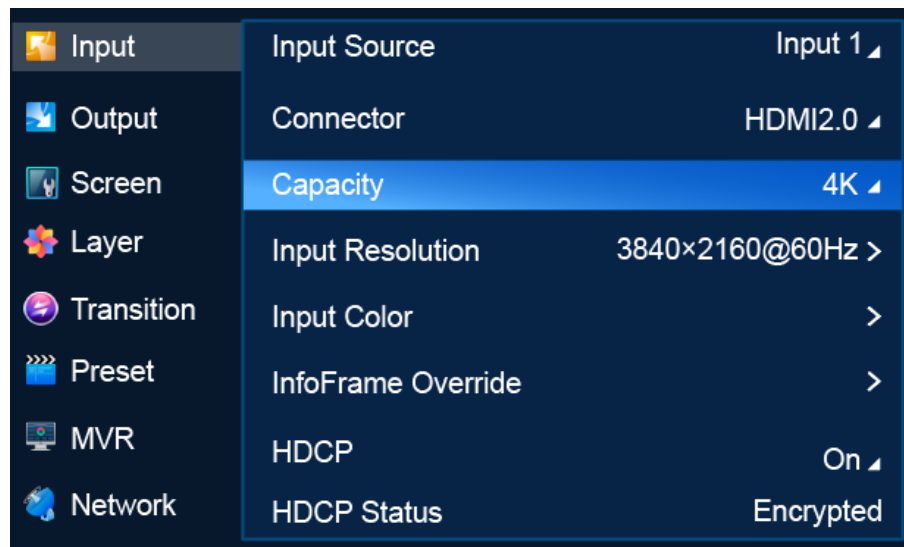
After the connector capacity is changed:

- The layers on the common screen become blank and the DSK function is turned off.
- The connector properties such as the resolution and color settings are reset to the defaults.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Capacity**.

Figure 6-23 Connector capacity selection (P20)



## Description

Menu Item	Description
Capacity	Resource usage of the input connector <ul style="list-style-type: none"> <li>• DL: 4Kx1K</li> <li>• 4K: 4Kx2K</li> </ul>

### 6.2.3.3 Set EDID

Set input resolution and frame rate. You can either choose a standard resolution provided by the system or customize a resolution, and set advanced parameters.

## Prerequisites

- The video source is output by graphics card.
- An input source and connector type (DP 1.2/HDMI 2.0) are selected. EDID settings are not available for the 12G-SDI connectors.

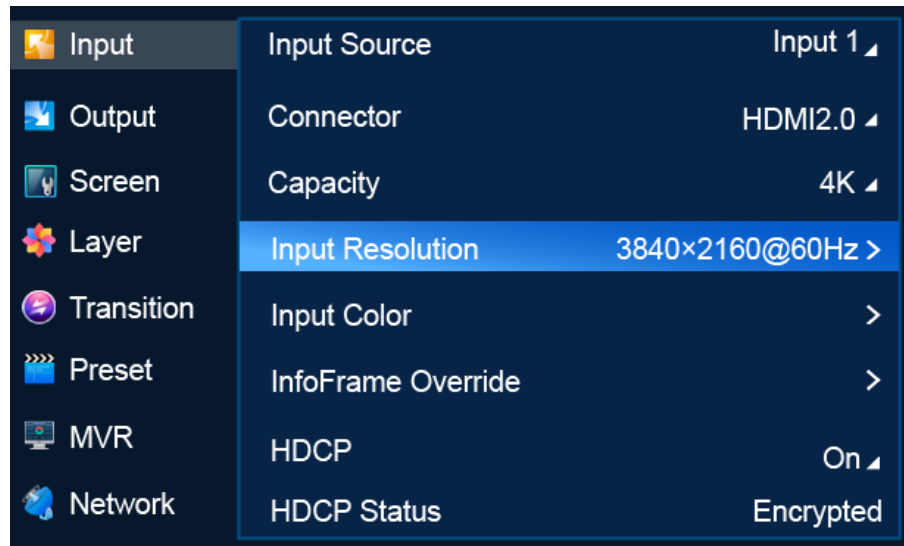
## Notes

Advanced settings must be done by trained professionals.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Input Resolution**.

Figure 6-24 Input resolution settings (P20)



## Description

Menu Item	Submenu Item	Description
Current Resolution	-	Current input resolution: Pixel width and height of the input source
Standard	Resolution	Commonly used resolution
	Frame Rate	Commonly used frame rate Frames per second (Hz)
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Custom	Width	Pixel width of the input source
	Height	Pixel height of the input source
	Frame Rate	Frames per second (Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank (P20-DS only)	Horizontal blanking parameter to complete the current line scan and prepare for the next one. <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced</b></li> </ul>

Menu Item	Submenu Item	Description
		<p><b>Blanking</b>, HBlank is displayed but cannot be adjusted.</p> <ul style="list-style-type: none"> <li>When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Advanced	Frame Rate	Frames per second (Hz)
	H Total	The total number of pixels per line
	Width	Pixel width of the active area
	H Front Porch	The offset between the end of the active area and the beginning of H sync
	H Sync	H sync width in pixels
	H Polarity	Polarity (active high or low) of the horizontal sync pulse
	V Total	The total number of pixels per frame
	Height	Pixel height of the active area
	V Front Porch	The offset in lines between the end of the output active area and the beginning of V sync
	V Sync	V sync width in lines
	V Polarity	Polarity (active high or low) of the vertical sync pulse
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.

After the settings are completed, select **Apply** for the settings to take effect.

#### 6.2.3.4 Set Mac EDID Compatibility and Mosaic

Turn on **Mac EDID Compatibility** when the P20/P20-DS/P10 is not compatible with the EDID on Mac. When a Mac is used as the input source, set Mac mosaic to enable automatic image mosaic.

#### Notes

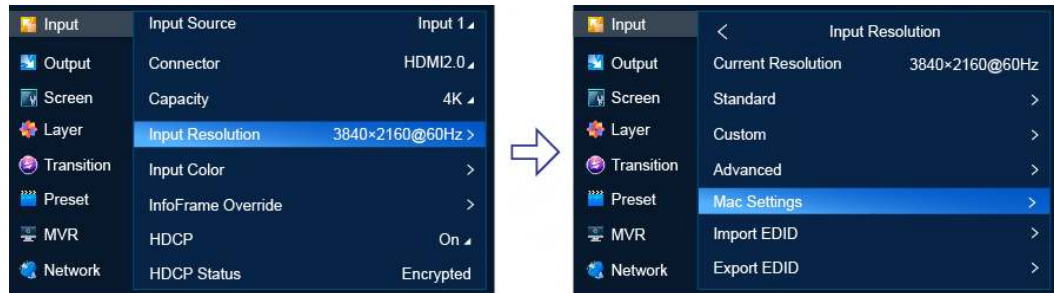
- Ensure the connector timing is the same as the input source before enabling Mac mosaic.

- A mosaic group can be used by up to two input sources.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Mac Settings**.

Figure 6-25 Mac settings (P20)



## Description

Menu Item	Description
Mac EDID Compatibility	Set EDID compatibility with Mac. <ul style="list-style-type: none"> <li>• <input checked="" type="checkbox"/>: Compatible with EDID on Mac</li> <li>• <input type="checkbox"/>: Off</li> </ul>
Mac Mosaic	Set Mac mosaic method, including <b>None</b> , <b>Left</b> , and <b>Right</b> .
Mosaic Group	Set Mac mosaic group (1~16). When the mosaic method is set to <b>None</b> , <b>Mosaic Group</b> is unavailable.

### 6.2.3.5 Import and Export EDID

When there is something wrong with the input connector compatibility, import EDID files without compatibility problems into the device. Or export EDID files from the device and provide the files for other devices or input connectors to solve compatibility problems.

## Prerequisites

- Before importing an EDID file, copy the file (.bin and .dat) to the root directory of a USB drive and insert the USB drive into the USB port on the front panel of the P20/P20-DS/P10.
- Before exporting an EDID file, insert a USB drive into the front panel of the P20/P20-DS/P10.
- An input source and connector type are selected. EDID import and export are not available for 12G-SDI.

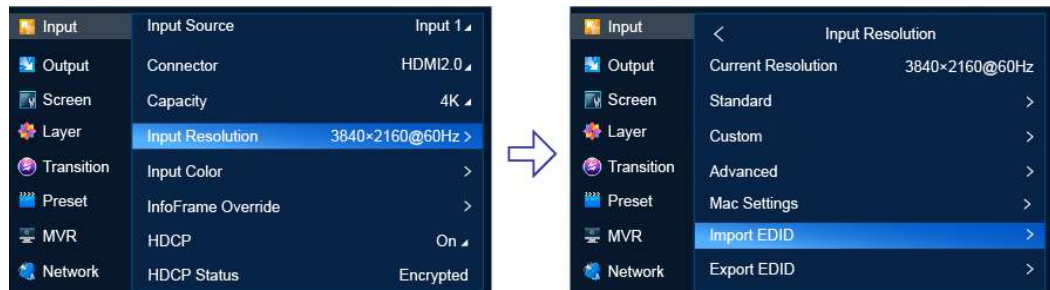
## Notes

- The USB port on the P20/P20-DS/P10 front panel does not support USB HUB.
- Only one EDID file can be imported for an input connector and the file must be less than 1 MB.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Input Resolution > Import EDID/Export EDID**.

Figure 6-26 EDID import/export (P20)



## Description

- Import EDID
  - a. Scroll to and select **Import EDID** to access the EDID file screen.
  - b. Select the file to be imported.
  - c. In the dialog box that appears, select **OK**.
- Export EDID
  - a. Scroll to and select **Export EDID** to access the submenu.
  - b. From the drop-down options, select a file format (.bin or .dat).
  - c. Select **Apply**.

### Note:

If you want to modify the content of an imported EDID file, modify the file, import it again and overwrite the original one.

## 6.2.3.6 Set Input Color

Set the color parameters of an input connector so that the color effect can be applied to all the video sources accessed from this connector.

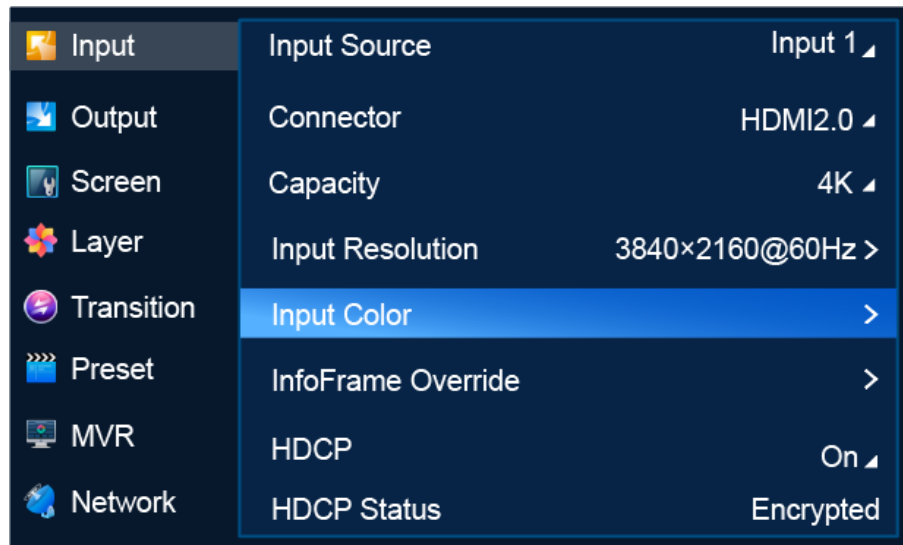
## Prerequisites

An input source and connector type are selected. Input color settings are not available for the 12G-SDI connectors.

## Menu Orientation

On the main menu screen, scroll to and select **Input > Input Color**.

Figure 6-27 Input color settings (P20)



## Description

Menu Item	Description
Brightness	Brightness is the shading of lights in the image. When the brightness increases, viewers will be dazzled. When the brightness decreases, the image becomes dark.
Contrast	Contrast is the ratio of the luminance of the brightest color to that of the darkest color. Generally, the higher the contrast, the clearer and more colorful the image. On the contrary, the entire image becomes gloomy. Contrast affects the exposure level of the entire image. It makes the bright part brighter and the dark part darker.
Saturation	Saturation is the colorfulness of the image. The higher the contrast, the more vivid the image.
Hue	Hue is the relative degree of how bright or dark the image is.

If you want to reset the parameters to their default values, select **Apply**.

### 6.2.3.7 Set InfoFrame Override

Set the override parameters of the input source. The parameters can be used by the device for calculation. This operation does not change the original parameter values of the input source.

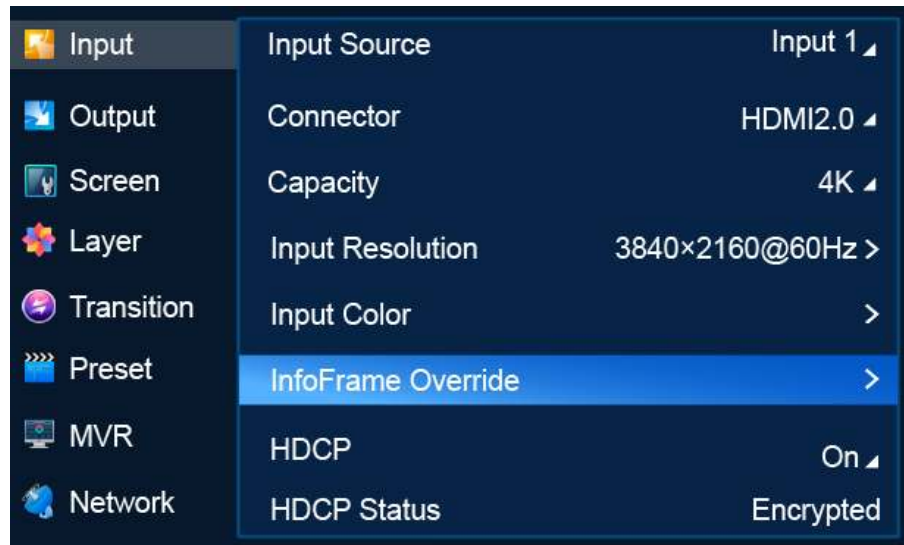
#### Prerequisites

- An input source and connector type (DP 1.2/HDMI 2.0) are selected. InfoFrame override settings are not available for the 12G-SDI connectors.
- To set dynamic range conversion, make sure the device is P20/P20-DS, the connector is HDMI 2.0.

#### Menu Orientation

On the main menu screen, scroll to and select **Input > InfoFrame Override**.

Figure 6-28 InfoFrame override (P20)



## Description

Menu Item	Description
Color/Sample	Set the input color space and sampling rate
Bit Depth	Set the input bit depth Bit depth refers to the color information stored in an image. The higher the bit depth of an image, the more colors it can store.
Quantization Range	Set the input quantization range
Dynamic Range	Set the dynamic range format of the signal.
Color Gamut	Set the input color gamut standard
Luminance	Peak luminance. This menu item is displayed when <b>Dynamic Range</b> is <b>HDR10</b> or <b>HLG</b> .
Ambient Brightness	Ambient brightness. This menu item is displayed when <b>Dynamic Range</b> is <b>HDR10</b> or <b>HLG</b> .

When you set a parameter value to **AUTO**, the device will get the actual value from the properties of the input source automatically.

### 6.2.3.8 Set HDCP

HDCP (High-Bandwidth Digital Content Protection) is a coding scheme used to protect audio and video signals traveling through DVI, HDMI, and DP from being copied and illegally intercepted during a streaming session. Users can turn on/off HDCP for input connectors. HDCP is turned on by default.

## Prerequisites

An input source and connector type are selected.

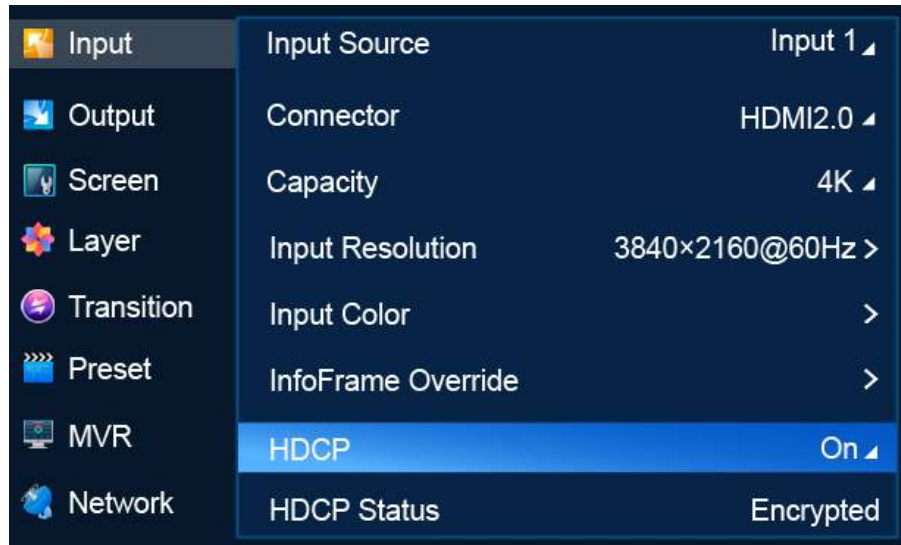
## Note

SDI does not support HDCP. If 12G-SDI is selected as the input source, the HDCP function will be unavailable.

## Menu Orientation

On the main menu screen, scroll to and select **Input > HDCP**.

Figure 6-29 HDCP (P20)



## Description

Select **On** or **Off** to turn on or off HDCP function for the input source.

### 6.2.3.9 View HDCP Status

View the HDCP status of the selected video source.

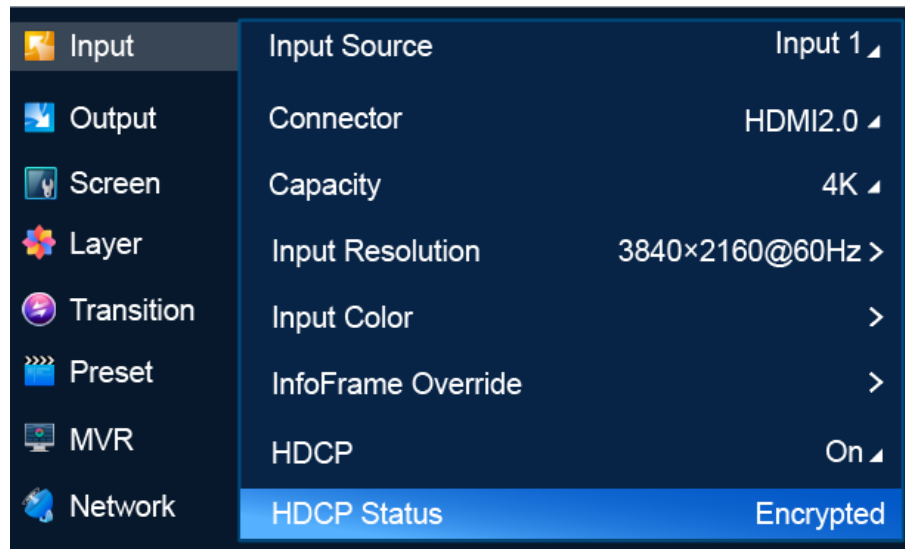
## Prerequisites

An input source and connector type are selected. This is not available for 12G-SDI.

## Menu Orientation

On the main menu screen, scroll to and select **Input > HDCP Status**.

Figure 6-30 HDCP status (P20)



## Description

Menu Item	Description
HDCP Status	HDCP status of the selected video source <ul style="list-style-type: none"> <li>• Encrypted: The video source is encrypted by HDCP.</li> <li>• Not Encrypted: The video source is not encrypted by HDCP.</li> <li>• Unknown: The HDCP encryption status is not obtained.</li> </ul>

## 6.2.4 Output

The **Output** menu allows you to do the following:

- Select Output Capacity
- Set Output Resolution
- Export EDID
- Set Output Color
- Set Output Information
- Set HDCP

### 6.2.4.1 Select Output Capacity

Set the output capacity of the common screen.

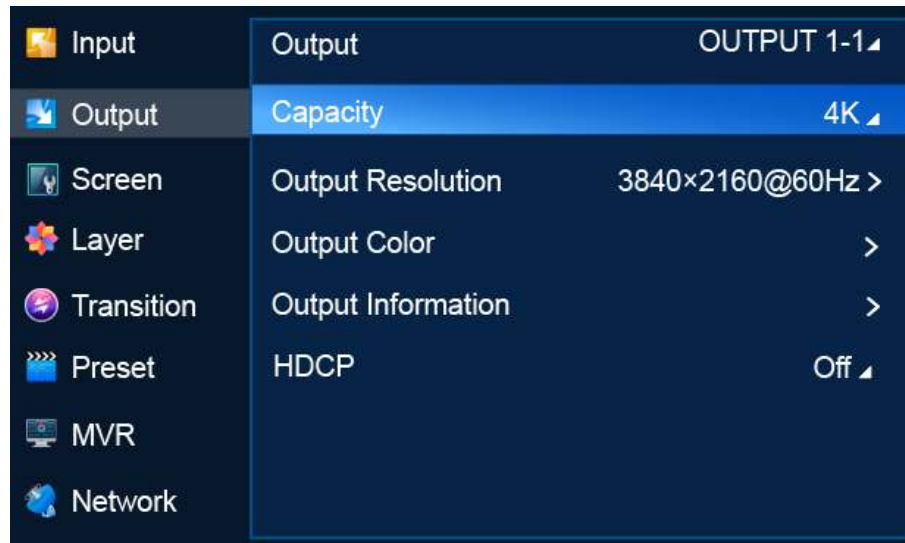
#### Prerequisites

An output is selected. Output capacity selection is not available for AUX outputs.

#### Menu Orientation

On the main menu screen, scroll to and select **Output > Output Capacity**.

Figure 6-31 Output capacity (P20)



Description

Menu Item	Description
Output	Select an output for settings. <ul style="list-style-type: none"> <li>• OUTPUT: Primary output</li> <li>• AUX: AUX output</li> </ul>
Output Capacity	Select the output capacity of the common screen. <ul style="list-style-type: none"> <li>• P20/P20-DS                             <ul style="list-style-type: none"> <li>- DL: 4Kx1K</li> <li>- 4K: 4Kx2K</li> </ul> </li> <li>• P10                             <ul style="list-style-type: none"> <li>- SL: 2Kx1K</li> <li>- 4K: 4Kx2K</li> </ul> </li> </ul>

6.2.4.2 Set Output Resolution

Set the resolution and frame rate of the common screen. You can select a standard resolution provided by the system or customize a resolution, and complete advanced settings.

Prerequisites

- The EDID information of the connected device is obtained.
- An output connector is selected.

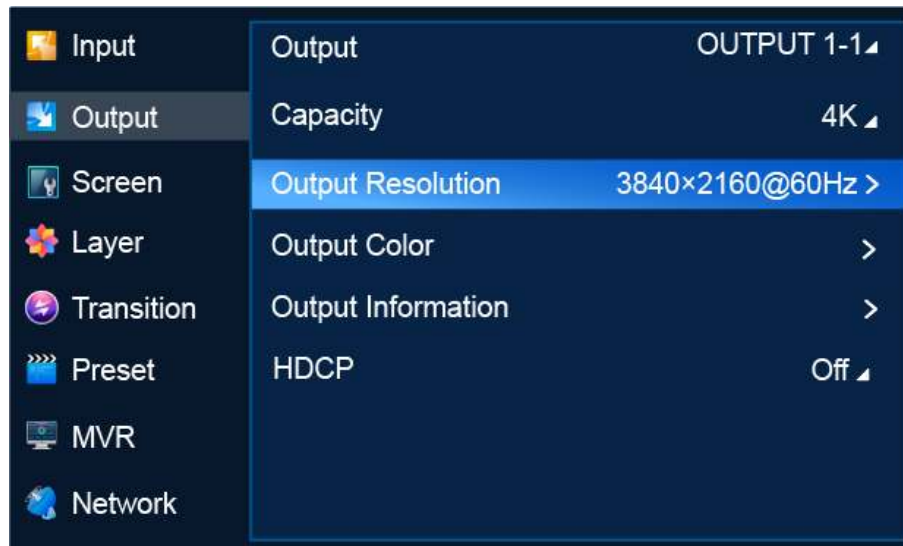
Note

- Advanced settings must be done by trained professionals.
- After the output resolution is changed, the AOI parameters related to the connector are reset to defaults.

## Menu Orientation

On the main menu screen, scroll to and select **Output > Output Resolution**.

Figure 6-32 Output resolution settings (P20)



## Description

Menu Item	Submenu Item	Description
Current Resolution	-	Current resolution: Pixel width and height of the output image
Standard	Resolution	Commonly used resolution
	Frame Rate	Commonly used frame rate, Frames per second (Hz)
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Custom	Width	Pixel width of the output image
	Height	Pixel height of the output image
	Frame Rate	Frames per second (Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank (P20-DS only)	Horizontal blanking parameter to complete the current line scan and prepare for the next one. <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced Blanking</b>, HBlank is displayed but cannot</li> </ul>

Menu Item	Submenu Item	Description
		be adjusted. <ul style="list-style-type: none"> <li>• When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>• When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>• When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Advanced	Frame Rate	Frames per second (Hz)
	H Total	The total number of pixels per line
	Width	Pixel width of the active area
	H Front Porch	The offset between the end of the active area and the beginning of H sync
	H Sync	H sync width in pixels
	H Polarity	Polarity (active high or low) of the horizontal sync pulse
	V Total	The total number of pixels per frame
	Height	Pixel height of the active area
	V Front Porch	The offset in lines between the end of the output active area and the beginning of V sync
	V Sync	V sync width in lines
	V Polarity	Polarity (active high or low) of the vertical sync pulse
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.

After the settings are completed, select **Apply** for the settings to take effect.

### 6.2.4.3 Export EDID

When the input connectors of the connected device has good EDID compatibility, the P20/P20-DS/P10 can learn the EDID of the connected device via the output connectors and the EDID information can be exported to a USB drive so that other input connectors of the connected device can use the EDID information.

### Prerequisites

- A USB drive is inserted into the USB port on the front panel of the P20/P20-DS/P10.

- The output connectors and the connected device are connected correctly.
- An output is selected.

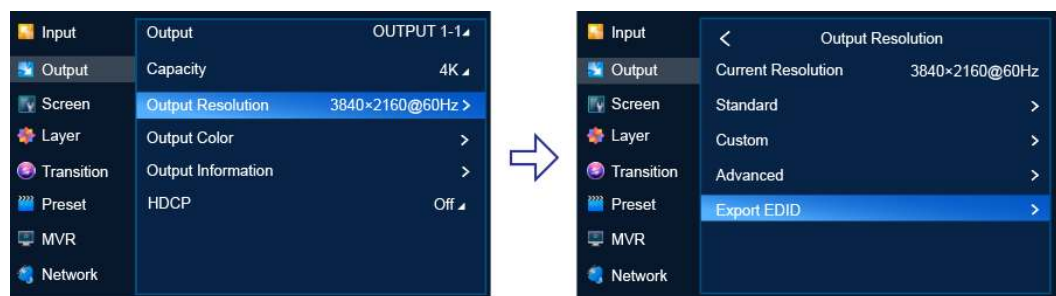
## Note

The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.

## Menu Orientation

On the main menu screen, scroll to and select **Output > Output Resolution > Export EDID**.

Figure 6-33 Exporting EDID (P20)



## Description

Select **Export EDID** to access the submenu, then select a file format (.bin or .dat) and output connector, and select **Apply** to export the EDID information to the root directory of the USB drive.

### 6.2.4.4 Set Output Color

Set output color parameters. The final output color is the combination of layer color, input color and output color.

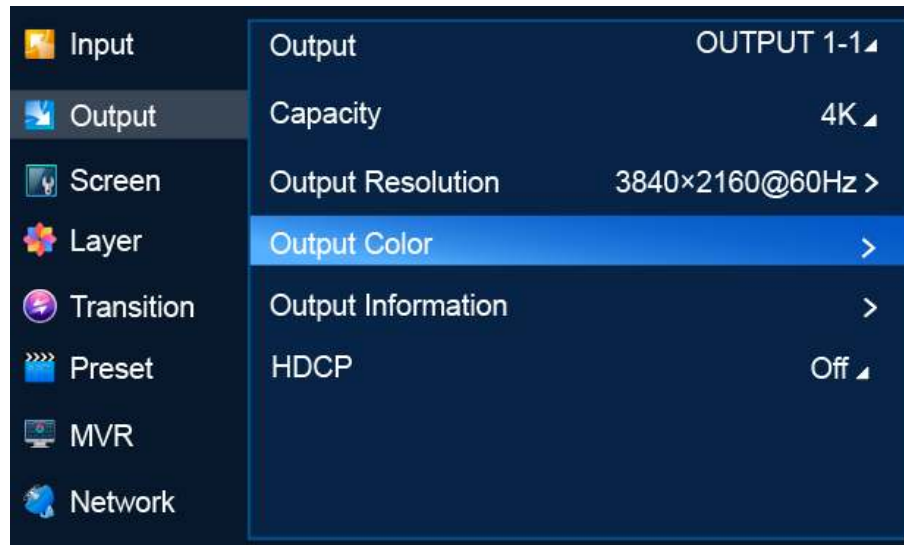
## Prerequisites

An output is selected.

## Menu Orientation

On the main menu screen, scroll to and select **Output > Output Color**.

Figure 6-34 Output color settings (P20)



## Description

Menu Item	Description
Brightness	Brightness is the shading of lights in the image. When the brightness increases, viewers will be dazzled. When the brightness decreases, the image becomes dark.
Contrast	Contrast is the ratio of the luminance of the brightest color to that of the darkest color. Generally, the higher the contrast, the clearer and more colorful the image. On the contrary, the entire image becomes gloomy. Contrast affects the exposure level of the entire image. It makes the bright part brighter and the dark part darker.
Saturation	Saturation is the colorfulness of the image. The higher the contrast, the more vivid the image.
Hue	Hue is the relative degree of how bright or dark the image is.

### 6.2.4.5 Set Output Information

Set the parameters relating to the output signal.

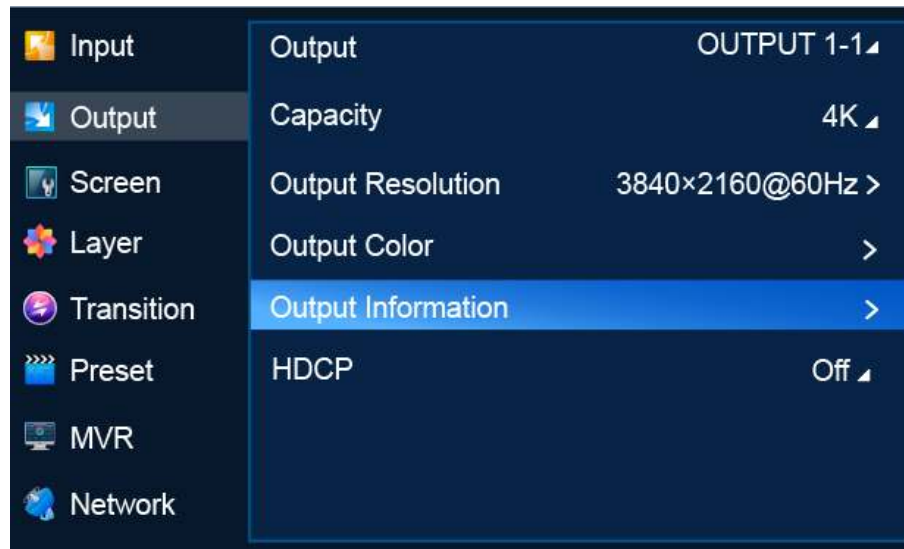
#### Prerequisites

- An output is selected.
- To set dynamic range conversion, make sure the device is P20/P20-DS and a primary output is selected.
- To configure the OPT port transmission mode, simultaneously press **LAYER 1+LAYER 5+BACK** to enter developer mode. To exit developer mode, press **LAYER 1+LAYER 4+BACK**.

#### Menu Orientation

On the main menu screen, scroll to and select **Output > Output Information**.

Figure 6-35 Output information (P20)



### Description

Menu Item	Description
Color/Sample	Set output color space and sampling rate.
Bit Depth	Set output bit depth. Bit depth refers to the color information stored in an image. The higher the bit depth of an image, the more colors it can store.
Dynamic Range	Set the dynamic range format of the signal.
Gamma	Set gamma value. This menu item is displayed only when <b>Dynamic Range</b> is <b>SDR</b> .
Color Gamut	Set output color gamut standard.
Luminance	Peak luminance. This menu item is displayed when <b>Dynamic Range</b> is <b>HDR10</b> or <b>HLG</b> .
OPT 1 to 4	Set OPT port transmission mode, including <b>Default</b> , <b>Single Mode</b> , and <b>Multimode</b> .

#### 6.2.4.6 Set HDCP

HDCP (High-Bandwidth Digital Content Protection) is a coding scheme used to protect audio and video signals traveling through DVI, HDMI, and DP from being copied and illegally intercepted during a streaming session. Users can select an HDCP version for the output connector or turn off the HDCP function. HDCP is turned on by default.

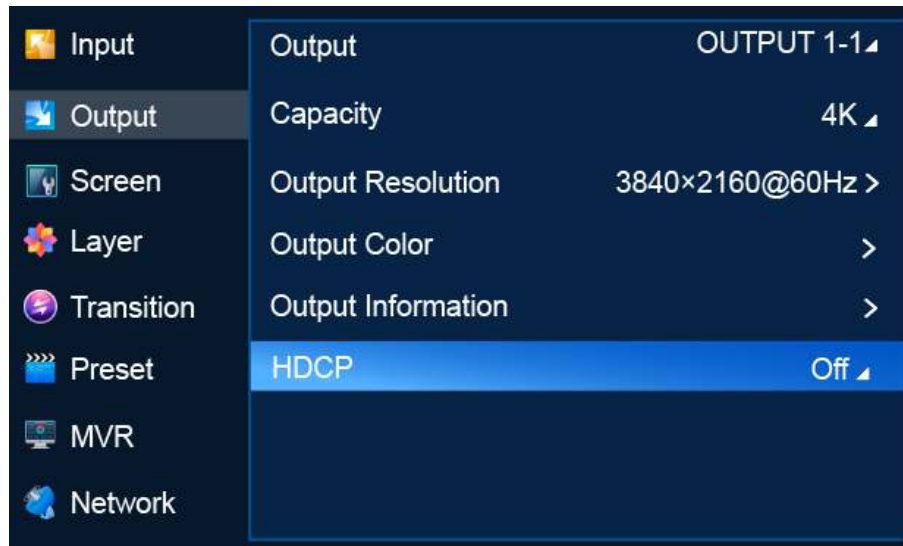
#### Prerequisites

An output is selected.

## Menu Orientation

On the main menu screen, scroll to and select **Output > HDCP**.

Figure 6-36 HDCP (P20)



## Description

Select an HDCP version, or select **Off** to turn off HDCP.

## 6.2.5 Screen

The **Screen** menu allows you to do the following:

- Set Screen Status
- Set Connector Resolution
- Set Mosaic
- Set Edge Blending
- Set Screen Color
- Set Output Information
- Set PGM Edit
- Set Display Status

### 6.2.5.1 Set Screen Status

Enable or disable the screen.

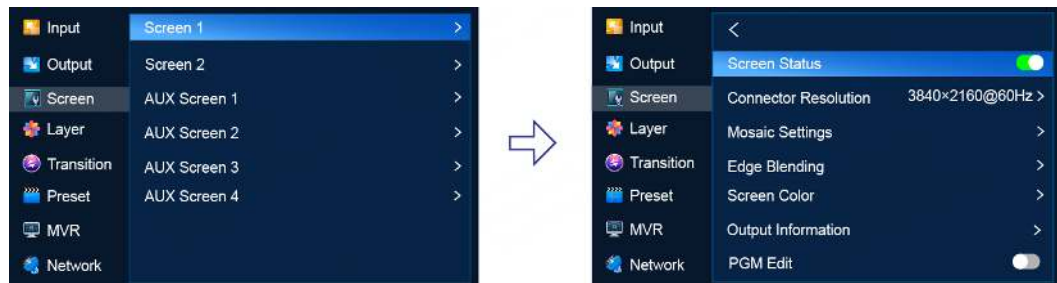
## Prerequisites

The screen is a common screen or AUX screen.

## Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1/AUX 1 > Screen Status**.

Figure 6-37 Screen status (P20)



## Description

Set **Screen Status** to  (on) or  (off).

### 6.2.5.2 Set Connector Resolution

Set the connector resolution and frame rate. Users can select a standard resolution or customize a resolution and set advanced parameters.

## Prerequisites

- The EDID of the connected display device is obtained.
- The screen is a common screen or AUX screen and **Screen Status** is set to .

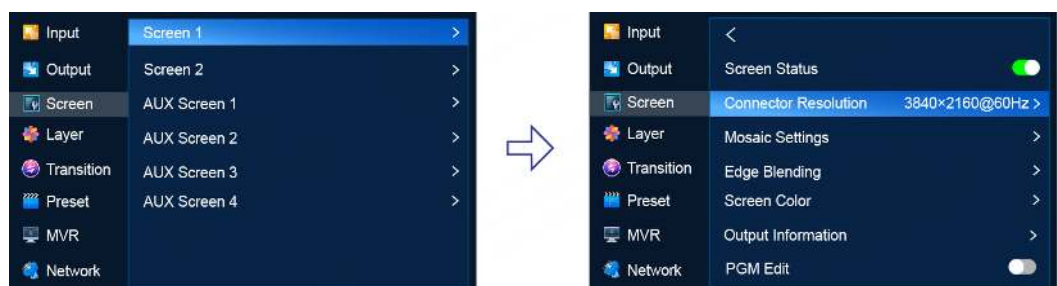
## Notes

- The advanced parameters must be set by the trained personnel.
- After the output resolution is changed, the AOI parameters of the connector is reset automatically.

## Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1/AUX 1 > Connector Resolution**.

Figure 6-38 Connector resolution (P20)



## Description

Menu Item	Submenu Item	Description
Current Resolution	-	Current resolution: Pixel width and height of the output image
Standard	Resolution	Commonly used resolution
	Frame Rate	Commonly used frame rate, Frames per second (Hz)
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Custom	Width	Pixel width of the output image
	Height	Pixel height of the output image
	Frame Rate	Frames per second (Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display  Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank (P20-DS only)	Horizontal blanking parameter to complete the current line scan and prepare for the next one.  <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced Blanking</b>, HBlank is displayed but cannot be adjusted.</li> <li>When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio (P20-DS only)	Turn on or off audio. Note: When HBlank is less than 110, the audio function cannot be enabled.
Advanced	Frame Rate	Frames per second (Hz)
	H Total	The total number of pixels per line
	Width	Pixel width of the active area
	H Front Porch	The offset between the end of the active area and the beginning of H sync
	H Sync	H sync width in pixels
	H Polarity	Polarity (active high or low) of the horizontal


Menu Item	Submenu Item	Description
		sync pulse
	V Total	The total number of pixels per frame
	Height	Pixel height of the active area
	V Front Porch	The offset in lines between the end of the output active area and the beginning of V sync
	V Sync	V sync width in lines
	V Polarity	Polarity (active high or low) of the vertical sync pulse

After the settings are completed, select **Apply** for the settings to take effect.

### 6.2.5.3 Set Mosaic

Set screen mosaic by using easy mode or advanced mode.

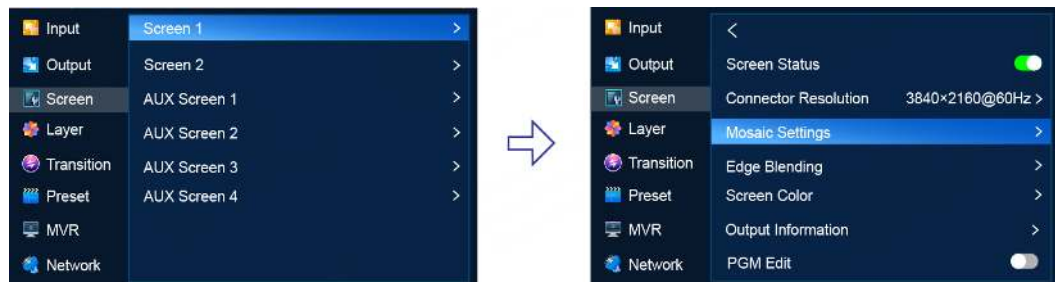
#### Prerequisites

The screen is a common screen and **Screen Status** is set to .

#### Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > Mosaic Settings**.

Figure 6-39 Mosaic settings (P20)



#### Description

Menu Item	Description
Mode	Select a mode for mosaic settings <ul style="list-style-type: none"> <li>• Easy: Set the total screen width and height. The P20/P20-DS/P10 will generate a mosaic solution automatically.</li> <li>• Advanced: Select a mosaic layout template (the number of rows and columns of the output connectors).</li> </ul>
Total Width	Pixel width of the screen This parameter is displayed when the <b>Easy</b> mode is selected. After you select <b>Apply</b> , this parameter value keeps the same as the value in the mosaic plan.

Menu Item	Description
Total Height	Pixel height of the screen This parameter is displayed when the <b>Easy</b> mode is selected. After you select Apply, this parameter value keeps the same as the value in the mosaic plan.
Connector Layout	Horizontal and vertical start positions of the connector After the settings are completed, select <b>Apply</b> for the settings to take effect.
Mosaic Layout	Rows and columns of output connectors on the screen This menu item is displayed only when <b>Advanced</b> is selected as the mosaic mode. Number of output connectors that can be used for mosaic: <ul style="list-style-type: none"> <li>• P20/P20-DS                             <ul style="list-style-type: none"> <li>– In PGM only mode, four output connectors can be used for mosaic.</li> <li>– In switcher mode, two output connectors can be used for mosaic.</li> </ul> </li> <li>• P10                             <ul style="list-style-type: none"> <li>– 4K: In PGM only mode, two connectors can be used for mosaic. In switcher mode, one connector can be used.</li> <li>– SL: In PGM only mode, eight connectors can be used for mosaic. In switcher mode, four connectors can be used.</li> </ul> </li> </ul>
Replace Connector	If an output connector used on the mosaic layout fails, you can replace the connector with another normal connector via menu operations. Procedure: Select <b>Replace Connector</b> , select the connector to be replaced on the right, scroll to and select another normal connector. If the selected normal connector is in use, the normal connector and the failed connector will be swapped.
AOI Settings	Set the pixel width and height and start position of the output connector on the mosaic screen. This menu item is displayed only when <b>Advanced</b> is selected as the mosaic mode. When the resolution of the output connector is higher than the actual screen resolution, AOI settings allow the output connector to meet the mosaic requirements without changing the original resolution of the connector. Submenu description: <ul style="list-style-type: none"> <li>• Connector: Select the connector for AOI settings.</li> <li>• Width: Set the pixel width.</li> <li>• Height: Set the pixel height</li> <li>• H Position: Set the horizontal start position.</li> <li>• V Position: Set the vertical start position.</li> </ul>
LCD Bezel	Set the parameters related to LCD bezel compensation.

Menu Item	Description
Compensation	<ul style="list-style-type: none"> <li>• Status: Turn on (🟢) or off (🔴) LCD bezel compensation.</li> <li>• H Spacing: Total width of bezels</li> <li>• V Spacing: Total height of bezels</li> </ul>

After the settings are completed, select **Apply** for the settings to take effect.

### 6.2.5.4 Set Edge Blending

Edge blending is a technique used when using multiple projectors to display different regions of a single image. To display a single seamless image, adjacent projectors need to overlap edges slightly and compensate for the double brightness created in different regions.

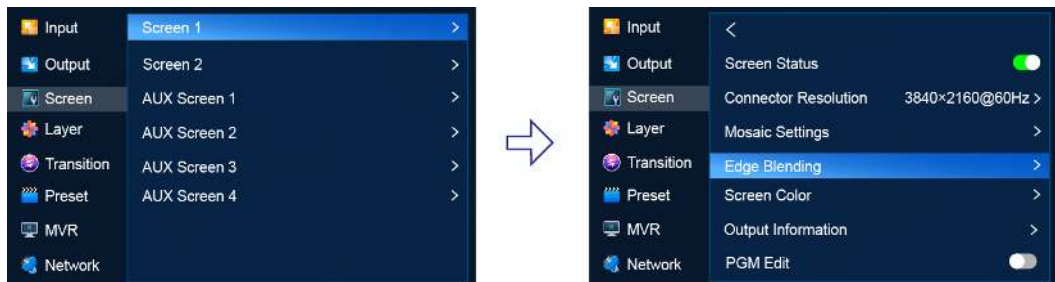
#### Prerequisites

- The screen is a common screen and **Screen Status** is set to 🟢.
- The offset angles of the projectors have been adjusted.

#### Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > Edge Blending**.

Figure 6-40 Edge blending (P20)




#### Description

Menu Item	Description
Connector	Select a connector for edge blending settings.
Edge	Select an edge for blending.
Feathering	Turn on or off <b>Feathering</b> . <ul style="list-style-type: none"> <li>• 🟢: On</li> <li>• 🔴: Off</li> </ul>
Gamma	The feathering gamma for the blending area
Width	The feathering width for the blending area The blending area is inside the projector image and facing inward.

### 6.2.5.5 Set Screen Color

Set the color parameters of the screen.

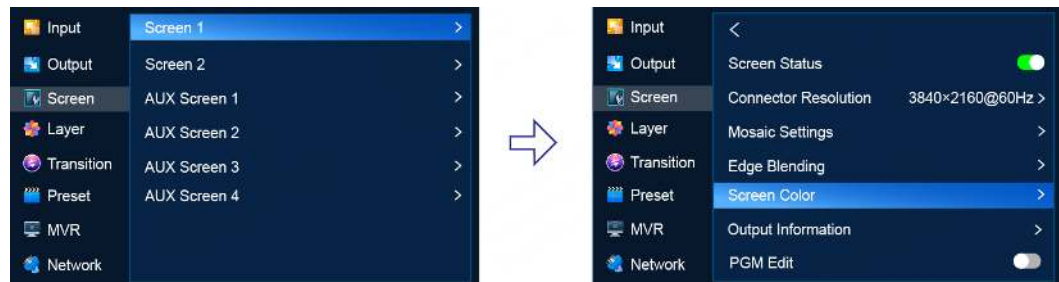
## Prerequisites

The screen is a common screen and **Screen Status** is set to .

## Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > Screen Color**.

Figure 6-41 Screen color (P20)




## Description

Menu Item	Description
Brightness	Brightness is the shading of lights in the image. When the brightness increases, viewers will be dazzled. When the brightness decreases, the image becomes dark.
Contrast	Contrast is the ratio of the luminance of the brightest color to that of the darkest color. Generally, the higher the contrast, the clearer and more colorful the image. On the contrary, the entire image becomes gloomy. Contrast affects the exposure level of the entire image. It makes the bright part brighter and the dark part darker.
Saturation	Saturation is the colorfulness of the image. The higher the contrast, the more vivid the image.
Hue	Hue is the relative degree of how bright or dark the image is.
Brightness	Brightness is the shading of lights in the image. When the brightness increases, viewers will be dazzled. When the brightness decreases, the image becomes dark.

### 6.2.5.6 Set Output Information

Set the parameters of the output signal.

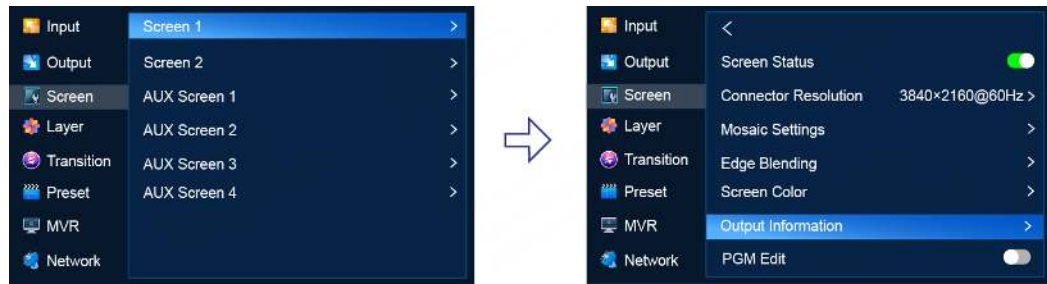
## Prerequisites

- The screen is a common screen and **Screen Status** is set to .
- Dynamic range conversion is available for P20/P20-DS only.

## Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > Output Information**.

Figure 6-42 Output information (P20)




## Description

Menu Item	Description
Color/Sample	Set output color space and sampling rate.
Bit Depth	Set output bit depth. Bit depth refers to the color information stored in an image. The higher the bit depth of an image, the more colors it can store.
Dynamic Range	Set the dynamic range format of the signal.
Gamma	Gamma value This menu item is displayed only when <b>Dynamic Range</b> is <b>SDR</b> .
Color Gamut	Set output color gamut standard. This menu item is displayed only when <b>Dynamic Range</b> is <b>HDR10</b> or <b>HLG</b> .
Luminance	Peak luminance. This menu item is displayed when <b>Dynamic Range</b> is <b>HDR10</b> or <b>HLG</b> .

### 6.2.5.7 Set PGM Edit

Turn on or off PGM edit.

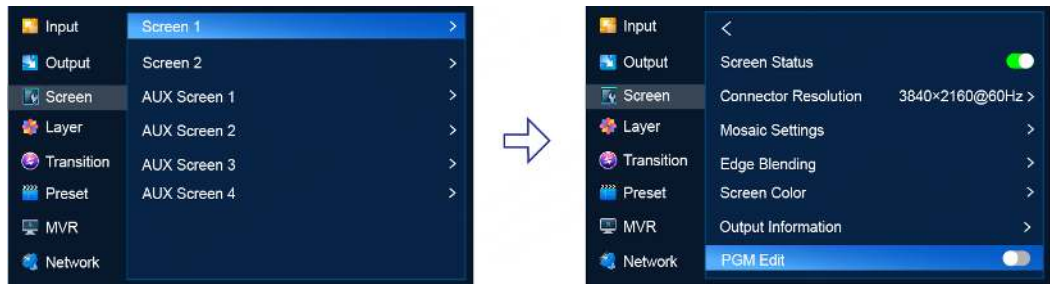
#### Prerequisites

- The device is in switcher mode. In PGM only mode, **PGM Edit** cannot be set and turned on by default.
- The screen is a common screen or AUX screen and **Screen Status** is set to .

#### Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > PGM Edit**.

Figure 6-43 PGM edit (P20)



### Description

Menu Item	Description
PGM Edit	Turn on or off PGM edit. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> On The edits you make on the LCD menu modify the layers on PGM and the edit process is displayed on the screen in real time.</li> <li><input type="checkbox"/> Off The edits you make on the LCD menu modify the layers on PVW.</li> </ul>

### 6.2.5.8 Set Display Status

Make the screen display content normally, fade to black, freeze the current frame of the input source, or display test patterns.

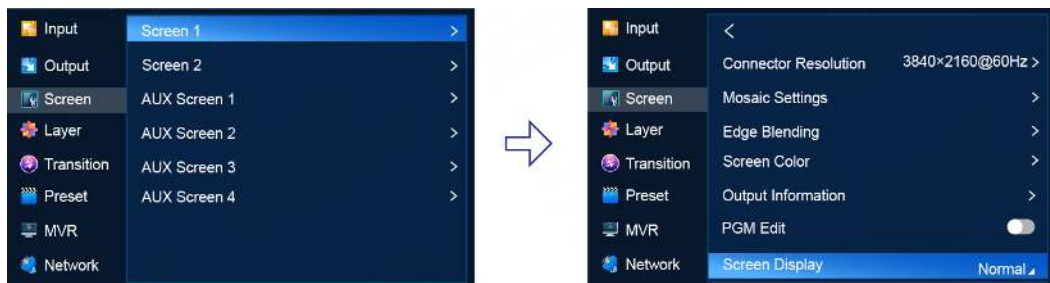
### Prerequisites

The screen is a common screen or AUX screen and **Screen Status** is set to .

### Menu Orientation

On the main menu screen, scroll to and select **Screen > Screen 1 > Display**.

Figure 6-44 Display status (P20)



### Description

- Common Screen  
Set **Display** to **Normal, FTB, Freeze** or **Test Pattern**.
- AUX Screen  
Set **Display** to **Normal, FTB,** or **Freeze**.

After **Test Pattern** is selected for a common screen, users can set the following parameters in the sub-menu.

Menu Item	Description
Pure Color	Test pattern color
Gradient	Gradient style of the test pattern
Grid	Grid style of the test pattern
Brightness	Test pattern brightness
Spacing Level	Spacing between different colors This option is displayed only when the test pattern contains multiple colors.
Spacing (px)	Spacing between grid lines This option is displayed only when the grid style is specified.
Line Width	Width of grid lines This option is displayed only when the grid style is specified.
Speed	Moving speed of grid lines This option is displayed only when the grid style is specified.

## 6.2.6 Layer

The **Layer** menu allows you to do the following:

- Set Regular Layers
- Set Basic Information
- Manage LOGO
- Set AUX Layers

### 6.2.6.1 Set Regular Layers

#### 6.2.6.1.1 Create and Delete Layers

Create, delete and clear regular layers. The LCD menus of P20/P20-DS are used as examples in this section for illustration.

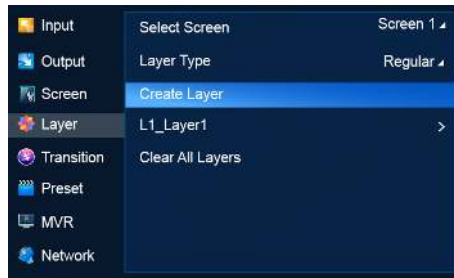
#### Menu Orientation

On the main menu screen, scroll to and select **Layer**.

#### Description

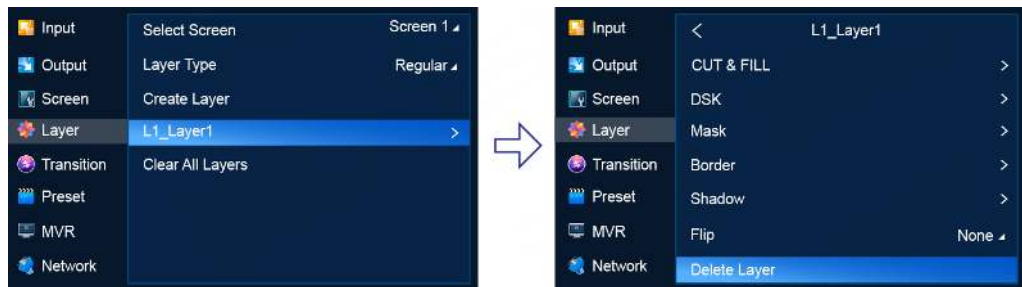
Select a common screen, set **Layer Type** to **Regular**, and then do the following as required.

- Create a regular layer  
Select **Create Layer**.



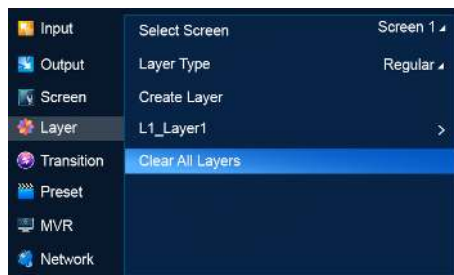
- Delete a regular layer

Select the layer to be deleted to access the sub-menu and then select **Delete Layer**.



- Clear regular layers

Select Clear All Layers.



Note: If **PGM** is displayed next to **Select Screen**, it denotes that PGM Edit is turned on. If not, PGM Edit is turned off.

### 6.2.6.1.2 Set Basic Information

Set the basic information of regular layers.

#### Prerequisites

A common screen and regular layer are selected.

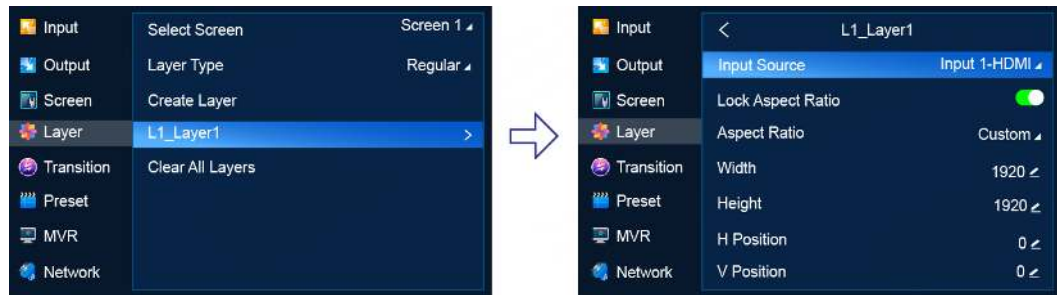
#### Note

If the layer source bandwidth is exceeded, the layer displays a black screen.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name**.

Figure 6-45 Basic layer information (P20)



## Description

Menu Item	Description
Input Source	Select an input source for the layer
Lock Aspect Ratio	Lock or unlock the aspect ratio of the layer resolution. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Locked</li> <li><input type="checkbox"/> Unlocked</li> </ul>
Aspect Ratio	Set the ratio of the layer width to the layer height. After the aspect ratio is changed, the layer height keeps unchanged and the layer width is calculated automatically.
Width	Specify the layer width.
Height	Specify the layer height.
H Position	Specify the horizontal start position of the layer on the common screen. The coordinates of the pixel at the top left of the main screen is (0, 0).
V Position	Specify the vertical start position of the layer on the common screen. The coordinates of the pixel at the top left of the main screen is (0, 0).
Scaling Mode	Set the scaling mode of the layer. <ul style="list-style-type: none"> <li>Custom: The layer is scaled according to your settings.</li> <li>Pixel to Pixel: The layer resolution is the same as the input resolution. If the input source is cropped, the layer resolution is the same as the resolution after cropping.</li> <li>Full Screen: The layer fills the entire screen.</li> </ul>
Z-Order	Set the priority order of the layer. <ul style="list-style-type: none"> <li>Bring Forward</li> <li>Send Backward</li> <li>Bring to Front</li> <li>Send to Back</li> </ul>

### 6.2.6.1.3 Set Input Crop

When there are black borders or unnecessary information on the input source, input crop allows you to crop the input source and display the desired area.

## Prerequisites

- A common screen and regular layer are selected.
- The layer source is accessed.



## Note

The input source status and capacity after cropping is the same as the original.

## Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Input Crop**.

## Description

Menu Item	Description
Status	Turn on/off input crop. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
H Position	Set the horizontal start position of the cropped area.
V Position	Set the vertical start position of the cropped area.
Width	Set the pixel width of the cropped area.
Height	Set the pixel height of the cropped area.

## Crop Effect Example



### 6.2.6.1.4 Set Layer Color

Set layer color parameters.





## Prerequisites

A common screen and regular layer are selected.

## Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Layer Color**.

## Description

Menu Item	Description
Brightness	Brightness is the shading of lights in the image. When the brightness increases, viewers will be dazzled. When the brightness decreases, the image becomes dark.
Contrast	Contrast is the ratio of the luminance of the brightest color to that of the darkest color. Generally, the higher the contrast, the clearer and more colorful the image. On the contrary, the entire image becomes gloomy. Contrast affects the exposure level of the entire image. It makes the bright part brighter and the dark part darker.
Saturation	Saturation is the colorfulness of the image. The higher the contrast, the more vivid the image.
Hue	Hue is the relative degree of how bright or dark the image is.
Monochrome	Turn on/off monochrome. <ul style="list-style-type: none"> <li> On. The layer image is in black and white.</li> <li> Off</li> </ul>
Invert Colors	Turn on/off color inversion. <ul style="list-style-type: none"> <li> On. The colors of the layer image is inverted.</li> <li> Off</li> </ul>
Opacity	Set color opacity.

### 6.2.6.1.5 Set Cut & Fill

Set the parameters related to Cut & Fill. The original layer serves as the Fill layer, and the output will display the Cut layer that overlaps with the Fill layer, allowing users to define the output shape and effect more flexibly.

## Prerequisites

A common screen and regular layer are selected.



## Notes



- When the Cut & Fill function is enabled, the DSK function is disabled.
- The total resources for the Cut layer are 2x DL (1x 4K), and the Cut layer capacity must be less than or equal to that of the Fill layer.

## Menu Orientation

On the main menu screen, scroll to and select **Layer > Layer Name > CUT & FILL**.

## Description

Menu Item	Description
Status	Turn on or turn off the function. <ul style="list-style-type: none"> <li> On</li> <li> Off</li> </ul>

Menu Item	Description
CUT Source Type	The input source type of the Cut layer
CUT Source	The input source of the Cut layer
Negative	Turn on or turn off the invert colors function. <ul style="list-style-type: none"> <li>: On, allowing black areas to be transparent and white areas to be cut</li> <li>: Off, allowing white areas to be transparent and black areas to be cut</li> </ul>
X	The horizontal initial position of the Cut layer relative to the Fill layer
Y	The vertical initial position of the Cut layer relative to the Fill layer
Width	The horizontal pixels of the Cut layer
Height	The vertical pixels of the Cut layer

#### 6.2.6.1.6 Set DSK

Use luma key, chroma key or smart key for input sources.

#### Prerequisites

- A common screen and regular layer are selected.
- The layer source is accessed.



#### Notes



After DSK is turned on, the layer capacity changes to 4K automatically.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer > Layer Name > DSK**.

#### Description

Menu Item	Description
Status	Turn on/off DSK. <ul style="list-style-type: none"> <li>: On</li> <li>: Off</li> </ul>
Mode	DSK mode <ul style="list-style-type: none"> <li>• Luma key: Suitable for keying scenarios where the brightness of the background is significantly smaller than that of the foreground. The result of luma key is that the background becomes transparent and the foreground is keyed out.</li> <li>• Chroma key: Suitable for keying scenarios with a single background color, such as blue/green screen matting.</li> <li>• Smart key: Suitable for common keying</li> </ul>

Menu Item		Description
		scenarios, which reduces parameter adjustments and allows the keying requirements of users to be satisfied in an easier way.
Luma	Clip	Distinguish between the foreground and background.
	Smooth	Set the smoothness of the transition area between foreground and background. The greater the value, the smoother the transition.
	Foreground Color	Turn on or turn off foreground color adjustment. <ul style="list-style-type: none"> <li> On. The <b>RGB</b> of the related parameter can be set to adjust the keying effect.</li> <li> Off</li> </ul>
	RGB	Specify the RGB values of the foreground color.
Chroma	Pick Hue	Set the RGB values of the pick point <ul style="list-style-type: none"> <li>Method 1: Specify the coordinates of the pick point on the input source, and the RGB values of the point will be displayed.</li> <li>Method 2: Specify the RGB values.</li> </ul> After the settings, select <b>Apply</b> . You can also adjust the following parameters to optimize the keying effect.
	Hue Ramp	Distinguish between the foreground and background.
	Hue Clip	Hue range The greater the value, the larger the removal area. The maximum value is the current value of <b>Hue Ramp</b> .
	Saturation Clip	Distinguish between the foreground and background.
	Saturation Gain	Adjust overall image brightness.
	Spill	Remove the overflow from the foreground image edges and semi-transparent areas.
	Shadow	Remove the shadow areas.
	Highlight	Remove the highlight areas.
	Smart	Pick Hue

Menu Item		Description
	Matting Strength	Adjust the intensity of background processing.
	Gain Adjust	Adjust the shadow/noise areas present in the foreground.

If you want to reset the parameters to their default values, select **Reset**.

### 6.2.6.1.7 Set Layer Mask

Set parameters related to layer mask. The masked area will be transparent and invisible. The layer resolution keeps unchanged.

#### Prerequisites

A common screen and regular layer are selected.



#### Note

Enabling layer mask will disable the layer border.

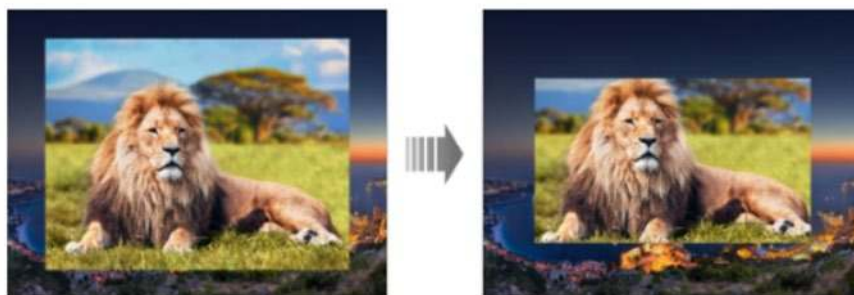
#### Menu Orientation

On the main menu screen, scroll to and select **Layer > Layer Name > Mask**.

#### Description

Menu Item	Description
Status	Turn on/off layer mask. <ul style="list-style-type: none"> <li>•  On</li> <li>•  Off</li> </ul>
Mask Top	Set the area to be masked on the top of the layer.
Mask Bottom	Set the area to be masked on the bottom of the layer.
Mask Left	Set the area to be masked on the left of the layer.
Mask Right	Set the area to be masked on the right of the layer.

#### Mask Effect Example



### 6.2.6.1.8 Set Layer Borders

Set the border of a layer.

#### Prerequisites

A common screen and regular layer are selected.



#### Note

Enabling layer mask will disable the layer border.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Border**.

#### Description

Menu Item	Description
Status	Turn on/off layer border. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
Border	Set the layer border type.
Width	Set the width of the left and right borders.
Height	Set the height of the top and bottom borders.
Color	Set the RGB of the border color.

#### Border Effect Example



### 6.2.6.1.9 Set Border Shadow

Set the layer shadow position, size, opacity, edge blur and color.



#### Prerequisites

A common screen and regular layer are selected.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Shadow**.

## Description

Menu Item	Description
Status	Turn on/off layer shadow. <ul style="list-style-type: none"> <li>: On</li> <li>: Off</li> </ul>
X	The horizontal initial position of shadow on the common screen. The coordinates of the pixel at the top left of the common screen is (0, 0).
Y	The vertical initial position of shadow on the common screen. The coordinates of the pixel at the top left of the common screen is (0, 0).
Width	Set the shadow width.
Height	Set the shadow height.
Opacity	Set the shadow opacity.
Edge Blue	Set the shadow edge blur.
Color	Set the shadow color.

### 6.2.6.1.10 Set Layer Flipping

Flip layers horizontally, vertically, or horizontally and vertically.

## Prerequisites

A common screen and regular layer are selected.

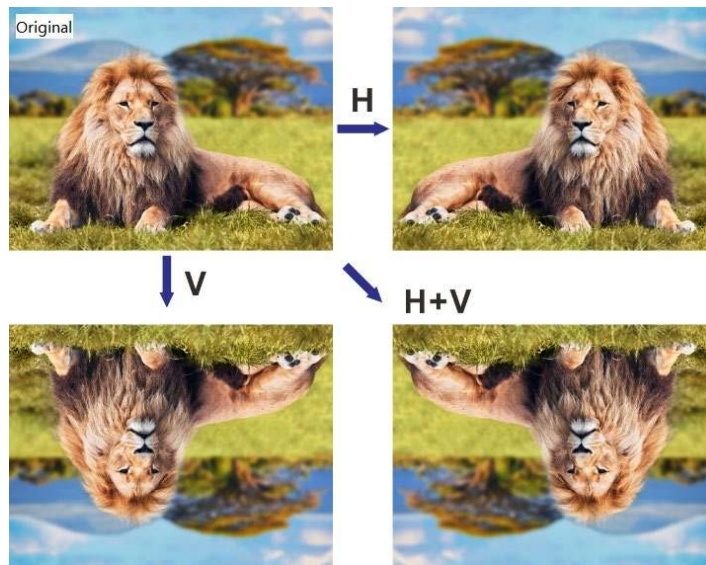
## Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Flip**.

## Description

Menu Item	Description
Flip	<ul style="list-style-type: none"> <li>None: Don't flip the layer.</li> <li>Flip Horizontally: Flip the layer horizontally.</li> <li>Flip Vertically: Flip the layer vertically.</li> <li>Flip Horizontally and Vertically: Flip the layer horizontally and vertically</li> </ul>

## Flipping Effect Example



### 6.2.6.2 Manage BKG

Apply, export, delete, resize, reposition and import BKG files, and save captured images as BKG files.

#### Prerequisites

- Before importing a BKG file, copy the file (.png, .bmp, .jpg, .jpeg) to the root directory of a USB drive and insert the USB drive into the USB port on the front panel of the P20/P20-DS/P10.
- Before exporting a BKG file, insert a USB drive into the USB port on the front panel of the P20/P20-DS/P10.

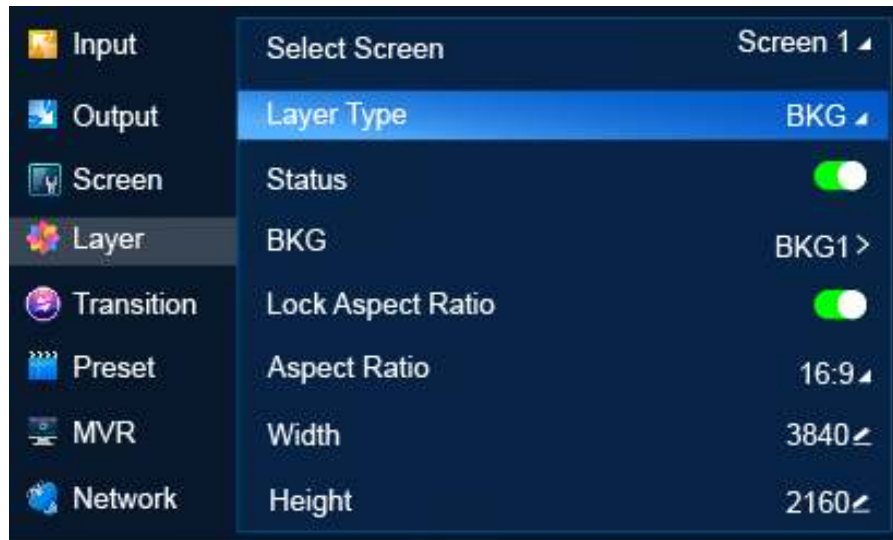
#### Notes

- The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.
- The BKG does not use the layer resources.
- The BKG image automatically fits to the screen and is always at the back of the layer order.
- When you are importing a BKG file using the event controller or PixelFlow, you are not able to import BKG images using the P20/P20-DS/P10.
- The total number of BKG and LOGO files cannot exceed 255 and the total storage space for BKG and LOGO files is up to 512 MB.
- The maximum resolution of a single BKG file is 65536×65536 pixels.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer**.

Figure 6-46 BKG (P20)



## Description

Select a common screen, set the layer type to BKG, and then do the following as required.

- Apply BKG
  - a. Turn on BKG. (  )
  - b. Select **BKG** to open the BKG file screen.
  - c. Select a BKG file. In the dialog box that appears, select **Apply** to use the BKG file as the background image of the common screen.
- Export BKG
  - a. Turn on BKG. (  )
  - b. Select **BKG** to open the BKG file screen.
  - c. Select a BKG file. In the dialog box that appears, select **Export**.
  - d. In the dialog box that appears, select **OK** to export the BKG file to the root directory of the USB drive.
- Delete BKG
  - a. Turn on BKG. (  )
  - b. Select **BKG** to open the BKG file screen.
  - c. Select a BKG file. In the dialog box that appears, select **Delete**.
  - d. In the dialog box that appears, select **OK** to delete the BKG file.
- Set BKG size

Turn on/off **Lock Aspect Ratio**, specify **Aspect Ratio**, **Width** and **Height** to resize BKG.
- Set BKG position

Specify **H Position** and **V Position** to reposition BKG.
- Import BKG
  - a. Select **BKG Import** to open the BKG file list screen.

- b. Select a BKG file. In the dialog box that appears, select **OK** to import the BKG file.
- Capture
  - a. Select **Capture** to access the submenu.
  - b. From the drop-down options, select PGM or an input source for capture.
  - c. Select **Capture**.
  - d. After an image is captured successfully, select **Save** to save the captured image as a BKG file.

### 6.2.6.3 Manage LOGO

Apply, export, delete and import LOGO files.

#### Prerequisites

- Before importing a LOGO image, copy the LOGO file (.png, .bmp, .jpg, .jpeg) to the root directory of a USB drive and insert the USB drive into the USB port on the front panel of the P20/P20-DS/P10.
- Before exporting a LOGO image, insert a USB drive into the USB port on the front panel of the P20/P20-DS/P10.

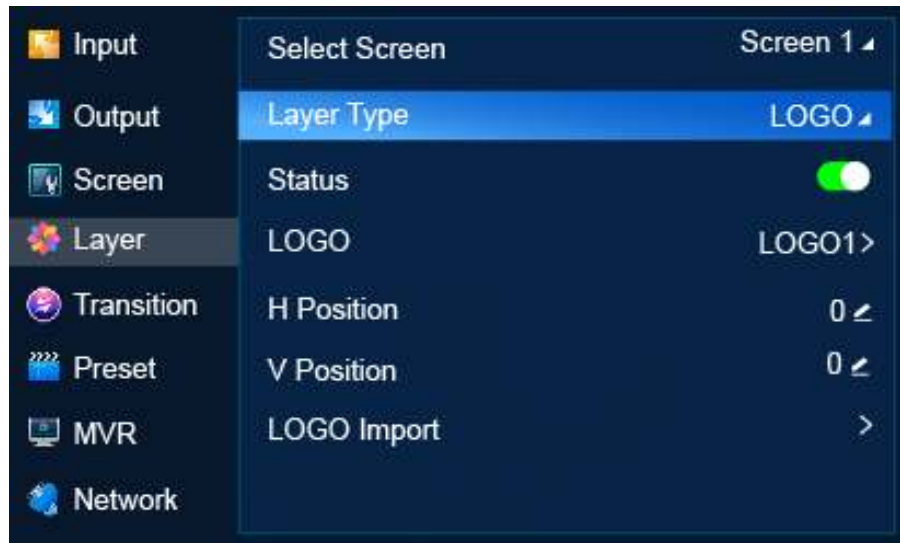
#### Notes

- The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.
- LOGO does not use the layer resources.
- The LOGO image is always at the front of the layer order and cannot be resized. You can change the position of the BKG image.
- When you are importing a LOGO file using the event controller or PixelFlow, you are not able to import LOGO files using the P20/P20-DS/P10.
- The total number of BKGs and LOGOs cannot exceed 255 and the total storage space for BKG and LOGO files is up to 512 MB.
- The maximum resolution of a single LOGO file is 512×512 pixels.

#### Menu Orientation

On the main menu screen, scroll to and select **Layer**.

Figure 6-47 LOGO (P20)



## Description

Select a common screen, set **Layer Type** to **LOGO**, and then do the following as required.

- Apply LOGO
  - a. Turn on LOGO. ()
  - b. Select **LOGO** to open the LOGO file screen.
  - c. Select a LOGO file. In the dialog box that appears, select **Apply** to use the LOGO file as the LOGO of the common screen.
  - d. Go back to the previous menu.
  - e. Specify **H Position** and **V Position** to set the position of the LOGO on the screen, that is the horizontal and vertical start position relative to the top left (0,0) of the screen.
- Export LOGO
  - a. Turn on LOGO. ()
  - b. Select **LOGO** to open the LOGO file screen.
  - c. Select a LOGO file. In the dialog box that appears, select **Export**.
  - d. In the dialog box that appears, select **OK** to export the LOGO file to the root directory of the USB drive.
- Delete LOGO
  - a. Turn on LOGO. ()
  - b. Select **LOGO** to open the LOGO file screen.
  - c. Select a LOGO file. In the dialog box that appears, select **Delete**.
  - d. In the dialog box that appears, select **OK** to delete the LOGO file.
- Import LOGO
  - a. Select **LOGO Import** to open the LOGO file screen.
  - b. Select a LOGO file. In the dialog box that appears, select **OK** to import the LOGO file.

## 6.2.6.4 Set AUX Layers

### 6.2.6.4.1 Create and Delete Layers

Create, delete and clear AUX layers. The LCD menus of P20/P20-DS are used as examples in this section for illustration.

#### Menu Orientation

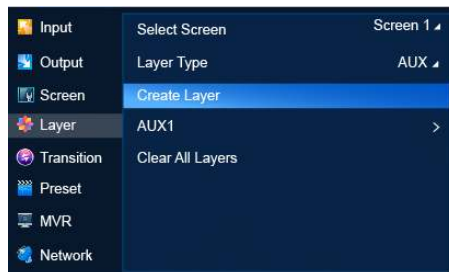
On the main menu screen, scroll to and select **Layer**.

#### Description

Select an AUX screen, set **Layer Type** to **AUX**, and then do the following as required.

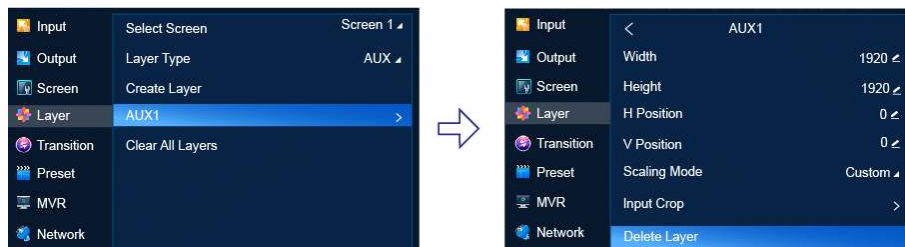
- Create an AUX layer

Select Create Layer.



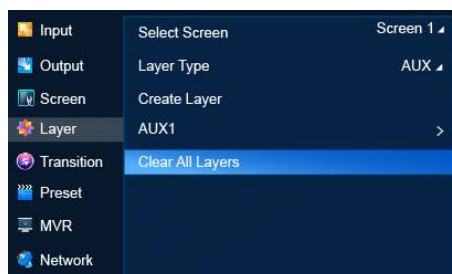
- Delete an AUX layer

Select the layer to be deleted to access the sub-menu and then select **Delete Layer**.



- Clear AUX layers

Select Clear All Layers.



### 6.2.6.4.2 Set Basic Information

Set the basic information of AUX layers.

## Prerequisites

An AUX screen is selected.

## Note

If the layer source bandwidth is exceeded, the layer displays a black screen.

## Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name**.

Figure 6-48 Basic layer information (P20)



## Description

Menu Item	Description
Input Source	Select an input or PGM as the source of the layer.
Lock Aspect Ratio	Lock or unlock the aspect ratio of the layer resolution. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Locked</li> <li><input type="checkbox"/> Unlocked</li> </ul>
Aspect Ratio	Set the ratio of the layer width to the layer height. After the aspect ratio is changed, the layer height keeps unchanged and the layer width is calculated automatically.
Width	Specify the layer width.
Height	Specify the layer height.
H Position	Specify the horizontal start position of the layer on the AUX screen. The coordinates of the pixel at the top left of the main screen is (0, 0).
V Position	Specify the vertical start position of the layer on the AUX screen. The coordinates of the pixel at the top left of the main screen is (0, 0).
Scaling Mode	Set the scaling mode of the layer. <ul style="list-style-type: none"> <li>Custom: The layer is scaled according to your settings.</li> <li>Pixel to Pixel: The layer resolution is the same as the input resolution. If the input source is cropped, the layer resolution is the same as the resolution after cropping.</li> <li>Full Screen: The layer fills the entire screen.</li> </ul>

### 6.2.6.4.3 Set Input Crop

When there are black borders or unnecessary information on the input source, input crop allows you to crop the input source and display the desired area.

#### Prerequisites

- An AUX screen is selected.
- The layer source is accessed.



#### Note

The input source status and capacity after cropping is the same as the original.

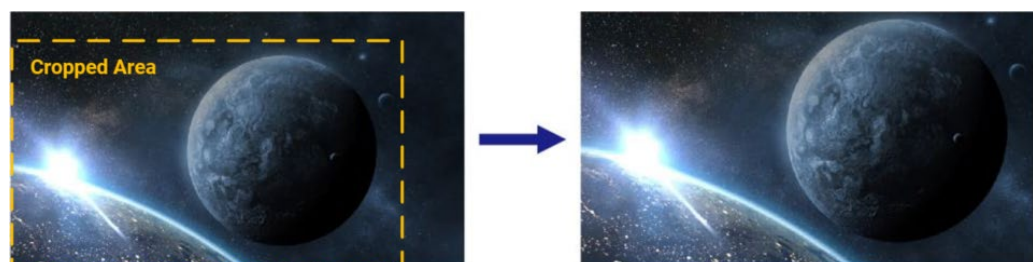
#### Menu Orientation

On the main menu screen, scroll to and select **Layer** > **Layer Name** > **Input Crop**.

#### Description

Menu Item	Description
Status	Turn on/off input crop. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
H Position	Set the horizontal start position of the cropped area.
V Position	Set the vertical start position of the cropped area.
Width	Set the pixel width of the cropped area.
Height	Set the pixel height of the cropped area.

#### Crop Effect Example



### 6.2.7 Transition

Select a mode to switch content from PVW to the PGM.

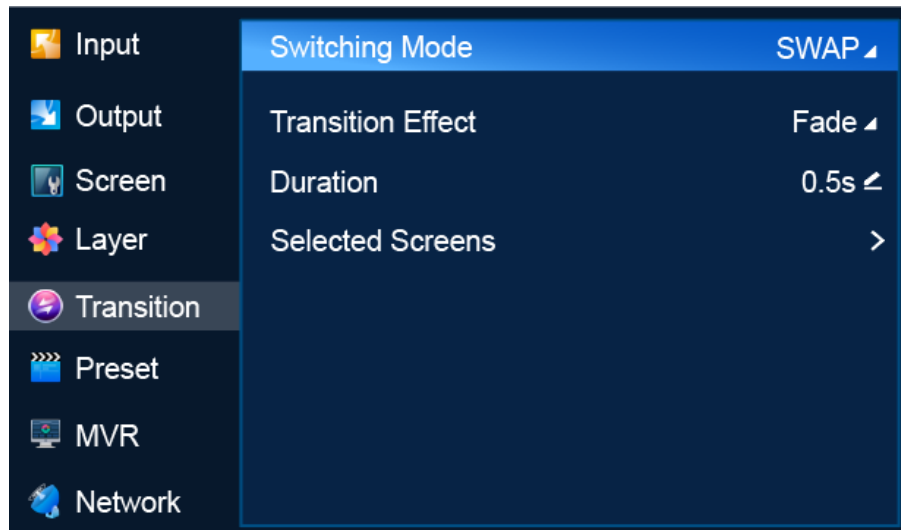
#### Prerequisites

The device is in switcher mode. This menu is not available in PGM only mode.

## Menu Orientation

On the main menu screen, scroll to and select **Transition**.

Figure 6-49 Switching (P20)



## Description

Menu Item	Description
Switching Mode	Select a mode to switch content from PVW to PGM. <ul style="list-style-type: none"> <li>• SWAP: Swap the contents on the PVW screen and PGM screen.</li> <li>• COPY: Copy the content on the PVW screen to the PGM screen.</li> </ul>
Transition Effect	Select a transition effect. <ul style="list-style-type: none"> <li>• Cut: Switch content from PVW to PGM with no transition effect.</li> <li>• Fade: Switch content from PVW to PGM with a fade effect.</li> </ul>
Duration	Duration of the transition effect.
Selected Screens	Screens selected for switching, including common screens and AUX screens. Multiple screens can be selected.

## 6.2.8 Preset

Save the content on PVW or PGM as a preset, load and delete presets.

### Note

A maximum of 128 presets can be saved.

## Menu Orientation

On the main menu screen, scroll to and select **Preset**.

Figure 6-50 Preset (P20)



## Description

- Save a preset
  - In switcher mode, select a blank preset and then select **Save from PVW** or **Save from PGM** from the window that appears.
  - In PGM only mode, select a blank preset and then select **Save Preset** from the window that appears.

After the preset is saved successfully, the status of the preset changes to **Saved**.
- Load a preset

Select a saved preset and select **Load** from the dialog box that appears to use the preset on the screen.
- Delete a preset

Select a saved preset and select **Delete** from the dialog box that appears to clear the content in the preset.

## 6.2.9 Multiviewer (MVR)

Set the layout on the Multiviewer screen.

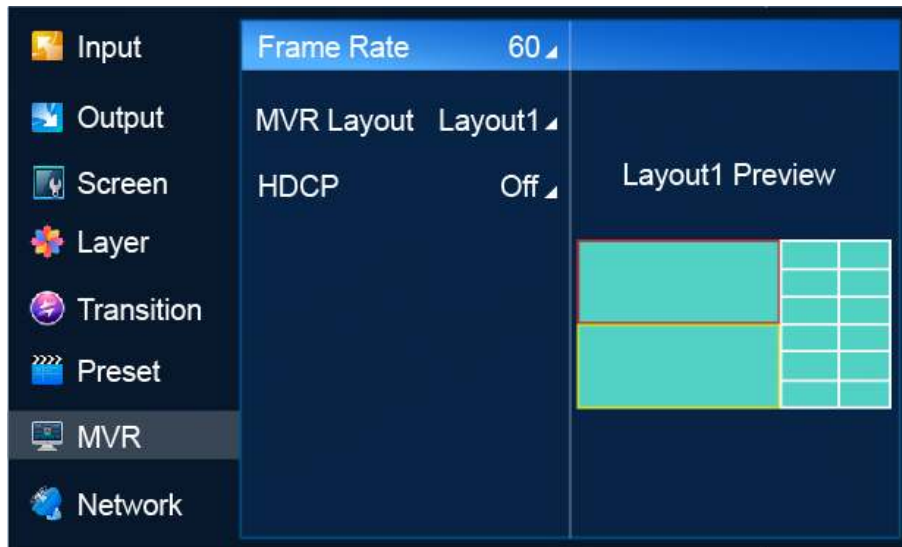
### Note

- The resolution of the Multiviewer screen is fixed at 1920×1080@60Hz and the frame rate can be changed.
- If the input source exceeds the bandwidth limit, the Multiviewer monitor will display a black screen.

### Menu Orientation

On the main menu screen, scroll to and select **MVR**.

Figure 6-51 Multiviewer (P20)



### Description

Menu Item	Description
Frame Rate	Select a frame rate for the Multiviewer connector.
MVR Layout	Select a layout for the Multiviewer screen. After a Multiviewer layout is selected, all the accessed input sources are displayed on the Multiviewer windows automatically.
HDCP	Select an HDCP version or turn off HDCP.

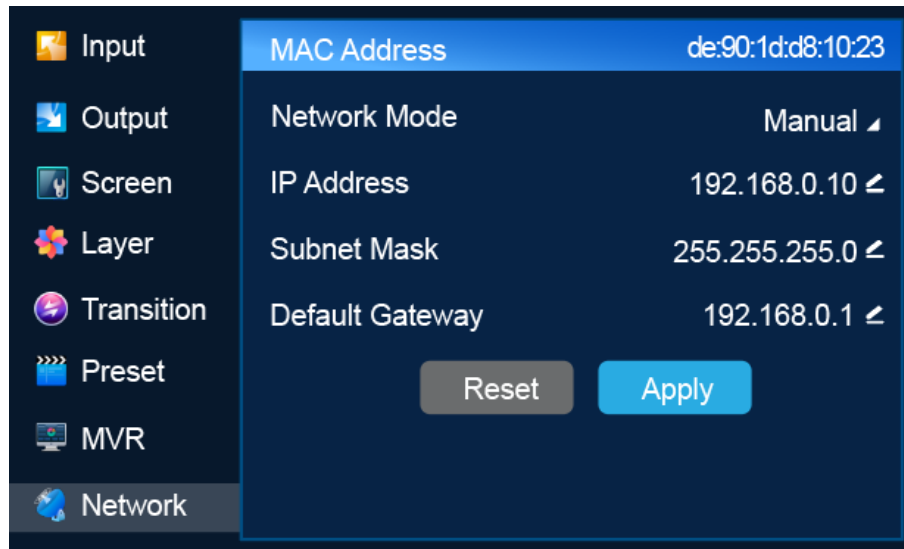
## 6.2.10 Network

Manually specify a static IP address for the device or set the device to obtain an IP address automatically.

### Menu Orientation

On the main menu screen, scroll to and select **Network**.

Figure 6-52 Network settings (P20)



## Description

Menu Item	Description
MAC Address	Display the physical address of the device.
Network Mode	Select an IP address configuration method. <ul style="list-style-type: none"> <li>Manual: Specify a static IP address for the device manually.</li> <li>Auto: The device obtains an IP address automatically.</li> </ul>
IP Address	IP address of the device
Subnet Mask	Subnet mask of the device
Default Gateway	Default gateway address of the current device

If you want to reset the parameters to their default values, select **Reset**.

## 6.2.11 Advanced

The **Advanced** menu allows you to do the following:

- Set Synchronization Signal Source
- Set Input Backup
- Return to Home
- Lock Aspect Ratio
- Set Fn Button
- Set HDCP
- Reset to Factory Settings
- Run Diagnostics
- Import and Export Project Files
- Update Firmware

- Export Logs
- Set Antistatic
- Manage Third-Party Plugins

### 6.2.11.1 Set Synchronization Signal Source

Select a synchronization signal source for the output signal.

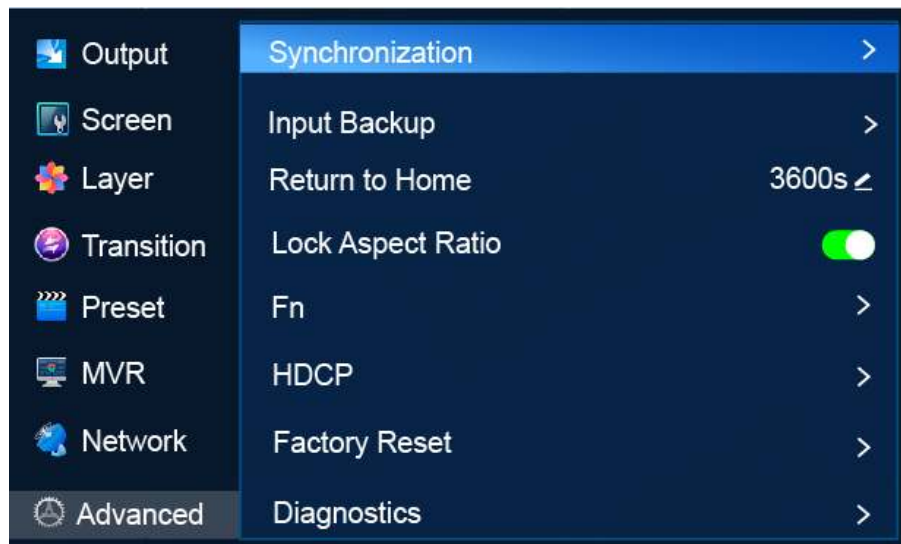
#### Prerequisites

Before Genlock settings, the synchronization signal source is connected to the Genlock connector on the rear panel of the P20/P20-DS/P10.

#### Menu Orientation

On the main menu screen, scroll to and select **Advanced > Synchronization**.

Figure 6-53 Synchronization signal source (P20)



#### Description

Menu Item	Description
Status	Turn on/off synchronization. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>
Source	Select a synchronization source. <ul style="list-style-type: none"> <li>• Genlock: Sync to the frame frequency of the Genlock input signal.</li> <li>• Input X: Sync to the frame frequency of the selected input source. X stands for the input source number.</li> </ul> When synchronization fails, select <b>Sync</b> to retry.

### 6.2.11.2 Set Input Backup

Turn on/off input backup and configure input backup relationships.

## Prerequisites

The input sources are common sources, mosaic sources and cropped sources.

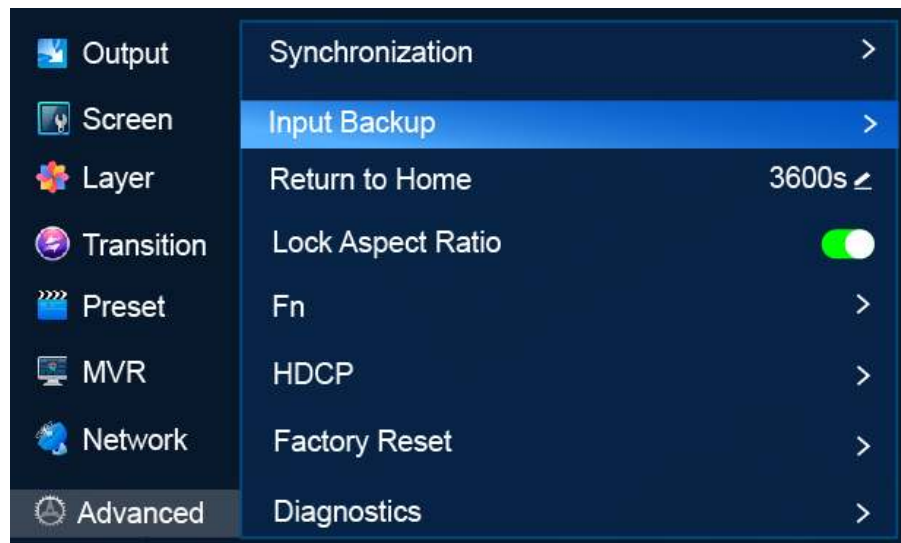
## Note

- One source can be configured as the backup of one or multiple primary sources, but indirect backup relationships are not supported.
- The primary and backup sources can be used to create layers independently.
- Backup relationships can be established between input connectors with the same capacity.
- A backup relationship cannot be established between a cropped source and its original source.
- An input source can be configured as the primary source only in one backup relationship.
- After a backup relationship is established, changing the connector capacity or type will cancel the backup relationship.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Input Backup**.

Figure 6-54 Input backup (P20)



## Description

Menu Item	Description
Status	Turn on/off input backup. <ul style="list-style-type: none"> <li>•  On</li> <li>•  Off</li> </ul>
Primary Preferred	Turn on/off primary source preferred. <ul style="list-style-type: none"> <li>•  On</li> </ul>

Menu Item	Description
	<ul style="list-style-type: none"> <li>• <input type="checkbox"/>: Off</li> </ul>
Add Backup	<p>Add backup relationships.</p> <p>Select <b>Add Backup</b> to add a backup relationship and then select a primary source and backup source from the drop-down options on the left and right.</p> <p>If <b>Auto</b> is displayed between the primary source and the backup source, the signal switches according to the following rules when the primary source recovers. If <b>Manual</b> is displayed, regardless of the presence or absence of the signal, only the specified source is used.</p> <ul style="list-style-type: none"> <li>• If <b>Primary Preferred</b> is turned on, the signal automatically switches to the primary source after the primary source recovers.</li> <li>• If <b>Primary Preferred</b> is turned off, the signal does not switch to the primary source after the primary source recovers.</li> </ul>
Reset All	Reset <b>Primary Preferred</b> and all backup relationships to the default settings.

### 6.2.11.3 Return to Home

Set the period during which the system stays at the current screen before returning to the home screen automatically when no operation is performed.

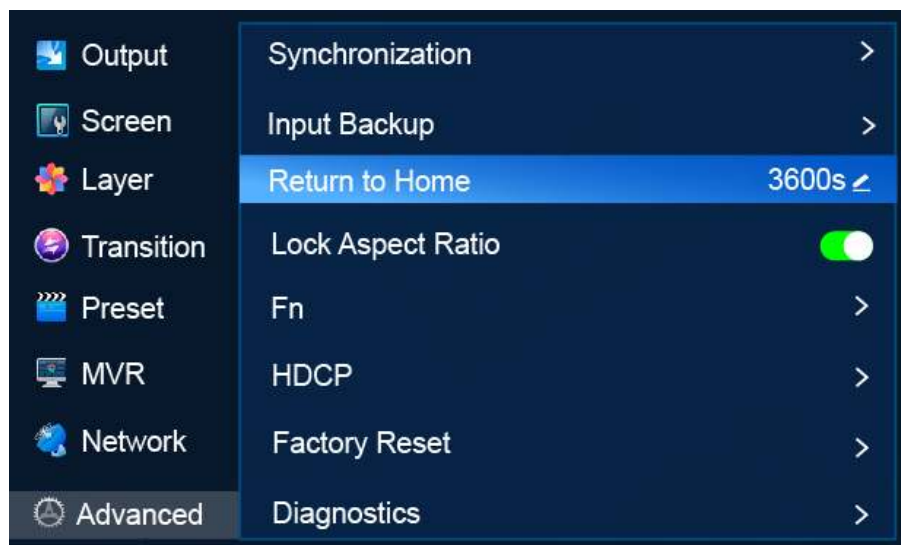
#### Note

If a dialog box is displayed, the system will not return to the home screen automatically after the specified period of time.

#### Menu Orientation

On the main menu screen, scroll to and select **Advanced > Return to Home**.

Figure 6-55 Return to Home (P20)



## Description

Scroll to **Return to Home** and press the knob to make the parameter value editable. Rotate the knob to adjust the parameter to the desired value and press the knob to apply the parameter.

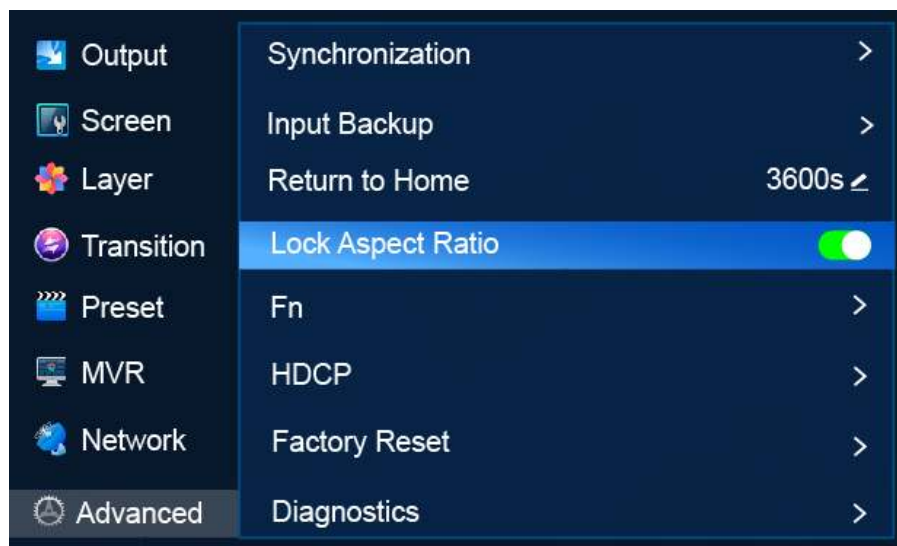
### 6.2.11.4 Lock Aspect Ratio

Lock or unlock aspect ratio.



## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Lock Aspect Ratio**.

Figure 6-56 Lock aspect ratio



## Description

Lock Aspect Ratio	Lock/unlock aspect ratio. <ul style="list-style-type: none"><li>• : Locked. The aspect ratio is locked when new layers are being resized.</li><li>• : Unlocked</li></ul>
-------------------	--

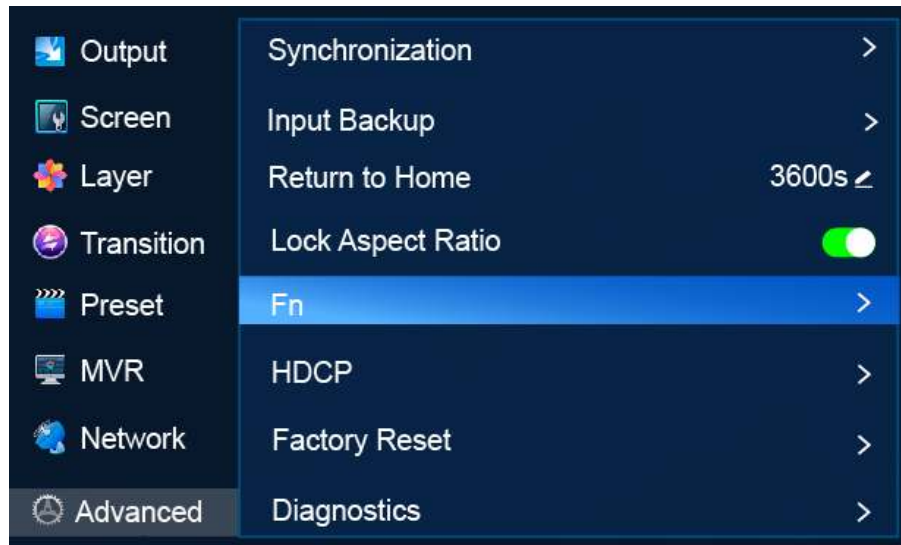
### 6.2.11.5 Set Fn Button

Assign a function to the **FN** shortcut button on the front panel of the P20/P20-DS/P10 so that users can quickly access the assigned function. Functions that can be assigned to the **FN** button include turning on/off Genlock synchronization, freeze and FTB.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Fn**.

Figure 6-57 FN button settings (P20)



## Description

Select **Fn** to access the submenu. Select **Synchronization**, **Freeze** or **FTB** to assign the selected function to the FN button.

### 6.2.11.6 Set HDCP

HDCP (High-Bandwidth Digital Content Protection) is a coding scheme used to protect audio and video signals traveling through DVI, HDMI, and DP from being copied and illegally intercepted during a streaming session. Users can turn on/off HDCP for all inputs (including HDMI and DP) or outputs (including output connectors, MVR connector and AUX connectors) with one switch. Input and output HDCP are turned off by default.

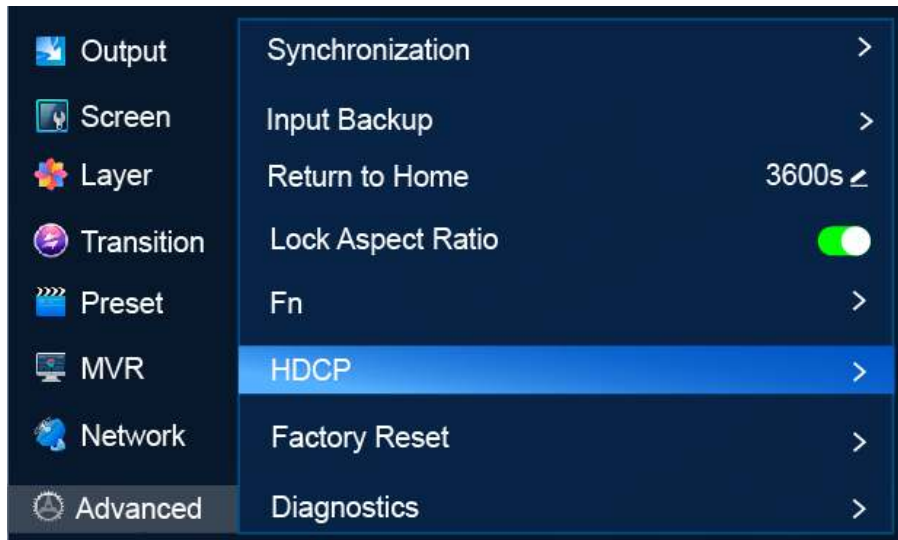
## Note

SDI does not support HDCP. Output HDCP includes the HDCP for all output connectors, MVR connector and AUX connectors.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > HDCP**.

Figure 6-58 HDCP (P20)



### Description

Input HDCP	Turn on/off HDCP for all inputs including HDMI and DP. <ul style="list-style-type: none"> <li>• Off (Input HDCP is turned off by default.)</li> <li>• On</li> </ul> <b>Partially On</b> is displayed when HDCP is turned on for some inputs.
Output HDCP	Turn on/off HDCP for all outputs including output connectors, MVR connector and AUX connectors. <ul style="list-style-type: none"> <li>• Off (Output HDCP is turned off by default.)</li> <li>• On</li> </ul> <b>Partially On</b> is displayed when HDCP is turned on for some outputs.

### 6.2.11.7 Reset to Factory Settings

Reset the P20/P20-DS/P10 parameter settings to the factory defaults.

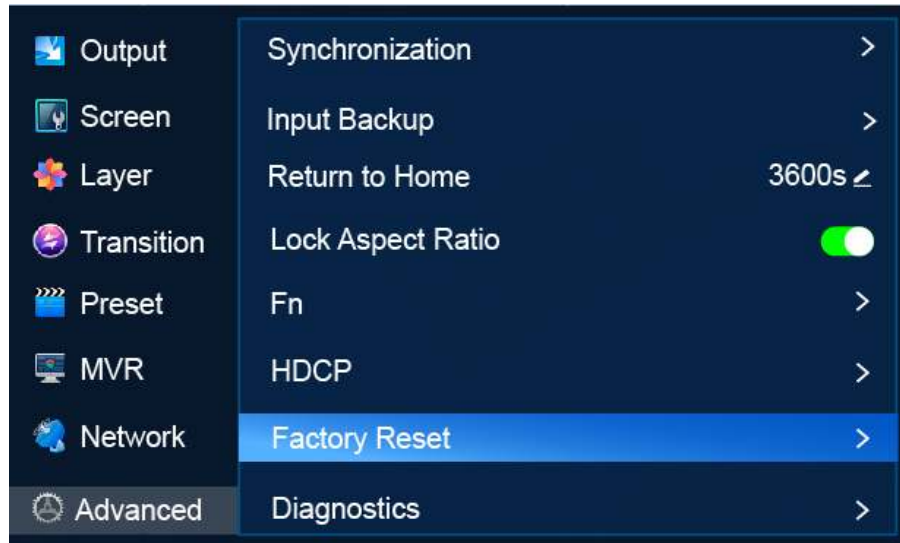
#### Note

- This action does not change the firmware version of the device.
- Do not disconnect the power supply during the process.
- After factory reset, the device restarts automatically.

#### Menu Orientation

On the main menu screen, scroll to and select **Advanced > Factory Reset**.

Figure 6-59 Factory reset (P20)



## Description

- Keep User Data  
Reset all the parameters to their default values except the network parameters, project files, EDID files, gallery files, and display language.
  - a. Select **Factory Reset** to access the submenu.
  - b. Select **Keep User Data**.
  - c. Select **OK** in the dialog box that appears.
- Reset All  
Reset all the parameters to default values, except network parameters and project files.
  - a. Select **Factory Reset** to access the submenu.
  - b. Select **Reset All**.
  - c. Select **OK** in the dialog box that appears.

### 6.2.11.8 Run Diagnostics

Run diagnostics for the P20/P20-DS/P10 to identify and troubleshoot problems.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Diagnostics**.

Figure 6-60 Diagnostics (P20)



## Description

Select **Diagnostics** to access the submenu and select **Run**. After the diagnostics, view the result.

### 6.2.11.9 Import and Export Project Files

Import project files from a USB drive to the P20/P20-DS/P10 and export project files from the P20/P20-DS/P10 to a USB drive. A project file contains configuration files and data.

## Prerequisites

- Before importing a project file, copy the file (.uprj) to the root directory of a USB drive and insert the USB drive into the USB port on the front panel of the P20/P20-DS/P10.
- Before exporting a project file, insert a USB drive into the USB port on the front panel of the P20/P20-DS/P10.

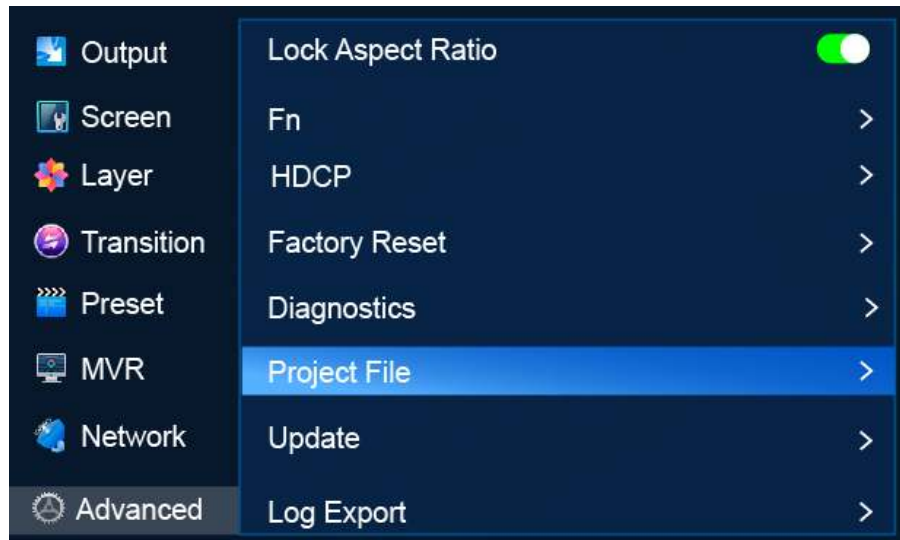
## Notes

- The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.
- The project files for the P20 and P20-DS are not compatible.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Project File**.

Figure 6-61 Project file (P20)



## Description

- Import a project file
  - a. Select **Project File** to access the submenu.
  - b. Select **Import Project File** to open the project file screen.
  - c. Select a project file.
  - d. In the dialog box that appears, select **OK** to import the project file in the root directory of the USB drive.
- Export a project file
  - a. Select **Project File** to access the submenu.
  - b. Select **Export Project File**.
  - c. In the dialog box that appears, select **OK** to export the project file to the root directory of the USB drive.

### 6.2.11.10 Update Firmware

Update the firmware of the P20/P20-DS/P10.

#### Prerequisites

Before firmware update, copy the update file (.img) in the root directory of a USB drive and insert the USB drive into the USB port on the front panel of the P20/P20-DS/P10.

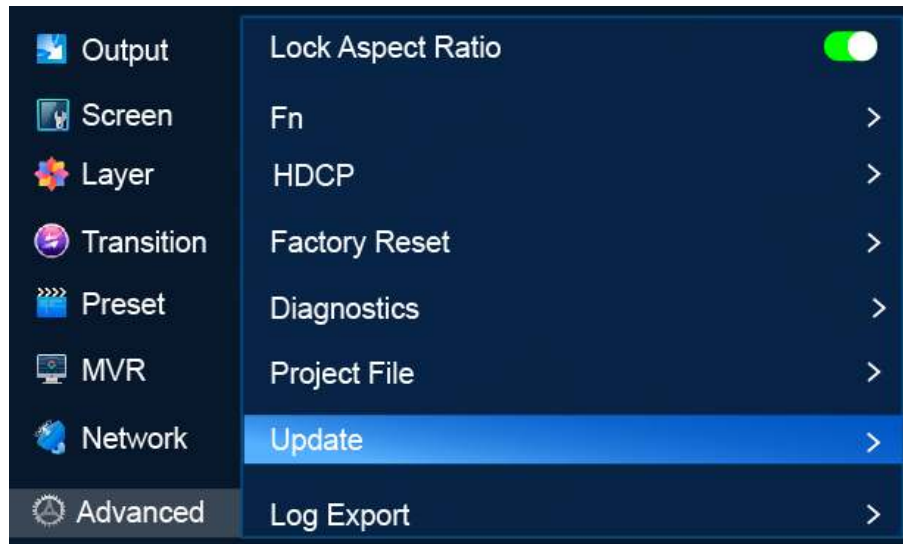
#### Notes

- The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.
- After firmware update, the device restarts automatically.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Update**.

Figure 6-62 Firmware update (P20)



## Description

Select **Update** to open the update file screen. Select a file and select **OK** in the dialog box that appears.

### 6.2.11.11 Export Logs

Export logs from the P20/P20-DS/P10 to a USB drive.

## Prerequisites

A USB drive is inserted into the USB port on the front panel of the P20/P20-DS/P10.

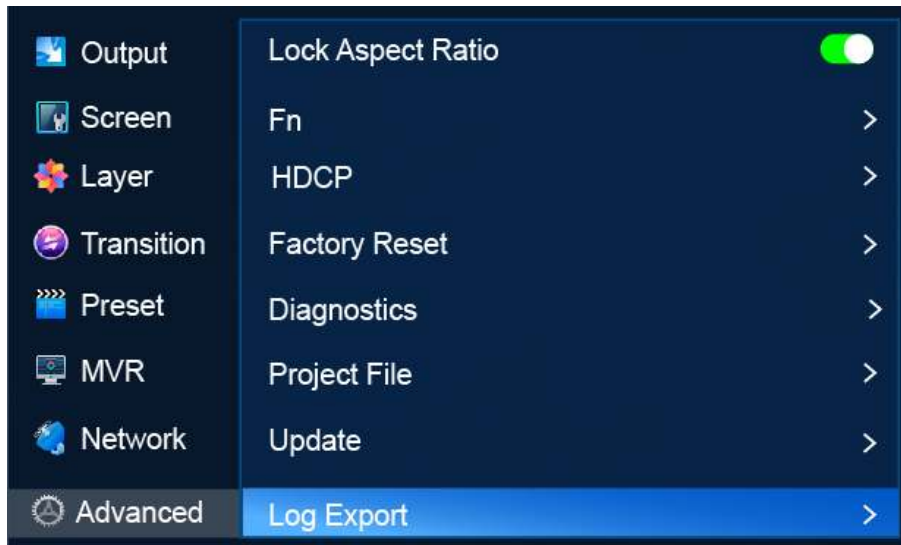
## Notes

The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.

## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Log Export**.

Figure 6-63 Exporting logs (P20)



## Description

Select **Log Export** to access the submenu. Select **Apply** to export the log files to the root directory of the USB.

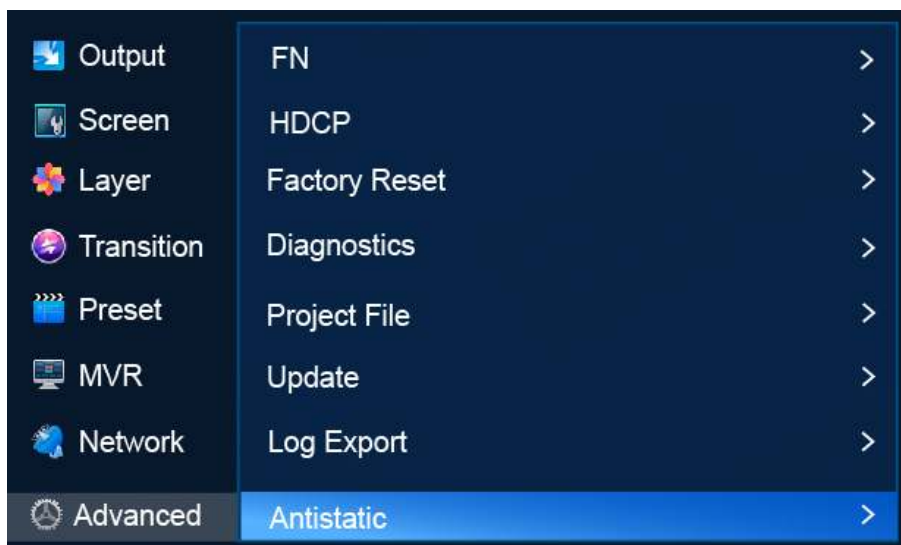
### 6.2.11.12 Set Antistatic

The P20/P20-DS/P10 support antistatic settings. Users can set the antistatic duration according to the actual static electricity, ensuring the display remains normal to keep events smooth and successful.



## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Antistatic**.

Figure 6-64 Antistatic



## Description

On	Turn on/off antistatic. <ul style="list-style-type: none"> <li>  On                      If the primary source fails, it will freeze on the last frame before the failure throughout the specified protection duration. The backup source will become active if the failure of the primary source remains beyond this duration.                 </li> <li>  Off                      Upon the failure of the primary source, the backup source will become active immediately.                 </li> </ul>
Duration	Set the antistatic duration. The maximum duration is 2s.

### 6.2.11.13 Manage Third-Party Plugins

The P20/P20-DS/P10 can be controlled from the third-party device Stream Deck. The Companion plugin can be updated, turned on/off from the front panel LCD of the P10/P20/P20-DS.

## Prerequisites

The Companion plugin file has been placed in the root directory of the USB drive, and the USB drive has been inserted into the USB port on the front panel of the P10/P20/P20-DS.

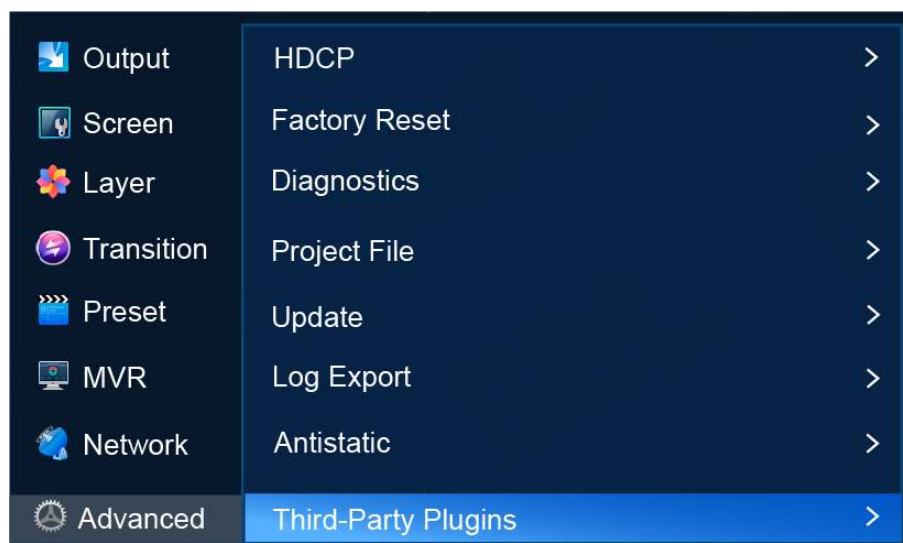
## Notes

The USB port on the front panel of the P20/P20-DS/P10 does not support USB HUB.



## Menu Orientation

On the main menu screen, scroll to and select **Advanced > Third-Party Plugins**.

Figure 6-65 Third-party plugins



## Description

Update Plugin	<ol style="list-style-type: none"> <li>1. Select <b>Update Plugin</b> to access the file list.</li> <li>2. Select an update file and select <b>OK</b> in the dialog box that appears.</li> </ol>
Companion	<p>Turn on/off the Companion plugin.</p> <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>

## 6.2.12 Mode

Switch the working mode and layer specification of the device as needed.

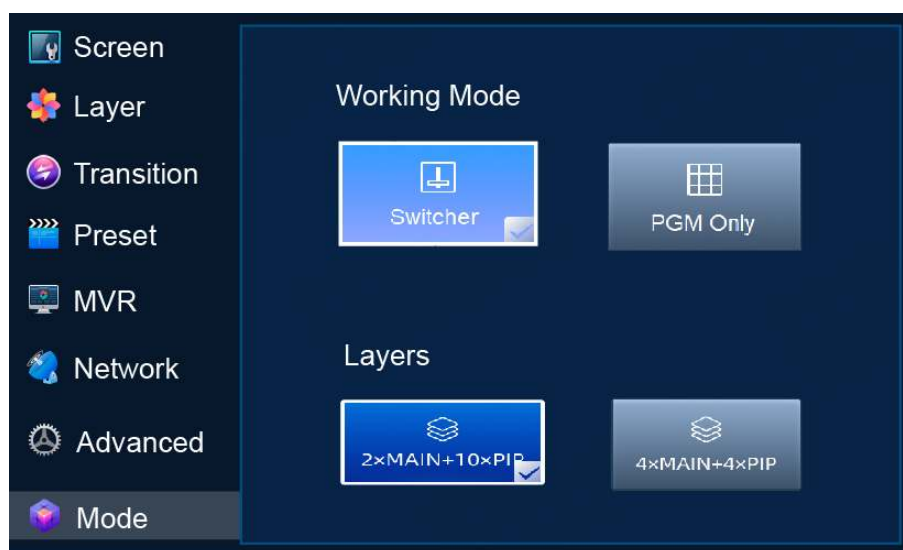
### Notes

- Layer specification switching is only available for the P20/P20-DS.
- Under both the **Switcher** and **PGM Only** modes, the layer specification switching is supported.
- Changing the layer specification will clear the current layer data, but not for AUX and MVR.
- When you switch to **4xMAIN+4xPIP**, only two out of the four MAIN layers support the cut & fill function.
- When you switch to **4xMAIN+4xPIP**, dynamic range conversion is not supported.

### Menu Orientation

On the main menu screen, scroll to and select **Mode**.

Figure 6-66 Mode (P20)



## Description

Working Mode	Select a working mode for the device. <ul style="list-style-type: none"><li>• Switcher</li><li>• PGM Only</li></ul>
Layers (P20/P20-DS only)	Select a layer specification option for the device. <ul style="list-style-type: none"><li>• 2×MAIN+10×PIP</li><li>• 4×MAIN+4×PIP</li></ul>

After an option is selected, ✓ appears at the bottom right, as shown in [Figure 6-66](#).

## 6.2.13 About Us

View the P20/P20-DS/P10 firmware version, the email address and official website of PIXELHUE.

### Menu Orientation

On the main menu screen, scroll to and select **About Us**.

Figure 6-67 About us (P20)



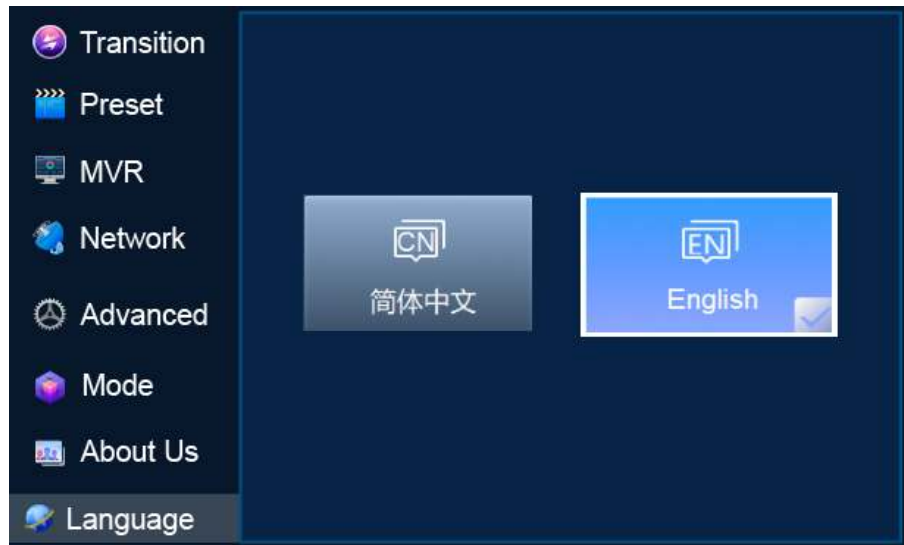
## 6.2.14 Language

Set the display language of the menu. English and Simplified Chinese are available.

### Menu Orientation

On the main menu screen, scroll to and select **Language**.

Figure 6-68 Language (P20)



## Description

Select 简体中文 or **English**. After a language is selected, ✓ appears at the bottom right, as shown in [Figure 6-68](#).

## 6.3 Q8 Menu Operations

### 6.3.1 Startup and Shutdown

To turn on the Q8, connect all the necessary cables and at least two power cords properly, and press the power button on the front panel.

To turn off the Q8, press the button, and a shutdown prompt window appears on the LCD screen. Tap **Yes** to shut down the device.

### 6.3.2 Home Screen

After the startup, the home screen is displayed.

Figure 6-69 Home screen



Table 6-3 Home screen description

No.	Content	Description
1	Information bar	<ul style="list-style-type: none"> <li>: Device manufacturer logo.</li> <li><b>Q8</b>: Device model.</li> <li><b>SYSTEM</b>: Device name, which can be modified on the control computer.</li> <li>Device lock status:                             <ul style="list-style-type: none"> <li>: The device is locked.</li> <li>: The device is unlocked.</li> </ul> </li> <li><b>192.168.100.100</b>: Device IP address, which can be modified on the device LCD or the control computer.</li> <li>: Press the button, and a shutdown prompt window appears on the LCD screen. Tap <b>Yes</b> to shut down the device.</li> </ul>
2	Input card information	<p>Show the input card and its connector status.</p> <ul style="list-style-type: none"> <li>Green: The connector is accessed with a source and the source is normal.</li> <li>White: The connector is not accessed with source.</li> <li>Gray: The connector is unavailable.</li> <li>Orange: The connector's accessed source is abnormal.</li> <li>Red: The connector does not support standard resolutions or the bandwidth limit is exceeded.</li> <li>Orange box: Copy.</li> </ul>
3	Output card information	<p>Show the output card and its connector status.</p> <ul style="list-style-type: none"> <li>Green: The connector is connected to the backend device.</li> </ul>

No.	Content	Description
		<ul style="list-style-type: none"> <li>• White: The connector is not connected to the backend device.</li> <li>• Gray: The connector is unavailable.</li> <li>• Red: The connector does not support standard resolutions or the bandwidth limit is exceeded.</li> <li>• Orange box: Copy.</li> </ul>
4	FRONT PANEL	<p>Show the connection status of the Link port on the front panel.</p> <ul style="list-style-type: none"> <li>• Green: The connector is connected and working normally.</li> <li>• Gray: The connector is not connected.</li> </ul>
5	Power connector	<p>Show the power supply connection status.</p> <ul style="list-style-type: none"> <li>• Green: The connector is connected with a power supply.</li> </ul> <p>White: The connector is not connected with a power supply and the power is not supplied.</p>
6	Control card connector	<p>Show the card connector status.</p> <ul style="list-style-type: none"> <li>• Green: The connector is connected and works normally.</li> <li>• Gray: The connector is not connected.</li> <li>• Red: The connector does not support standard resolutions or the bandwidth limit is exceeded.</li> <li>• Orange box: Copy.</li> </ul>
7	Voltage status	<p>Show the device working voltage status.</p> <ul style="list-style-type: none"> <li>• Normal: The voltage of each module in the device is normal.</li> <li>• Abnormal: The voltage of one or some modules in the device is abnormal, and the device needs troubleshooting.</li> </ul>
8	Temperature status	<p>Show the device working temperature status.</p> <ul style="list-style-type: none"> <li>• Normal: The temperature of each module in the device is normal.</li> <li>• Abnormal: The temperature of one or some modules in the device is too high, and the device needs troubleshooting.</li> </ul>
9	Fan status	<p>Indicate whether the fan speed is normal when the device is working.</p> <ul style="list-style-type: none"> <li>• Normal: The speed of each fan in the device is normal.</li> <li>• Abnormal: The speed of one or some fans in the device is abnormal, and the device needs troubleshooting.</li> </ul>
10	Settings	<p>Tap to enter the device menu where you can perform the following device operations.</p> <ul style="list-style-type: none"> <li>• Network settings: Configure the device IP address.</li> <li>• Device information: Check the device's chassis and card versions, and fan status.</li> <li>• Advanced settings: Perform factory reset settings, firmware update, project file import and export, log export, AC back settings, fan mode settings, antistatic settings, plugin update, lock screen.</li> </ul>

No.	Content	Description
		<ul style="list-style-type: none"><li>• Language: Set the user interface language.</li><li>• About us: Check the official website and technical support email address of the device manufacturer.</li></ul>

### 6.3.3 Network Settings


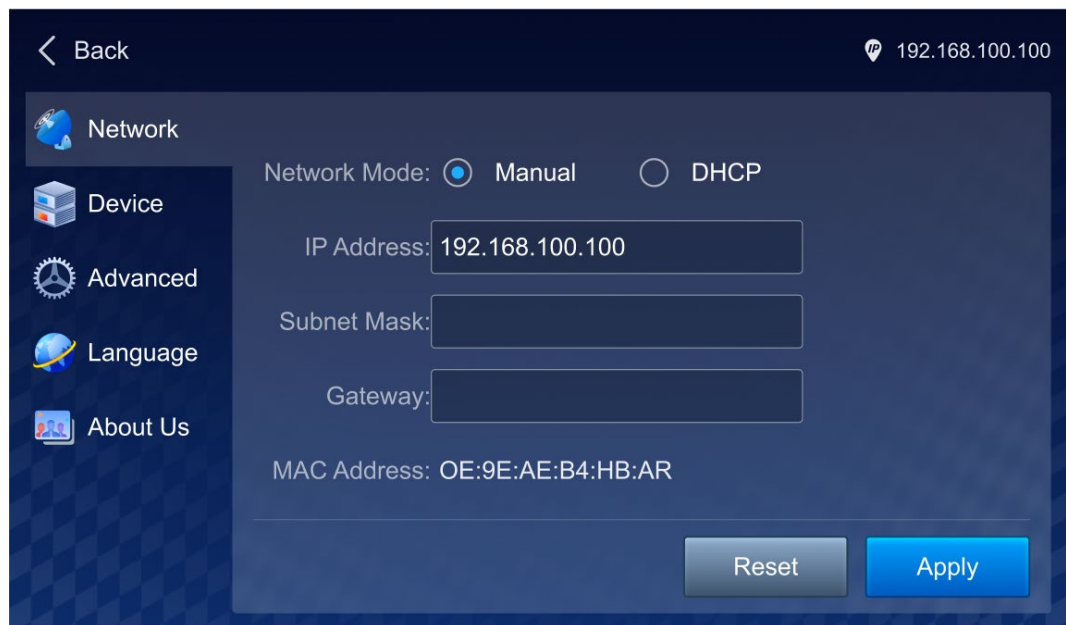
- Step 1 On the home screen, tap  located at the bottom right corner to enter the settings screen.
- Step 2 Select **Network** to enter the network settings screen.
- Step 3 Configure the device IP address information.

Figure 6-70 IP address settings



The device supports both automatic (DHCP) and manual IP configuration. When the device is connected via router or switch, DHCP is recommended. The router or switch will automatically assign IP address to the device. When the network mode is set to **Manual**, you need to set **IP Address**, **Subnet Mask** and **Gateway**.

 **Note**

When manually configuring the IP address, the device IP address and the control computer IP address must be on the same network segment.

- Step 4 Tap **Apply** to complete the settings.

### 6.3.4 Device Information

On the **Device** screen, you can check the power voltage status, card temperature, version and serial number (SN), and fan running status of the device.

Figure 6-71 Device information

	Voltage	Card	Fans
Card No.	Temp	Processing Card Version/SN	Connector Card Version/SN
IN1	Normal	V1.0.0.0.S3.T3 1710402335283	V1.0.0.0.S3.T3 12345667778912
IN2	Normal	V1.0.0.0.S3.T3 1710402335283	V1.0.0.0.S3.T3 12345667778912
IN3	Normal	V1.0.0.0.S3.T3 1710402335283	V1.0.0.0.S3.T3 12345667778912
IN4	Normal	V1.0.0.0.S3.T3 1710402335283	V1.0.0.0.S3.T3 12345667778912

Two ways to enter the **Device** screen:

- On the home screen, tap located at the bottom right corner to enter the settings screen. Then, tap **Device** on the left.
- On the home screen, tap the icon in the status bar on the right to enter the corresponding screen under **Device**.
  - : Displays the voltage status of the connected power supply. Tap this icon to enter the **Voltage** screen under **Device**, where you can check the connection status of the three power supplies and whether the power connector voltage is normal.
  - : Displays the device card temperature. Tap this icon to enter the **Card** screen under **Device**, where you can check the card temperature, version and SN.
  - : Displays whether the device fans are running normally. Tap this icon to enter the **Fans** screen under **Device**, where you can check the status of all the device fans.

### 6.3.5 Advanced Settings

In advanced settings, you can do the following operations:

- Factory reset
- Update firmware
- Import and export project files
- Export log files
- Set the device status after AC power back
- Select a fan mode
- Configure electrostatic protection

- Update the plugin
- Set device lock


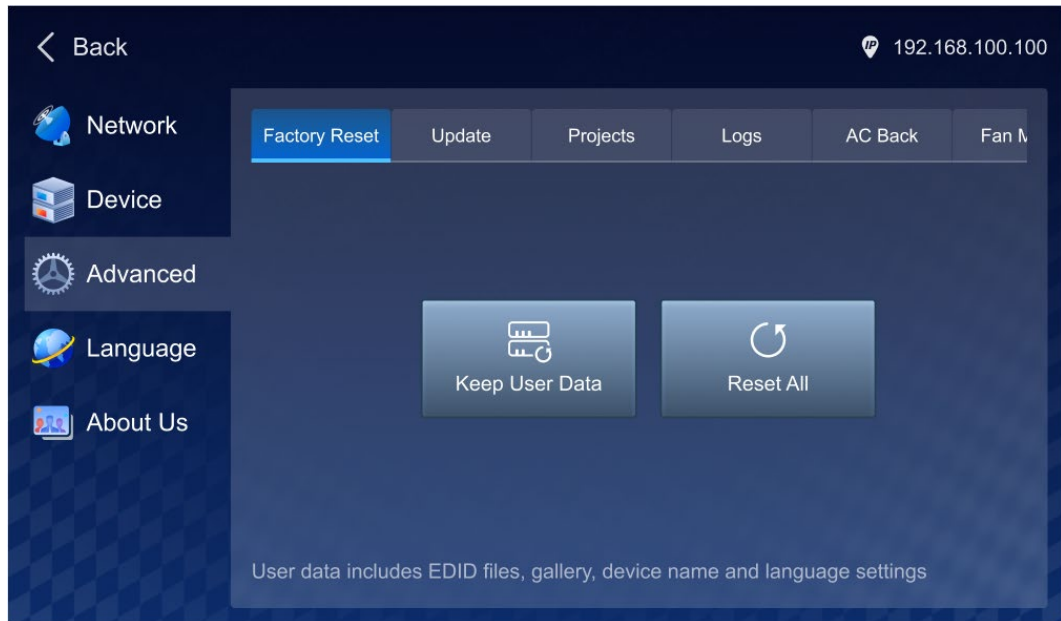
On the home screen, tap  located at the bottom right corner to enter the settings screen. Then, tap **Advanced** to enter the advanced settings screen.

Figure 6-72 Advanced settings



## Factory Reset

This function is used to quickly clear the data saved in the device. All parameters will be restored to the default values.

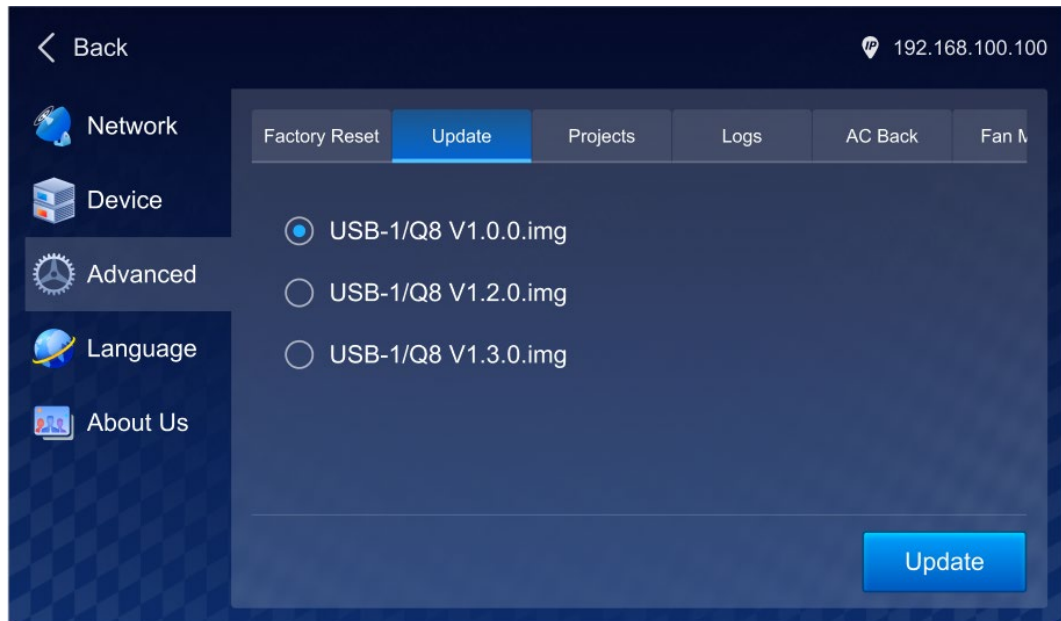
- Keep User Data: During factory reset, the network configuration, EDID files, gallery, device name and language settings will be kept, while other parameters will be restored to the default values.
- Reset All: All device parameters will be restored to the default values.

## Update Firmware

The Q8 supports firmware update via USB drive. To do that, save the update file in the root directory of the USB drive and then insert the drive into the USB port on the control card of the Q8.

On the **Advanced** screen, tap **Update** to enter the firmware update screen and the system will automatically detect and read the update file in the USB drive.

Figure 6-73 Firmware update



Select the target update file, tap **Update**, and the system will automatically update the device.

The device will automatically restart during the update.

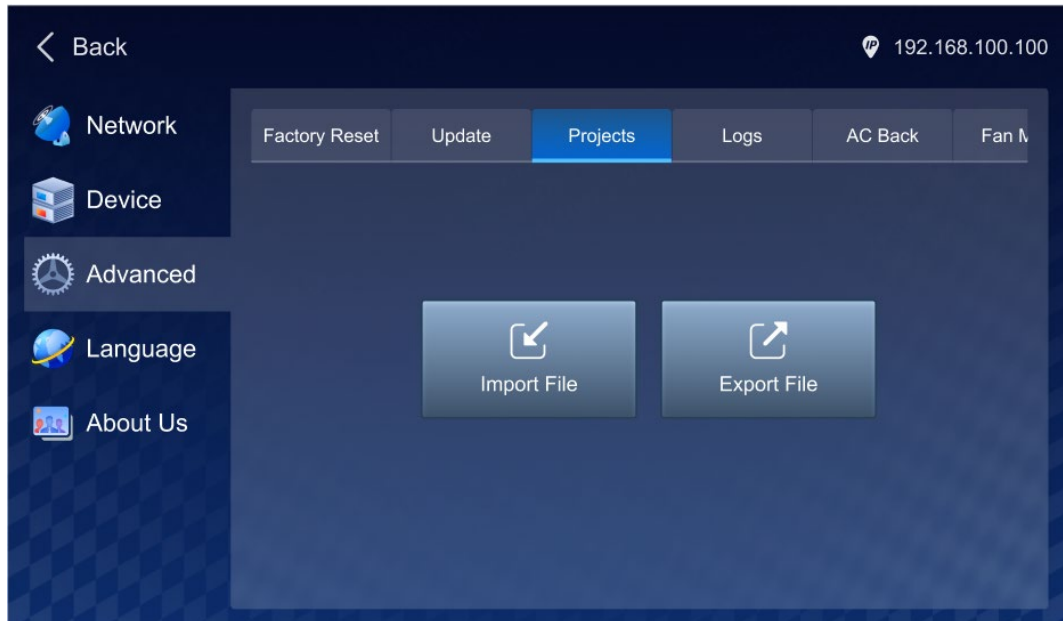
## Import and Export Project Files

The Q8 supports import and export of configured project information via USB drive, allowing you to quickly complete device configuration.

- To import project files, save the files in the root directory of the USB drive and then insert the drive into the USB port on the control card of the Q8.
- To export project files, insert the USB drive that is used to save the files into the USB port on the control card of the Q8.

On the **Advanced** screen, tap **Projects** to enter the project file import and export screen.

Figure 6-74 Importing and exporting project file



- Importing project file: Tap **Import File**, and the system will automatically read the project files in the USB drive. After selecting the target file, tap **OK**, and the system will automatically import the file to the device. After the import is complete, the device will automatically restart.
- Exporting project file: Tap **Export File**, and the system will automatically export the current configured project file to the selected USB drive.

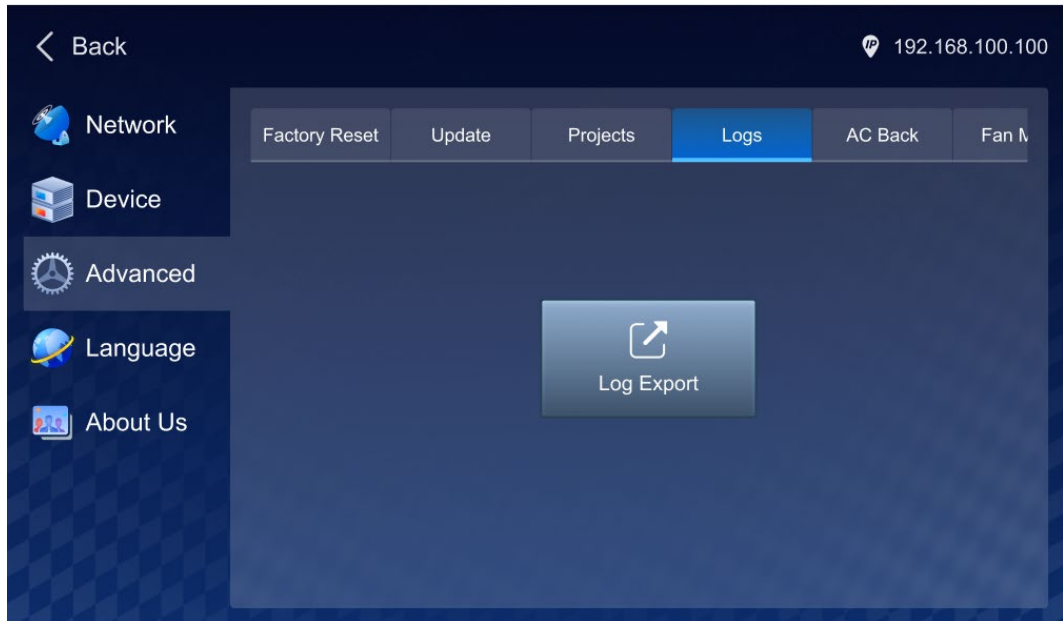
## Export Logs

The Q8 supports export of the device running logs via USB drive. When the device has an exception, the logs can help you quickly troubleshoot the problem.

To export logs, insert the USB drive that is used to save the logs into the USB port on the control card of the Q8.

On the **Advanced** screen, tap **Logs** to enter the log export screen.

Figure 6-75 Exporting logs

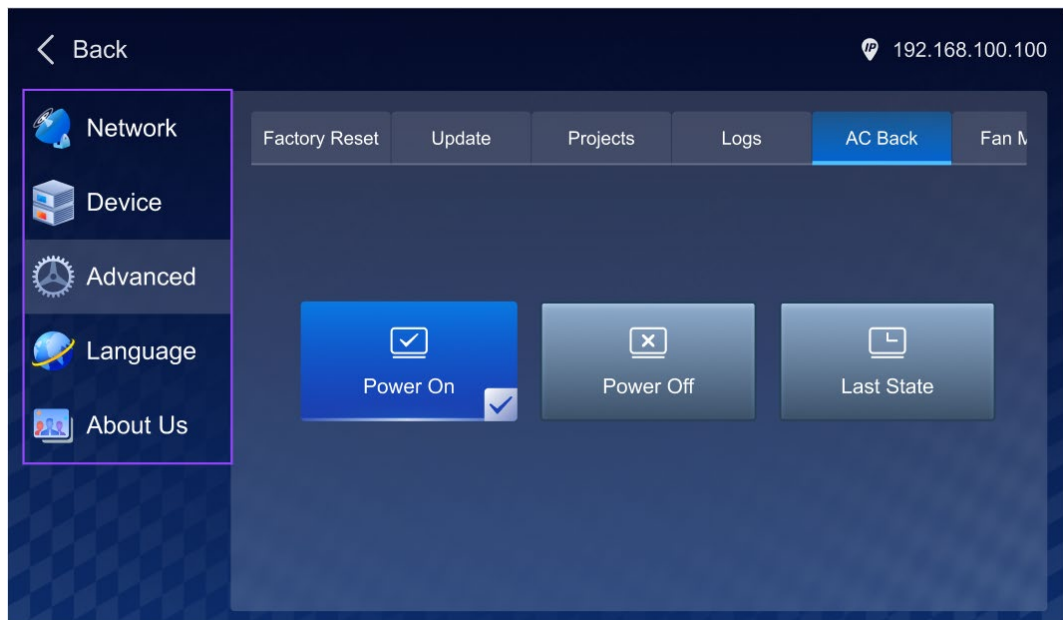


Tap **Log Export** to export the device logs to the selected USB drive.

### Set Device Status After AC Back

Set whether the device automatically powers on after the power is supplied.

Figure 6-76 AC back

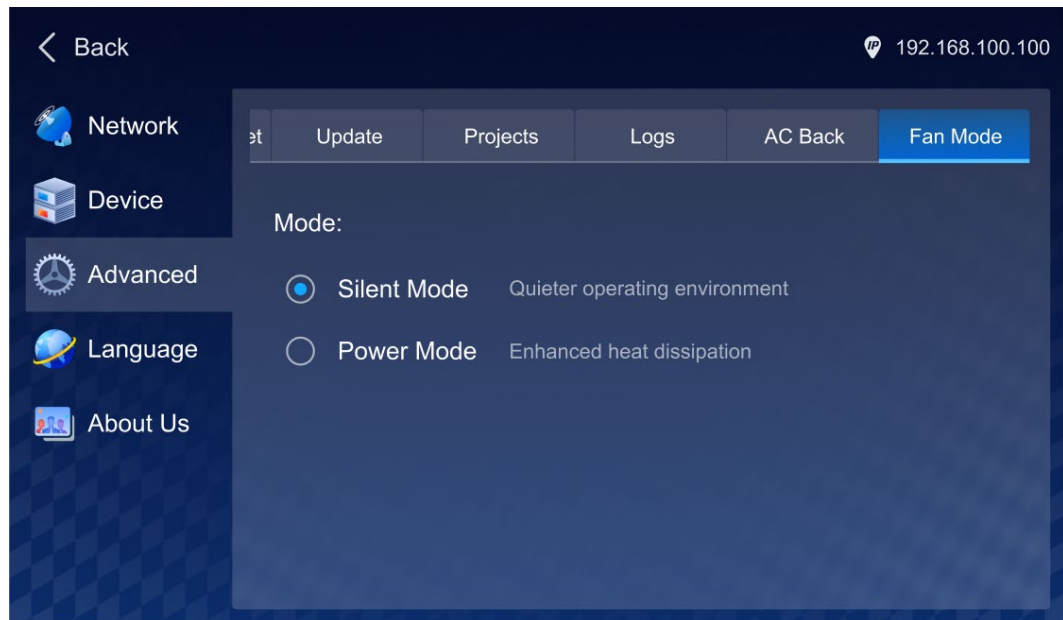


- Power On: After the power is supplied, the device automatically powers on.
- Power Off: After the power is supplied, the device remains in the power-off state. To power on the device, press the power button on the device front panel.
- Last State: After the power is supplied, the device remains in the last state.

## Fan Mode

On the **Fan Mode** screen, select the appropriate mode based on the different operating scenarios of the device.

Figure 6-77 Fan mode



- **Silent Mode:** Achieves a quieter operating environment.
- **Power Mode:** Provides enhanced heat dissipation.

---

### Note

When operating in power mode, the device noise level may be higher, potentially reaching up to 55 dB (A).

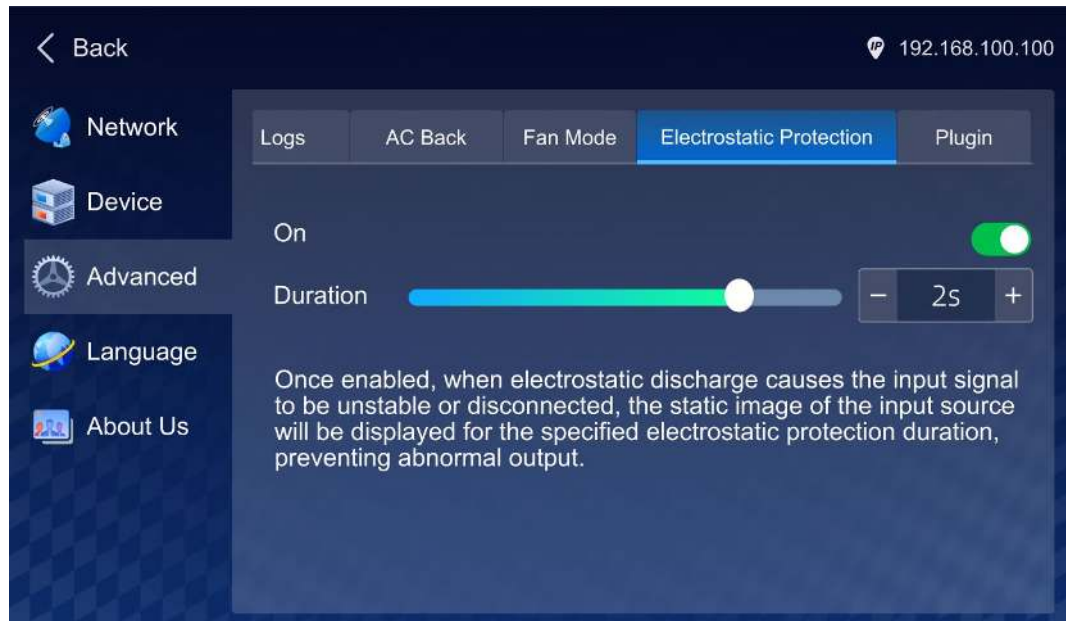
---

## Electrostatic Protection

The Q8 provides an electrostatic protection feature, effectively preventing issues such as unstable input or frequent input disconnection due to static electricity.

On the **Advanced** screen, tap **Electrostatic Protection** to access the settings.

Figure 6-78 Electrostatic protection



Choose to turn on or off the switch (off by default) and set the electrostatic protection duration.

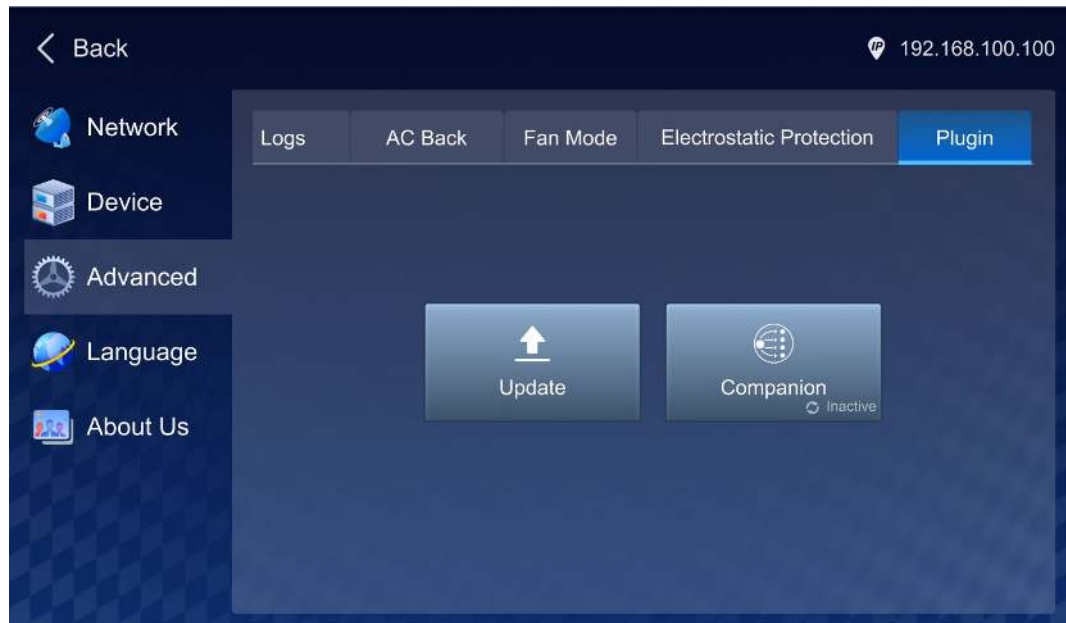
- **On:** If the primary source fails, it will freeze on the last frame before the failure throughout the specified protection duration. The backup source will become active if the failure of the primary source remains beyond this duration.
- **Off:** Upon the failure of the primary source, the backup source will become active immediately.

## Plugin

The Q8 can run the Companion plugin, enabling the third-party device Stream Deck to intelligently control the Q8 through simple configuration.

On the **Advanced** screen, tap **Plugin** to enter the plugin screen.

Figure 6-79 Plugin



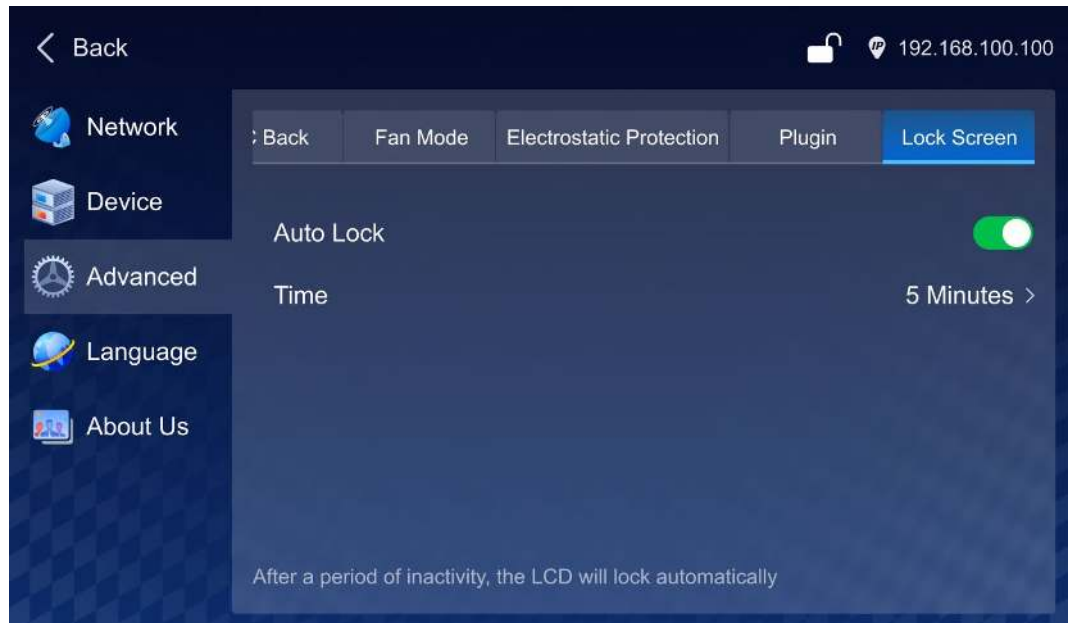
The Q8 supports plugin update via USB drive. To do that, first save the update file in the root directory of the USB drive, and then insert the USB drive into the USB port on the control card of the Q8.

- Update: Click **Update**, and the system will automatically read the plugin files from the USB drive. Select the desired plugin file and click **OK** to proceed with the plugin update.
- Companion: Click the **Companion** icon to launch the Companion plugin. The plugin status will update from **Inactive** to **Running**, indicating that the plugin has been activated.

## Lock Screen

The Q8 offers a front panel LCD screen lock feature, including automatic and scheduled lock modes. Once enabled, it helps prevent accidental operations due to unintended touches, enhancing the device's security and stability.

Figure 6-80 Lock screen




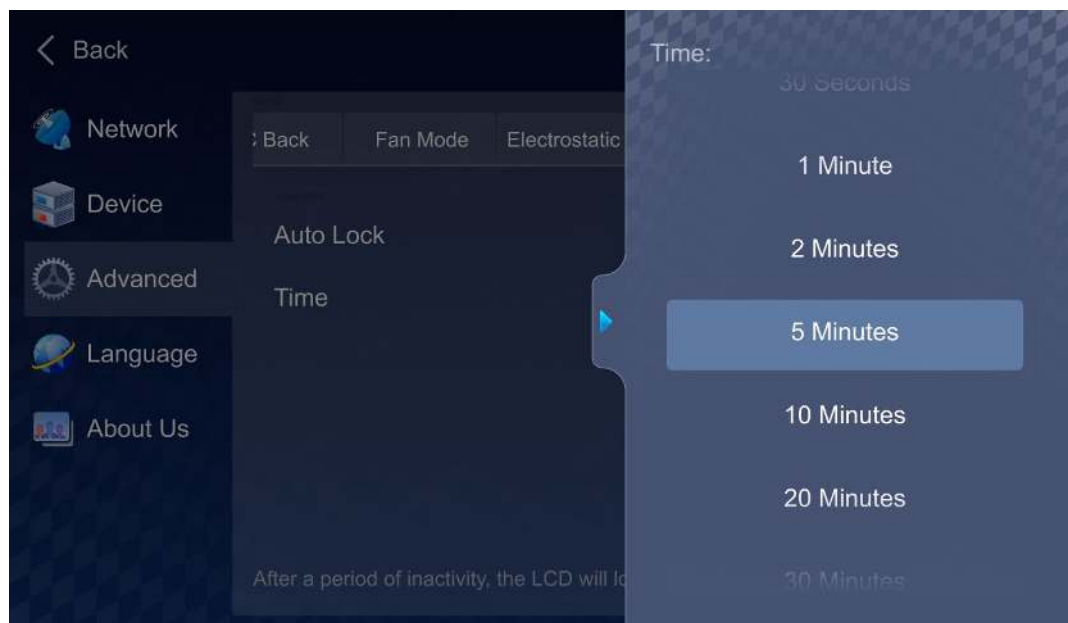
- Manual lock: Tap the  icon in the upper right corner of the home screen to lock the screen.
- Automatic lock: On the **Lock Screen** interface, tap to enable **Auto Lock**, and set the lock screen time.

Figure 6-81 Auto lock

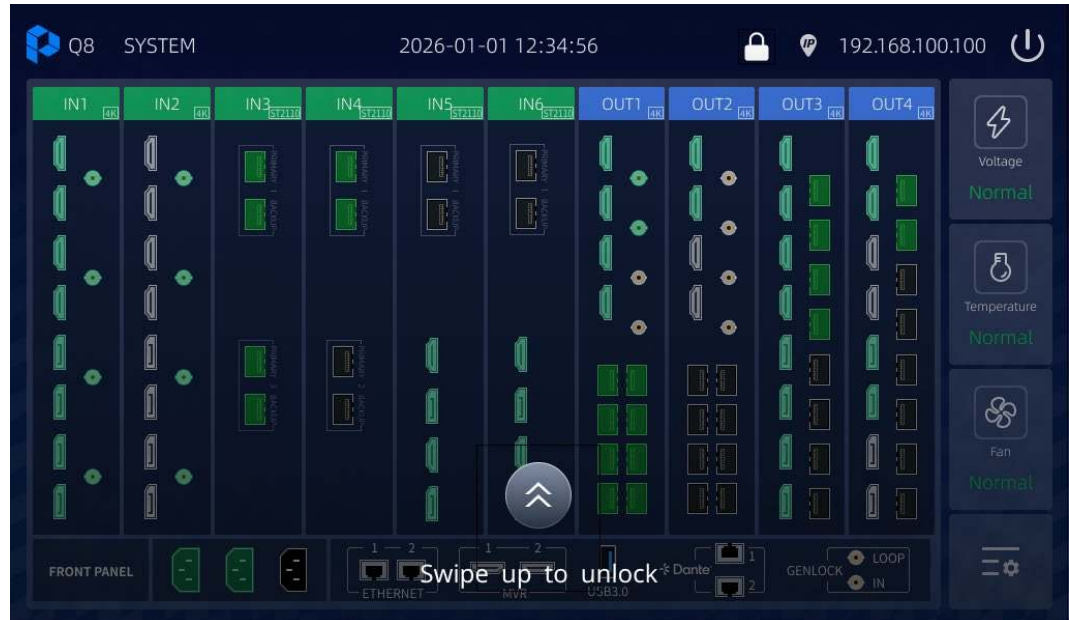


 **Notes:**

When performing an automatic lock, ensure all interface pop-ups are closed; otherwise, the screen will not lock automatically even if the set time has elapsed.

- **Unlock:** Tap the screen on the home screen, and when the slide button appears, swipe up to unlock.

Figure 6-82 Unlock



### 6.3.6 Language

The Q8 supports both Chinese and English UI languages. You can change the language on the **Language** screen.

### 6.3.7 About Us

On the **About Us** screen, you can check the device system version and the device manufacturer related information.

# 7 Event Management Software PixelFlow

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## About This Chapter

This chapter provides a detailed description of each section of the event management software PixelFlow, as well as a step-by-step approach to configure the projects, devices, screens, layers, Multiviewer, presets and more.

## Overview

- Software Installation and Connection
- Project Management
- Device Management
- Screen Configuration
- Layer Operations
- Multiviewer (MVR)
- Audio Matrix
- Tools
- Simulation Event Controller
- Software Settings



### Notes:

- The device in this chapter refers to the P80, P20, P20-DS, P10 or Q8 seamless switcher.
  - The software pictures given in this chapter are used for illustration purposes only. The actual user interface may vary slightly due to product enhancement. The content of the pictures can be slightly different from reality, such as the form and position of the software windows, input source images and more.
-

## 7.1 Software Installation and Connection

### 7.1.1 Software Installation

#### Prerequisites

- The software package is obtained.
- A computer meeting the following requirements is prepared:

##### Windows:

- Operating System: Windows 10 (64-bit) or above
- CPU: 12th Generation Intel i7 processor or above
- Memory: 16 GB or above


##### Mac OS:

Mac OS 10.14 or above

#### Installation Method

Run the .exe file and follow the setup wizard to complete the installation. If a firewall prompt appears, choose to allow the installation.

#### Installation Result

After a successful installation, the PixelFlow software icon  is displayed on the desktop. Double click this icon to open the PixelFlow software.

### 7.1.2 Software Connection

The PixelFlow software is installed on the control computer. The control computer can connect to the device in the following two ways:

- Via Ethernet cable

Connect the device and the control PC directly via Ethernet cable and set a static IP address for the device to let it and the control PC be on the same network segment.

- Via LAN

Connect the device and the control PC to the same LAN via a router and set the device to automatically obtain an IP address.

## 7.2 Project Management

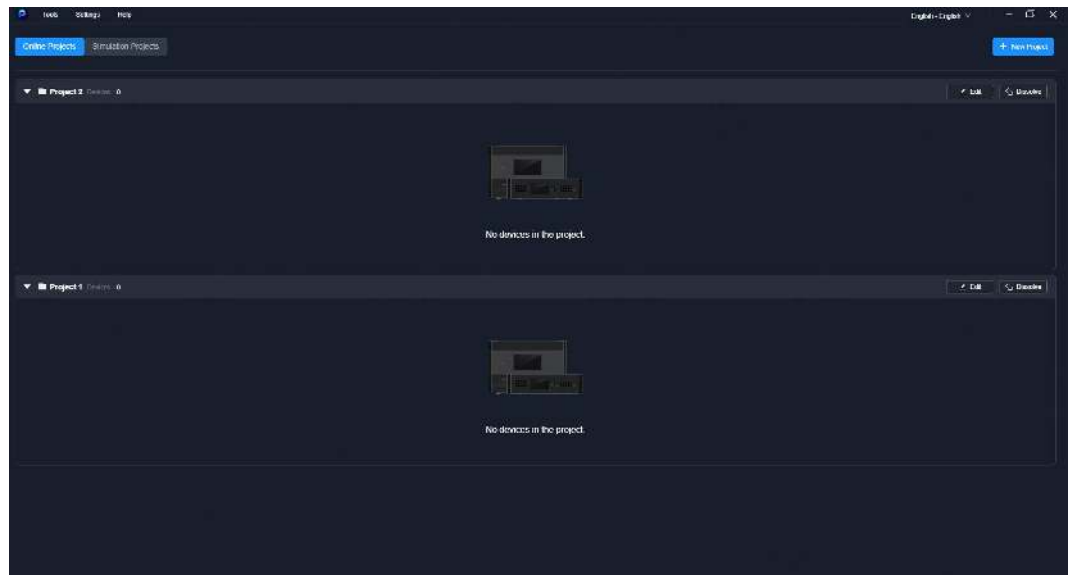
Create, edit, and dissolve projects. Project files (.uprj) can be exported from the current device and imported into others, promptly applying device parameters and resource files.

## 7.2.1 Create New Projects

Devices of the same series on a local network are automatically added to a default project. Users can create additional projects and move online devices from the default project to new ones. Furthermore, simulation projects can be created to simulate real device configurations and understand the product better.

Step 1 Open the software and access the main interface.

Figure 7-1 Project



Step 2 Create an online project or simulation project.

- Online Project: Create a project for online devices. Select the **Online Project** tab in the top left and click **New Project** in the top right. Enter the project name in the popup window and click **OK**.

Figure 7-2 New projects

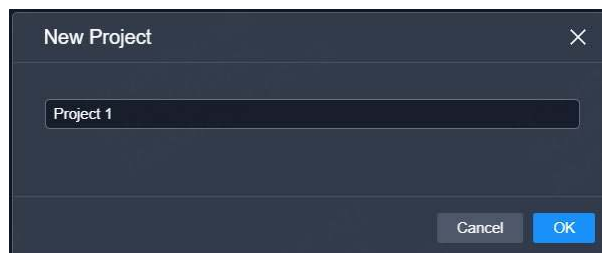
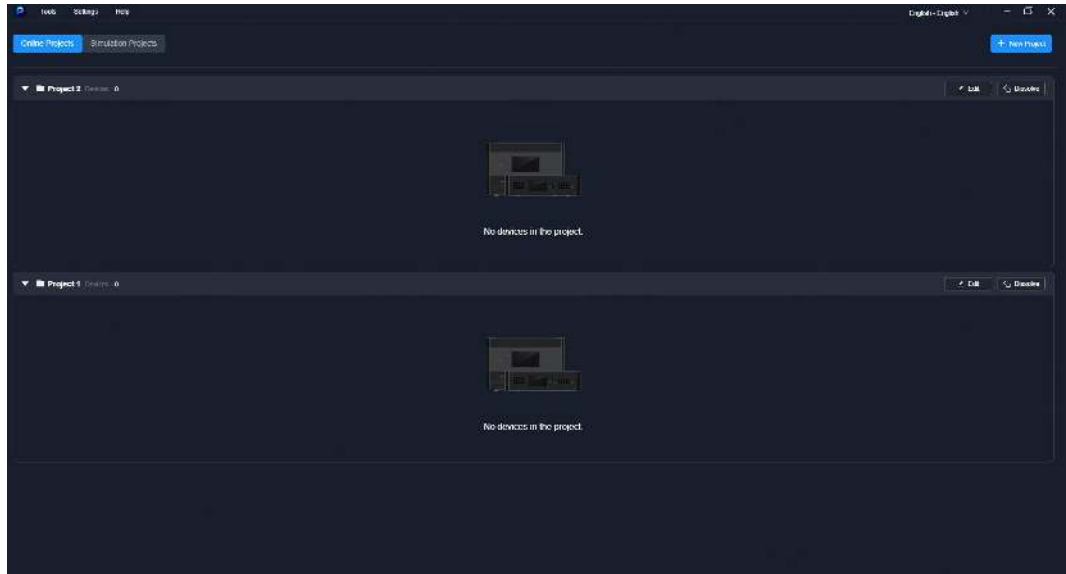


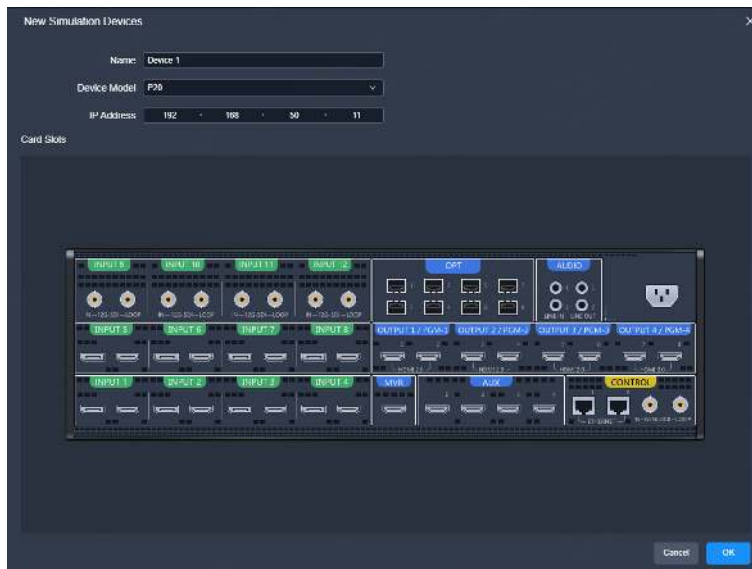
Figure 7-3 New online projects



- **Simulation Project:** Create a project for simulation devices. Select the **Simulation Project** tab in the top left and click **New Project** in the top right. Enter the project name in the popup window and click **OK**.

Click **Add simulation devices**, set the device name, model, and IP address in the dialog, then click **OK** to add it to the list.

Figure 7-4 New simulation devices



For online projects, devices of the same series are automatically grouped under one project. When adding simulation devices, only devices of the same series can be included in a single project.

Figure 7-5 Devices of same series in a single project



 **Note**

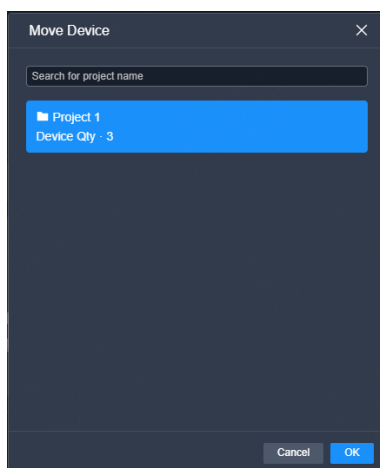
- In the project list area, you can perform the project-related operations.
  - Edit project: Click **Edit** to rename the project.
  - Export project: Click **Export** to export the online project file. Simulation projects do not support exporting.
  - Dissolve project: Click **Dissolve** to delete the current project. In a simulation project, all simulation devices are automatically deleted; in an online project, all online devices are moved to the default project.
  - Enter project: Click **Enter** to enter the device configuration interface.
- Due to hardware design differences, the P80 cannot be included in the same project with the P10, P20, or P20-DS devices.

**Step 3** Move devices between projects.

Expand the project list, hover over the target device, and click **Move** or manually drag it to another project.

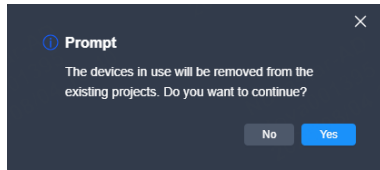
- Move: Choose the target project in the popup window, then click **OK**.

Figure 7-6 Moving devices



- Manual drag: Manually drag to another project and click **Yes** in the popup.

Figure 7-7 Moving devices



---

 **Note**

Devices of the same series can only be added into one project.

---

## 7.2.2 Import Projects

Import the local project files (.uprj) to the device.

- Step 1 Select the **Online Projects** or **Simulation Projects** tab, and click **Enter** access the device configuration interface.
  - Step 2 Navigate to **File > Import** from the menu bar.
  - Step 3 In the dialog box that appears, select a project file (.uprj) and click **OK**.
- 

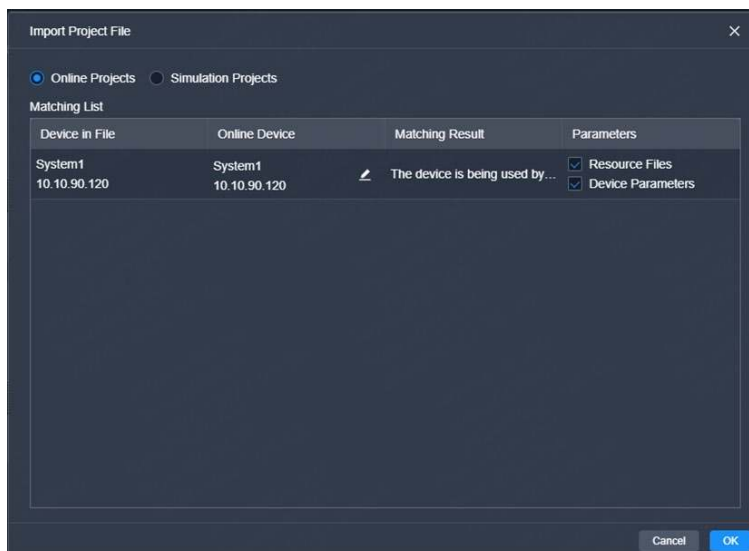
 **Note**

Simulation project files can be imported into online projects.


---

- Step 4 In the displayed **Import Project File** window, select **Online Projects** or **Simulation Projects**.

Figure 7-8 Import project files



- Step 5 After successful device matching, select the data to be imported and click **OK**.

The software matches the SN, name, IP address, model, and firmware version from the file with the online or simulation device. Click  to modify the match:

- For online devices, select other online devices from the drop-down menu.

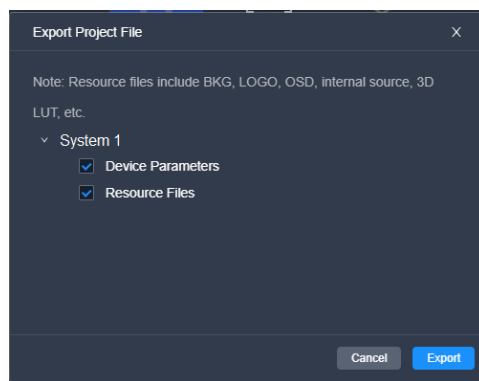
- For simulation devices, choose to create a new simulation device. Ignore the current device, or select another simulation device from the drop down menu.

## 7.2.3 Export Projects

Export the device project files to your local computer.

- Step 1 Select the **Online Projects** or **Simulation Projects** tab, and click **Enter** access the device configuration interface.
- Step 2 In the menu bar, navigate to **File > Export**.
- Step 3 In the displayed dialog box, select the desired data.

Figure 7-9 Export project files



- Step 4 Click **Export**.
- Step 5 In the displayed dialog box, select a file path and click **Save**.

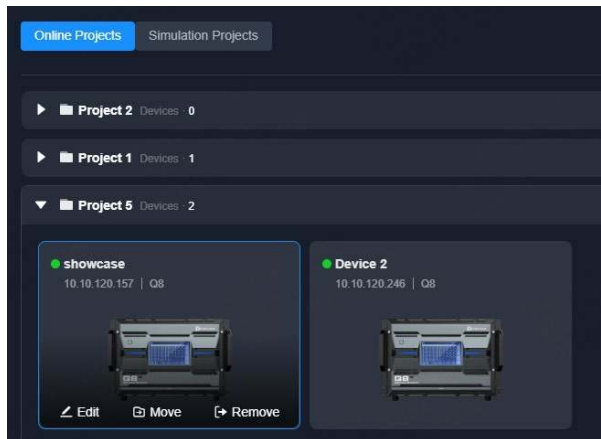
## 7.3 Device Management

### 7.3.1 Enter Device Configuration Page

#### 7.3.1.1 Online Devices

- Step 1 Select the **Online Projects** tab.

Figure 7-10 Online device list



- Step 2 If the device is not logged in, click **Login**. In the dialog box that appears, simply click **Login** (keeping the default values for username and password). If the device is already logged in, skip this step.
- Step 3 After logging in, view the device name, IP address, and model. Double click the device front panel image or click **Enter** on the right side of the project list to access the device configuration interface.

### 7.3.1.2 Simulation Devices

Simulation devices, without any physical connections, simulate real device configurations, enabling users to easily utilize and understand the software.



- Step 1 Select the **Simulation Projects** tab.
- Step 2 Click **Add simulation devices**.

Figure 7-11 Simulation device list



- Step 3 In the pop-up dialog, set the device name, model, and IP address, and click **OK**.

Once created, the device will be displayed in the list and will be in the default started state.

- : The device is started.
- : The device is off.

#### Note

For devices in the project list, you can perform the following operations:

- Start all devices: Click **Start All**.
- Shut down all devices: Click **Shut Down All**.

- Shut down device: Click **Shut Down**.
- Start device: Click **Start**.
- Edit device: Click **Edit**. Once the simulation device is started, editing is not allowed. To make changes, you must shut down the device first.
- Move device: For an active device, click **Move**, choose the target project in the popup, and click **OK**.
- Delete device: Click **Delete**.

Figure 7-12 Add simulation devices



Step 4 After creation, you can view the device status, name, IP address, and model.

- Double click the device front panel image or click **Enter** on the right side of the project list to access the device configuration interface.
- Hover over the device information to start, shut down, edit (modify device name, IP address), move, or delete the device.



## 7.3.2 Configure Device Properties

Select the device on the left side of the device configuration interface, and then configure the device-related properties on the right pane.

Figure 7-13 Device properties (P20)



**Note**

- The Q8 online devices will also display CXP/QSFP, LINK IN, LINK OUT, and OPT ports, which the virtual devices do not show.
- For the P80, click **Front Panel** located at the top right of the rear panel to view USB 2.0 port status.

### 7.3.2.1 Rename Device

Change the device name.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

None

#### Notes

None

#### Interface Example (P20)

Device Name	Device 1
Firmware Version	V1.6.0.T3
Device SN	virtual1742802088606
MAC Address	F4:A4:75:92:E7:21

## Description

Enter a name for the device in the text box next to **Device Name**.

### Note

In the device list on the left side of the interface, you can also right click the device name and select **Rename** from the context menu to change the device name as well.

## 7.3.2.2 Switch Working Mode

When the device supports dual working modes (Switcher and PGM Only), you can switch to either mode that satisfies your actual needs.

### Applicable Products

P20, P20-DS, P10

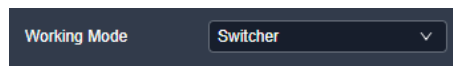
### Prerequisites

None

### Notes

None

### Interface Example (P20)



## Description

Select **Switcher** or **PGM Only** from the drop-down list.

## 7.3.2.3 Switch Layer Specification

The device supports dual layer specification options, and you can switch to either specification that satisfies your actual needs.

### Applicable Products

P20, P20-DS

### Prerequisites

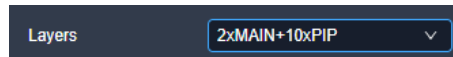
None

### Notes

- Under both the **Switcher** and **PGM Only** modes, the layer specification switching is supported.

- Changing the layer specification will clear the current layer data, but not for AUX and MVR.
- When you switch to **4xMAIN+4xPIP**, only two out of the four MAIN layers support the cut & fill function.
- When you switch to **4xMAIN+4xPIP**, the HDR format conversion function is not supported.

### Interface Example (P20)



### Description

Select **2xMAIN+10xPIP** or **4xMAIN+4xPIP** from the drop-down list.

### 7.3.2.4 Configure IP Address

Manually set a static IP address for the device or let the device to automatically obtain an IP address.

### Applicable Products

P80, P20, P20-DS, P10, Q8

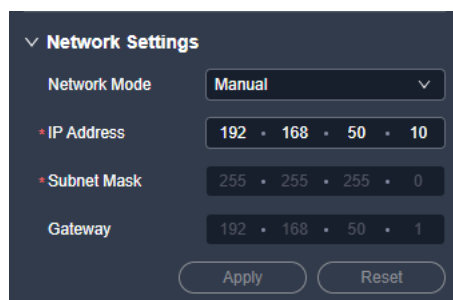
### Prerequisites

None

### Notes

None

### Interface Example (P20)



### Description

Configure the following parameters and click **Apply** to make the settings take effect.

Parameter	Description
Network Mode	Select the IP configuration method. <ul style="list-style-type: none"> <li>Manual: Manually set a static IP address for the device.</li> <li>DHCP: The device automatically obtains an IP address.</li> </ul>
IP Address	The device IP address
Subnet Mask	The subnet mask of the IP address
Gateway	The default gateway

### 7.3.2.5 Configure Sync Source

Enable the sync function and configure the sync source for the output.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

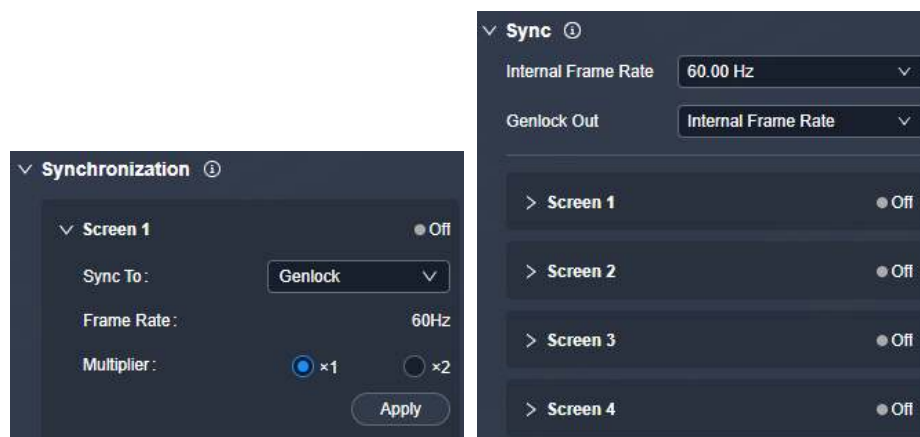
#### Prerequisites

- Before enabling the Genlock sync function, make sure the sync signal has been connected to the Genlock connector of the device.
- If the device model is Q8, make sure the screen has already been created.

#### Notes

If the device model is Q8, manual setting of the output frame rate is supported.

#### Interface Example (Q8 and P80)



### Description (Q8)

Parameter	Description
Sync To	Turn off the sync function; or turn on the function and then select the sync source. <ul style="list-style-type: none"> <li>• Freerun: Turn off the sync function.</li> <li>• Genlock: Sync with the frame rate of the accessed Genlock signal.</li> <li>• IN-X: Sync with the frame rate of the selected input source.</li> </ul> When the function is enabled, the frame rate of the sync source will be displayed.
Multiplier	Select the frame rate multiplier. <ul style="list-style-type: none"> <li>• x1: Final synchronized frame rate = Sync source frame rate × 1</li> <li>• x2: Final synchronized frame rate = Sync source frame rate × 2</li> </ul>

### Description (P80)

Parameter	Description	
Internal Frame Rate	Select the desired internal frame rate from the drop-down list.	
Genlock Out	Select to sync to Genlock or the selected internal frame rate.	
Screen 1/2/3/4	Sync To	Turn off the sync function; or turn on the function and then select the sync source. <ul style="list-style-type: none"> <li>• Freerun: Turn off the sync function.</li> <li>• Genlock: Sync to the frame rate of the accessed Genlock signal.</li> <li>• Internal Frame Rate: Sync to the selected internal frame rate.</li> <li>• IN-X: Sync to the frame rate of the selected input source.</li> </ul> When the function is enabled, the frame rate of the sync source will be displayed.
	Multiplier	Select the frame rate multiplier. <ul style="list-style-type: none"> <li>• x1: Final synchronized frame rate = Sync source frame rate × 1</li> <li>• x2: Final synchronized frame rate = Sync source frame rate × 2</li> </ul>

### 7.3.2.6 Configure Output Mapping

Turn on or turn off the output mapping function. If turned on, each output displays its slot number in the loading area of the screen.

## Applicable Products

Q8

## Prerequisites

None



## Notes

None

## Interface Example (Q8)



## Description

Parameter	Description
Mapping	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>

### Note

In the device list on the left side of the interface, you can also right click the device name and select **Mapping** from the context menu to enable or disable the mapping function as well.

## 7.3.2.7 Configure HDCP

Configure the global HDCP settings for all connectors of the device.

## Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

None



## Notes

None

## Interface Example (P20)



## Description

Parameter	Description
Input/Output	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>

### Note

The HDCP function is disabled by default.

## 7.3.2.8 Configure Date and Time

Configure the time zone, date and time of the device.

### Applicable Products

P80, P20, P20-DS, P10, Q8

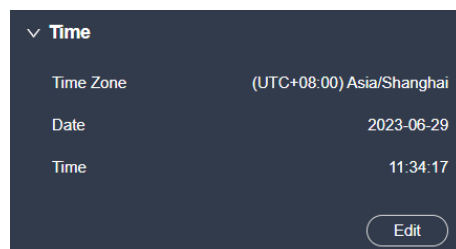
### Prerequisites

None

### Notes

None

### Interface Example (P20)



## Description

Click **Edit** and the parameters become editable. Set the time zone, date and time respectively, and then click **Apply**.

## 7.3.2.9 Configure Device Backup

Enable the device backup function for the screen.

For screens with the device backup function turned on, when a layer's input source has no signal or does not exist, all output connectors of the screen will immediately stop outputting any signal, and switch to the backup link together with the sending cards and receiving cards.

## Applicable Products

P80, P20, P20-DS, P10, Q8

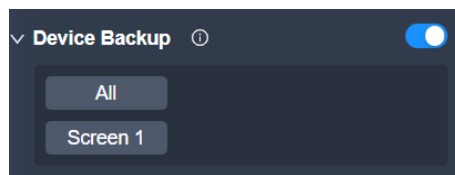
## Prerequisites

None



## Notes

The Multiviewer signal is not affected by device backup function.

## Interface Example (P20)



## Description

Parameter	Description
Device Backup	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On<ul style="list-style-type: none"><li>- All: Select all screens.</li><li>- Specific screen name: Select the desired screen.</li></ul></li><li>• : Off</li></ul>

### 7.3.2.10 Electrostatic Protection

Configure the antistatic duration according to the actual static electricity, ensuring the display remains normal to keep events smooth and successful.

## Applicable Products

P80, P20, P20-DS, P10, Q8

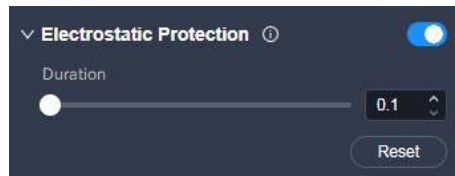
## Prerequisites

None

## Notes

None

## Interface Example (P20)



### Description

Parameter	Description
Electrostatic Protection	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On                              If the primary source fails, it will freeze on the last frame before the failure throughout the specified protection duration. The backup source will become active if the failure of the primary source remains beyond this duration.</li> <li><input type="checkbox"/>: Off                              Upon the failure of the primary source, the backup source will become active immediately.</li> </ul>
Duration	Set the antistatic duration.

## 7.3.2.11 Fan Mode

Select the appropriate mode based on the different operating scenarios of the device.

### Applicable Products

P80, Q8

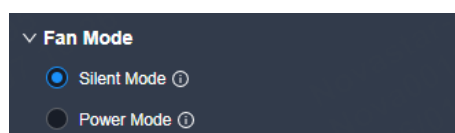
### Prerequisites

None

### Notes

None

## Interface Example (P80)



### Description

Parameter	Description
Silent Mode	For a quieter operating environment

Parameter	Description
Power Mode	For enhanced heat dissipation

### 7.3.2.12 Configure Display Effect Sync

The function ensures the MVR, SDI matrix and PGM display accurately mirrors the output's visual state in real-time, enabling users to make precise decisions. Crucially, it maintains a stable preview feed during output anomalies, allowing users to monitor recovery and swiftly restore normal operation.

#### Applicable Products

P80

#### Prerequisites

None

#### Notes



None

#### Interface Example (P80)



#### Description

Once enabled, the MVR, SDI matrix and PGM display will mirror all output effects, including color, test pattern, FTB, and edge blending, allowing operators to monitor image in real time.

Parameter	Description
Display Effect Sync	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>

### 7.3.2.13 Reset to Factory Settings

Reset the device data and settings to factory default values.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

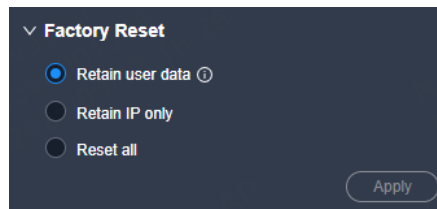
#### Prerequisites

None

## Notes

- Please do this with great caution.
- The reset action does not affect the device firmware version.
- Power-off is not allowed during the reset process.
- The device will restart automatically after the reset is completed.

## Interface Example (P20)



## Description

Select **Retain user data**, **Retain IP only**, **Reset all**, and then click **Apply**.

- Retain user data  
Retain the device IP address, input connector EDID, gallery files, language settings, device name and belonged project.
- Retain IP only  
Retain the device IP address only.
- Reset all  
Retain the device IP address and belonged project.

## 7.3.2.14 Shut Down or Restart Device

Shut down the device, or restart the device.

## Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

None

## Notes

None

## Interface Example (P20)



## Description

Click **Restart** or **Shut Down**, and then click **Yes** in the displayed dialog box.

### 7.3.2.15 Configure Input Source Backup

Establish a backup relation for two input sources.

## Applicable Products

P80, P20, P20-DS, P10, Q8

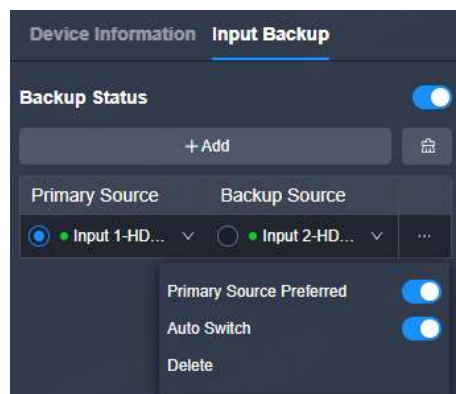
## Prerequisites

The input sources include common input sources, mosaic sources, and cropped sources.

## Notes

- Supports one-to-one and many-to-one backup between primary and backup sources. Cross-level backup (i.e., indirect backup relationships) is not supported.
- Primary and backup sources can be independently used to open layers.
- Backup can only be set when the input connector capacities are the same.
- A cropped source and its parent source are not allowed to establish a backup relationship.
- The same input source can act as the primary source in one backup relationship only.
- After setting up a backup relationship, changing the connector capacity or connector type will terminate the backup relationship.

## Interface Example (P20)





## Description

- Step 1 Select the **Input Backup** tab.
- Step 2 Toggle the **Backup Status** switch to .
- Step 3 Click **Add**.

Step 4 Select a primary source and a backup source respectively from two drop-down lists to establish a backup relationship.

The green dot ● indicates the source is accessed normally and ready for use.


- To delete a backup pair, click  next to the pair and click **Delete**.
- To delete all backup pairs, click .

Step 5 Click  on the right and configure the status of **Primary Source Preferred** or **Auto Switch** as needed.

When **Auto Switch** is enabled, the following principles apply when the primary source transitions from no signal to having a signal; when disabled, the system will use the specified source regardless of whether there is a signal or not.

- If **Primary Source Preferred** is enabled, the system will automatically switch to the primary source once it is restored.  
After manually switching to an online backup source, **Primary Source Preferred** will automatically be disabled.
- If **Primary Source Preferred** is disabled, the system will not automatically switch when the primary source is restored and will continue using the backup source.

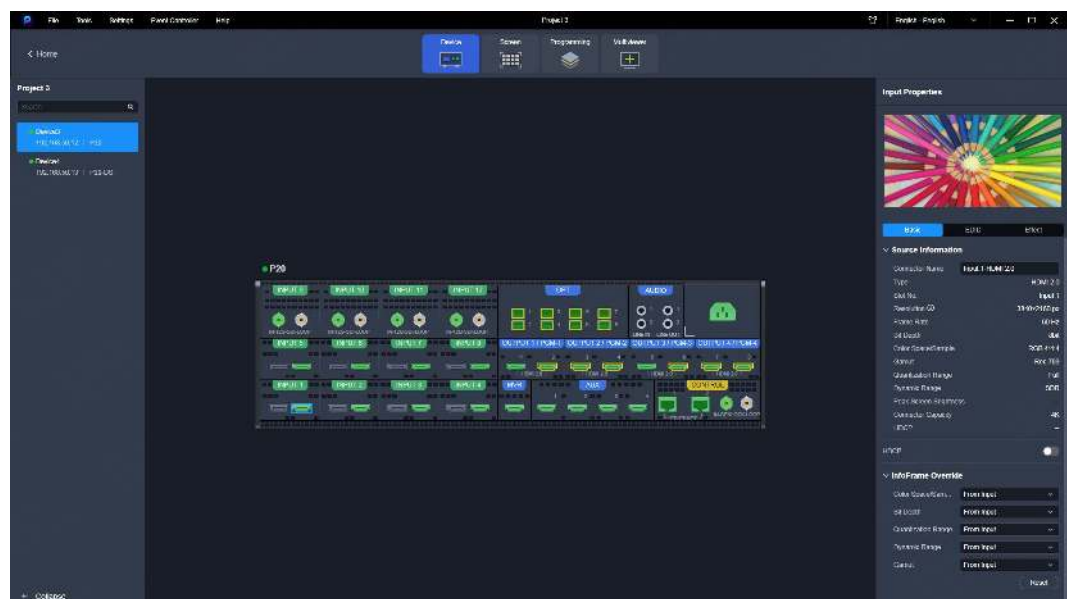
 **Note**

For input sources with backup configured, in the **Programming** interface, hover the mouse over the input source and then click . In the pop-up dialog box, you can set the status of **Auto Switch** and manually switch the input source.

### 7.3.3 Configure Input Properties

Click the target input connector on the graphical device rear panel (if you need to configure the card properties, please click the desired card on the rear panel), and then set the input-related properties in the property area on the right pane.

Figure 7-14 Input properties (P20)



### 7.3.3.1 View Input Card Info

View the input card related information.

#### Applicable Products

P80, Q8

#### Prerequisites

None

#### Notes

None

#### Interface Example (Q8)

Input Card Properties	
Processing Card SN	0:30976:0
Processing Card Version	1.1.0
Connector Card SN	0:30977:0
Connector Card Version	1.1.0

#### Description

None

### 7.3.3.2 Configure Input Card Properties

Configure the input connectors to be used, connector capacity (resource usage) and deinterlacing function.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

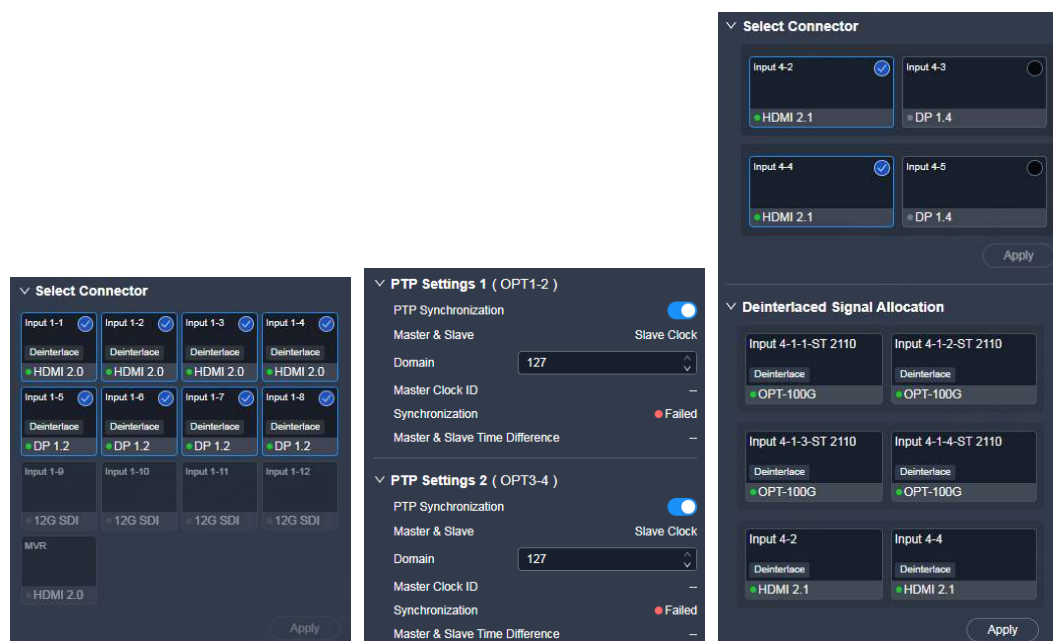
- The connector capacity is available on the P20, P20-DS and P10.
- The deinterlace configuration is applicable to Q\_4xHDMI2.0+4xDP1.2+4x12G-SDI Input Card of the Q8.
- The PTP configuration is applicable to Q\_2xST2110(25G) Input Card of the Q8.
- The connector selection and deinterlaced signal distribution is applicable to Q\_1xST2110(100G)+2xHDMI2.1/DP1.4 Input Card of the Q8.

#### Notes



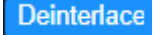
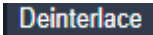
- If the connector is set to be NOT used:

- The corresponding layers on the main, flex and AUX screens will become empty layers.
- Some connector properties will be restored to defaults, such as resolution and color parameters.
- If the connector capacity is switched:
  - The corresponding layers on the main screens will become empty layers, and the DSK function will be turned off.
  - Some connector properties will be restored to defaults, such as resolution and color parameters.
- For the P80, each input card is configured to choose between the HDMI and DP connectors.

## Interface Example (Q8)



## Description

- Switch the connector capacity.  
Select the desired connector capacity the drop-down list.
- Select the connectors to be used.  
The connector status descriptions are as follows:
  - : Selected
  - : Not selected
 If an MVR connector is selected, an MVR source can be added to the screen when adding a layer.
- Set the deinterlacing function.  
Click the **Deinterlace** icon.
  - : On
  - : Off

- PTP settings  
Configure PTP for OPT ports 1-2 or 3-4 on Q\_2xST2110(25G) Input Card.
  - : Enable PTP synchronization.
  - : Disable PTP synchronization.
  - Domain: Set the PTP domain number.

After the settings, click **Apply**.

### 7.3.3.3 View Input Source Info

View the basic properties of the input connector and change the input connector name.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

A fine signal is connected to the input connector.

#### Notes

None

#### Interface Example (Q8)



Source Information	
Connector Name	Input 2-1
Type	HDMI 2.0
Slot No.	In 2-1
Resolution	3840x2160 px
Frame Rate	60 Hz
Bit Depth	8bit
Color Space/Sample	RGB 4:4:4
Gamut	Rec.709
Quantization Range	Full
Dynamic Range	SDR
Peak Screen Brightness	—
Source Format	2D
HDCP	—
Audio Channel	8 Channel
Audio Sample Rate	48K Hz

#### Description

On the **Basic** tab interface, change the connector name as required.

### 7.3.3.4 Configure Input HDCP

Enable or disable the input HDCP encryption.

## Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

None



## Notes

None

## Interface Example (P20)



## Description

Parameter	Description
HDCP	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>

### Note

The input HDCP is disabled by default.

## 7.3.3.5 Configure InfoFrame Override Parameters

Configure the InfoFrame override parameters of the input source, so that the device can use it when doing some calculations. This action does not change the parameter values that come with the input source.

## Applicable Products

P80, P20, P20-DS, P10, Q8

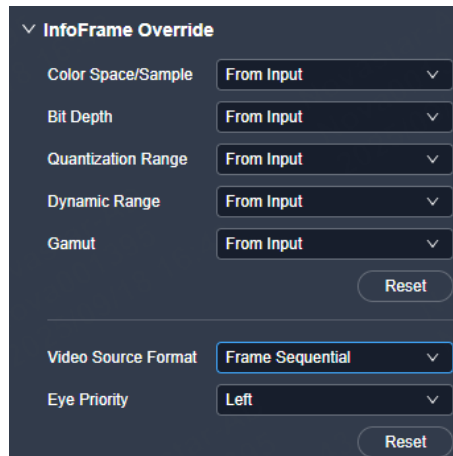
## Prerequisites

- When setting HDR format conversion parameters, the device models must be P20, P20-DS and Q8, and the connector type must be HDMI 2.0.
- Only Q8 supports configuring 3D video source format.

## Notes

When **Color Space/Sample** is set to YCbCr, **Gamut** cannot be selected as DCI-P3.

## Interface Example (Q8)



## Description

On the **Basic** tab interface, configure the following parameters.

Type	Parameter	Description
General parameters	Color Space/Sample	The sampling format of the input
	Bit Depth	The bit depth of the input, i.e., the binary digits to represent a single color
	Quantization Range	The quantization range of the input
HDR parameters	Dynamic Range	The HDR format of the input
	Gamut	The color gamut standard of the input
	Peak Brightness	When the <b>Dynamic Range</b> parameter is set to HDR10 or HLG, this parameter is available.
	Ambient Illuminance	When the <b>Dynamic Range</b> is set to HDR10 or HLG, this parameter is available.
3D parameters	Video Source Format	The format of the 3D video source Select the appropriate format based on the actual situation. The options include <b>Frame Sequential</b> , <b>Top-and-Bottom</b> , <b>Side-by-Side</b> , <b>Auto</b> and <b>None</b> .
	Eye Priority	This parameter is displayed when <b>Video Source Format</b> is set to <b>Frame Sequential</b> .

Select **From Input** and the device will read the attribute values that come with the input source.

### 7.3.3.6 Configure Input Gain

In instances where DP/HDMI cable degradation is excessive, adjusting the gain parameters can enhance connector performance.

## Applicable Products

Q8

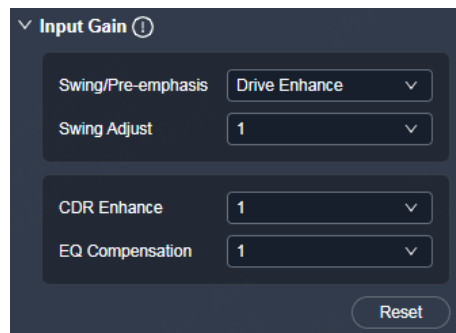
## Prerequisites

This feature is accessible by entering the developer mode, activated by simultaneously pressing Ctrl+Shift+Alt+D.

## Notes

The HDMI connector only supports adjustment of the **EQ Compensation** parameter, while the DP connector allows all parameter adjustments.

## Interface Example (Q8)



## Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
Swing/Pre-emphasis	The options <b>include Adaptive and Drive Enhance</b> . <ul style="list-style-type: none"><li>Adaptive: Suitable for input sources that do not support drive enhancement</li><li>Drive Enhance (default): Suitable for standard cable lengths and environments</li></ul>
Swing Adjust	Set the swing adjustment gear.
CDR Enhance	Set the CDR enhancement gear, suitable for environments with high interference.
EQ Compensation	Set the EQ compensation gear to rectify signal transmission issues. Greater signal degradation necessitates higher compensation, but excessive compensation may cause distortion. Adjust incrementally according to the environment.

### 7.3.3.7 Configure EDID

Configure the resolution and frame rate of the input. You can select the standard resolution provided by the device, customize a resolution, or set the advanced parameters.

## Applicable Products

P80, P20, P20-DS, P10, Q8

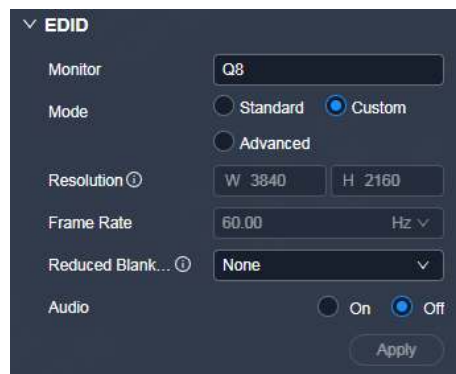
## Prerequisites

- The front-end device outputs the video source from the graphics card.
- The input connector must be DP 1.2 or HDMI 2.0. 12G-SDI does not support this function.

## Notes

- It is recommended the advanced settings be carried out by the trained personnel only.
- Only the Q8 supports setting and display of the monitor name.
- Only the Q8 and P20-DS support audio configuration. When HBlank is less than 110, the audio function cannot be enabled.

## Interface Example (Q8)



## Description

On the **EDID** tab interface, configure the following parameters and click **Apply** after the settings.

Parameter	Sub-Parameter	Description
Monitor	-	Display and modify the monitor name.
Mode	-	The options include <b>Standard</b> , <b>Custom</b> and <b>Advanced</b> .
Standard	Resolution	The number of horizontal pixels and vertical pixels of the image Config method: Select the desired resolution from the drop-down list.
	Frame Rate	The image frames per second (unit: Hz) Config method: Select the preset common frame rates from the drop-down options. The available frame rates may vary according to the chosen resolution.

Parameter	Sub-Parameter	Description
	Audio	Turn on or off the audio function.
Custom	Width	The horizontal pixels of the image
	Height	The vertical pixels of the image
	Frame Rate	The image frames per second (unit: Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank	Horizontal blanking parameter to complete the current line scan and prepare for the next one. <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced Blanking</b>, HBlank is displayed but cannot be adjusted.</li> <li>When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio	Turn on or off the audio function.
Advanced	H Total	Total pixel count per line
	H Active	The horizontal size in pixels of the active area
	H Front Porch	The offset between the end of the active area and the beginning of the H sync
	H Sync	The horizontal sync width in pixels (or between pixels)
	H Polarity	The polarity of the horizontal sync pulse
	V Total	Total pixel count per column
	V Active	The vertical size in pixels of the active area
	V Front Porch	The offset in lines between the end of the active output area and the beginning of V sync
	V Sync	The vertical sync width in rows (or between rows)
	V Polarity	The polarity of the vertical sync pulse
	Frame Rate	The image frames per second (unit: Hz)
	Audio	Turn on or off the audio function.

### 7.3.3.8 Import and Export EDID

When compatibility problem occurs on an input connector, import an intact EDID file into the device; or export an EDID file from a device and provide the EDID file to other devices or input connectors to solve the compatibility issues.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

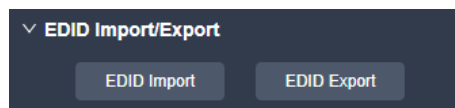
#### Prerequisites

The input connector must be DP 1.2 or HDMI 2.0. 12G-SDI does not support this function.

#### Notes

Each input connector supports importing one EDID file only and the EDID file must be less than 1 MB.

#### Interface Example (P20)



#### Description

- EDID Import  
On the **EDID** tab interface, click **EDID Import**. In the dialog box that appears, select an EDID file and click **Open**.
- EDID Export  
On the **EDID** tab interface, click **EDID Export**. In the dialog box that appears, select a path and click **Save**.

---

#### Note

If you need to modify the content of an imported EDID file, just modify it and then re-import it to overwrite the original one.

---

### 7.3.3.9 Mac Settings

If the device is incompatible with the Mac system's EDID, you can enable the Mac compatibility feature to resolve the issue. When using a Mac computer for output, configuring Mac mosaic will automatically produce a mosaic display.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

None

## Notes



- Ensure the connector timing is the same as the input source before enabling Mac mosaic.
- A mosaic group can be used by up to two input sources.

## Interface Example (P20)



## Description

On the **EDID** tab interface, configure the following parameters and click **Apply** after the settings.

Parameter	Description
Mac EDID Compatibility	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>
Mac Mosaic	Set Mac mosaic method, including <b>None</b> , <b>Left</b> , and <b>Right</b> .
Mosaic Group	Set Mac mosaic group (1~16). When the mosaic method is set to <b>None</b> , <b>Mosaic Group</b> cannot be set.

### 7.3.3.10 Configure OPT Parameters

Configure the OPT port parameters of the ST 2110 related cards.

#### 7.3.3.10.1 Configure OPT Port Stream Parameters

Configure the destination IP, port, source IP and more parameters.

## Applicable Products

Q8

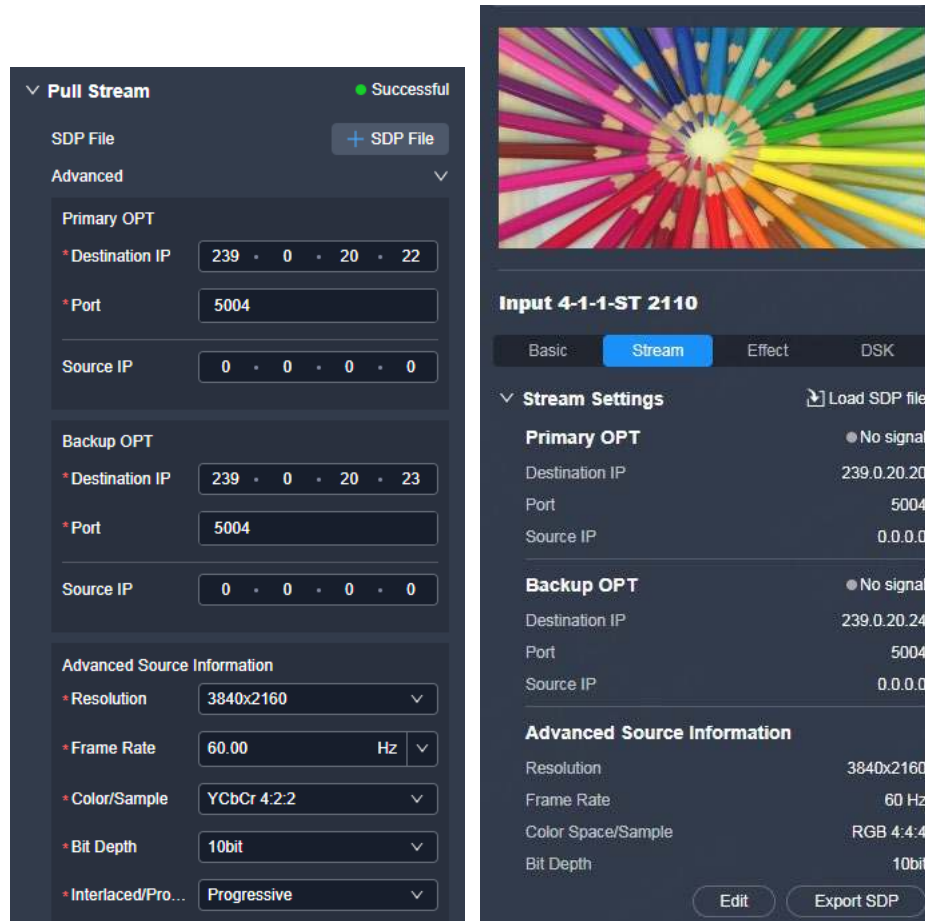
## Prerequisites

- The input connector is an OPT port.
- If you need to configure parameters by importing an SDP file, you must prepare the SDP file (.sdp) in advance.

## Notes

None

## Interface Example (Q8)



## Description

- 25G OPT ports: Select the **Stream** tab on the right pane, configure the following parameters as needed and click **Apply**.
  - Configure the parameters by importing an SDP file  
Click **SDP File**, select the SDP file from the window that appears, and click **OK**.
  - Manually configure the parameters  
Click **Advanced** and configure the following parameters as needed.

Type	Parameter	Description
Primary OPT	Destination IP	The destination IP of the video stream for the primary OPT port
	Port	The destination port of the video stream for the primary OPT port
	Source IP	The source IP of the video stream for the primary OPT port

Backup OPT	Destination IP	The destination IP of the video stream for the backup OPT port
	Port	The destination port of the video stream for the backup OPT port
	Source IP	The source IP of the video stream for the backup OPT port
Advanced Source Information	Resolution	The resolution of the video stream
	Frame Rate	The frame rate of the video stream
	Color Space/Sample	The color space and sampling rate of the video stream
	Bit Depth	The bit depth of the video stream
	Interlaced/Progressive	The scanning method of the video stream

- 100G OPT ports: Select the **Input Source** tab in the right pane, select the target ST 2110 source, and select the **Stream** tab to configure the following parameters as needed.
  - Configure the parameters by importing an SDP file.  
Click Load **SDP File**, select the SDP file from the window that appears, and click **OK**.
  - Manually configure the parameters.  
Click **Edit** and configure the following parameters as needed. After the configuration, click **OK** and then click **Export SDP** to export the current configuration as an SDP file.

Type	Parameter	Description
Primary OPT	Destination IP	The destination IP of the video stream for the primary OPT port
	Port	The destination port of the video stream for the primary OPT port
	Source IP	The source IP of the video stream for the primary OPT port
Backup OPT	Destination IP	The destination IP of the video stream for the backup OPT port
	Port	The destination port of the video stream for the backup OPT port
	Source IP	The source IP of the video stream for the backup OPT port
Advanced Source Information	Resolution	The resolution of the video stream
	Frame Rate	The frame rate of the video stream
	Color Space/Sample	The color space and sampling rate of the video stream
	Bit Depth	The bit depth of the video stream

### 7.3.3.10.2 Configure OPT Port IP Addresses

Configure the network settings for the primary and backup OPT ports.

#### Applicable Products

Q8

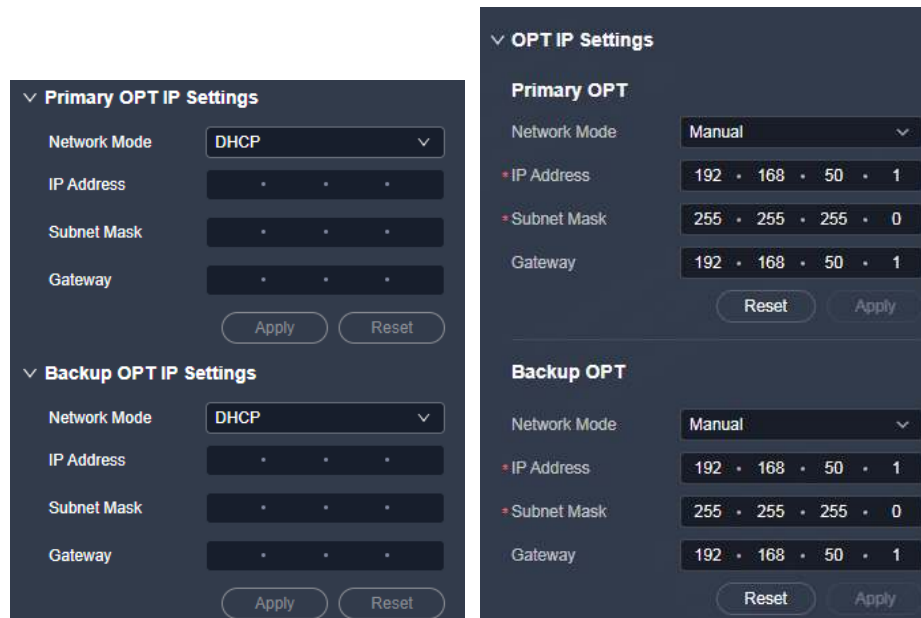
#### Prerequisites

The input connector is an OPT port.

#### Notes

None

#### Interface Example (Q8)



#### Description

- 25G OPT ports: On the **Stream** tab interface in the right pane, configure the following parameters and click **Apply**.
- 100G OPT ports: On the **ST 2110** tab interface in the right pane, configure the following parameters and click **Apply**.

Parameter	Description
Network Mode	The configuration method for the OPT port <ul style="list-style-type: none"> <li>• Manual: Manually configure a static IP address for the OPT port.</li> <li>• DHCP: The OPT port obtains the IP address automatically.</li> </ul>
IP Address	The IP address of the OPT port
Subnet Mask	The subnet mask of the OPT port

Gateway	The default gateway of the OPT port
---------	-------------------------------------

### 7.3.3.10.3 Configure PTP

PTP settings synchronize the clocks of all audio and video devices within the network, ensuring that separately transmitted audio, video, and auxiliary data can be precisely aligned and presented at the receiving end.

### Applicable Products

Q8

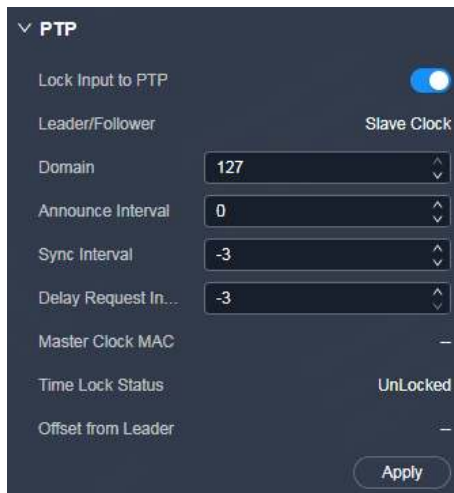
### Prerequisites

The input connector is an OPT port (100G).

### Notes

None

### Interface Example (Q8)



### Description

Parameter	Description
Lock Input to PTP	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On. The input is locked to PTP, which enables high-precision synchronization with the network's master clock.</li> <li>• : Off. The input is not locked to PTP.</li> </ul>
Leader/Follower	Defaulted as a slave clock, which cannot be modified
Domain	PTP domain number, used to distinguish different PTP clock domains
Announce Interval	Time interval for announce messages

Sync Interval	Time interval for sync messages
Daley Request Interval	Time interval for delay request messages
Master Clock MAC	MAC address of the PTP master clock
Time Lock Status	PTP master clock synchronization status
Offset from Leader	Time difference between the master and slave clock

### 7.3.3.10.4 Configure FEC

FEC enhances video signal transmission reliability by automatically detecting and correcting errors.

#### Applicable Products

Q8

#### Prerequisites

The input connector is an OPT port (100G).

#### Notes

None

#### Interface Example (Q8)



#### Description

Parameter	Description
Status	Turn on or turn off the function. <ul style="list-style-type: none"> <li>: On</li> <li>: Off</li> </ul> FEC feature must be enabled on the switch and its status must match the device's before optical streaming can begin.

### 7.3.3.10.5 Check IGMP

Check the IGMP multicast protocol version number.

#### Applicable Products

Q8

#### Prerequisites

The input connector is an OPT port (100G).

## Notes

None

## Interface Example (Q8)



## Description

View the IGMP multicast protocol version number.

### 7.3.3.11 Configure Input Color

Set the image quality parameters of the input connector, so that all video sources connected to it will display the same image quality.

## Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

None

## Notes

The gamma adjustment is applicable to P80 and Q8 only.

## Interface Example (Q8)



## Description

On the **Effect** tab interface, configure the following parameters.

Parameter	Description
Contrast	The ratio of the luminance of the brightest color to that of the darkest color Adjust the contrast value either as a whole or individually adjust the RGB components.
Brightness	The shading of lights in the image Adjust the brightness value either as a whole or individually adjust the RGB components.
Hue	The relative degree of how bright or dark the input source image is
Saturation	The color purity of the image The higher the value, the more vivid the color.
Gamma	Adjust the gamma value.

### 7.3.3.12 Configure DSK

Achieve the luma, chroma or smart keying effect on the input source.

## Applicable Products

Q8

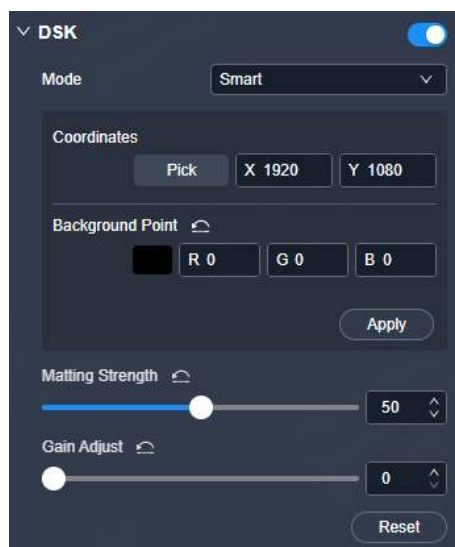
## Prerequisites

A fine signal is connected to the input connector.

## Notes

None



## Interface Example (Q8)



## Description

On the **DSK** tab interface, configure the following parameters.

Type	Parameter	Description
Function switch	DSK	<p>Turns on or turn off the function.</p> <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul> <p>Description:</p> <ul style="list-style-type: none"><li>• <b>Smart:</b> Suitable for standard keying scenarios. This feature reduces the need for parameter adjustments, facilitating a more convenient and swift fulfillment of user requirements for image keying.</li><li>• <b>Luma:</b> Suitable for application scenarios where the brightness of the background is significantly smaller than that of the foreground. The result of luma key is that the background becomes transparent and the foreground is keyed out.</li><li>• <b>Chroma:</b> Suitable for application scenarios with a single background color, such as blue/green screen matting</li></ul>

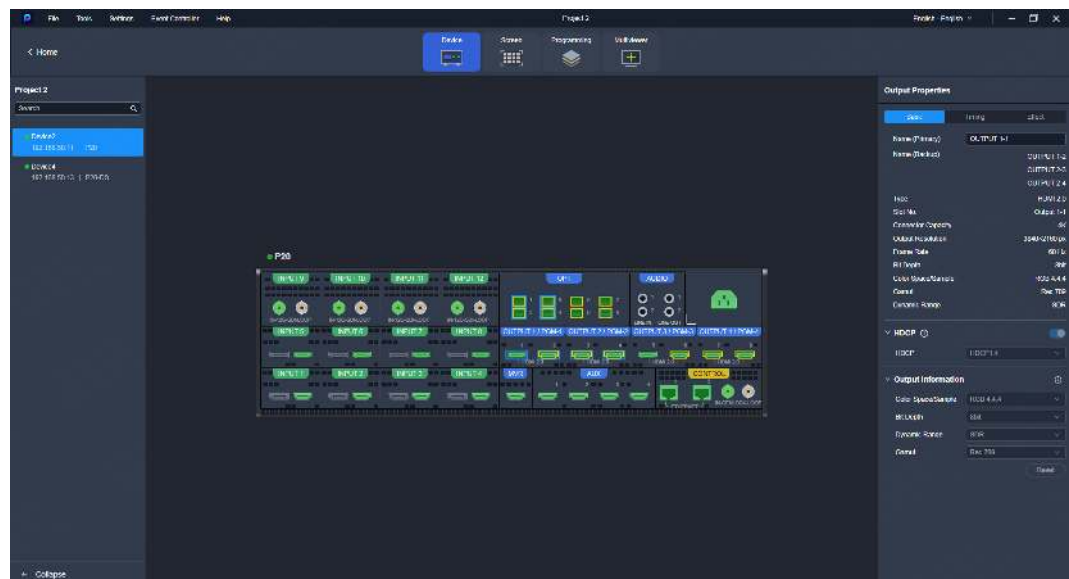
Type	Parameter	Description
Smart key parameters	Pick	<p>The RGB values of the pick point</p> <ul style="list-style-type: none"> <li>• Config method 1: Click <b>Pick</b>, and then click the position to be picked in the input source image.</li> <li>• Config method 2: Set the coordinates of the pick point in the input source image.</li> <li>• Config method 3: Set the RGB values of <b>Background Point</b>.</li> </ul> <p>After the settings, click <b>Apply</b>. You can also adjust the following parameters to optimize the keying effect.</p>
	Matting Strength	To adjust the intensity with which the background is processed
	Gain Adjust	To adjust the shadow/noise areas present in the foreground
Luma key parameters	Clip	To distinguish between the foreground and background
	Smooth	<p>The hue softness of the transition area</p> <p>The larger the value, the softer the transition.</p>
	Foreground Color	<p>Turn on or turn off the function.</p> <ul style="list-style-type: none"> <li>•  : On. After the function is turned on, the associated parameter <b>Color</b> can be used to adjust the keying effect.</li> <li>•  : Off</li> </ul>
	Color	The RGB values of the foreground color
Chroma key parameters	Pick	<p>The RGB values of the pick point</p> <ul style="list-style-type: none"> <li>• Config method 1: Click <b>Pick</b>, and then click the position to be picked in the input source image.</li> <li>• Config method 2: Set the coordinates of the pick point in the input source image.</li> <li>• Config method 3: Set the RGB values of <b>Background Point</b>.</li> </ul> <p>After the settings, click <b>Apply</b>. You can also adjust the following parameters to optimize the keying effect.</p>
	Hue Ramp	To distinguish between the foreground and background
	Hue Clip	<p>The hue range</p> <p>The larger the value, the larger the removal area. The maximum value is the current value of <b>Hue Ramp</b>.</p>
	Saturation Clip	To distinguish between the foreground and background
	Saturation Gain	<p>The hue softness of the transition area</p> <p>The larger the value, the softer the transition.</p>
	Spill	To remove the overflow from the foreground image edges and semi-transparent areas

Type	Parameter	Description
	Shadow	To remove the shadow areas
	Highlight	To remove the highlight areas

### 7.3.4 Configure Output Properties

Click the target output connector on the graphical device rear panel (if you need to configure the card properties, please click the desired card on the rear panel), and then set the output-related properties in the property area on the right pane.

Figure 7-15 Output properties (P20)



#### 7.3.4.1 View Output Card Info

View the output card related information.

#### Applicable Products

P80, Q8

#### Prerequisites

None

#### Notes

None

## Interface Example (Q8)

Output Card Properties	
Processing Card SN	6:31040:0
Processing Card Version	1.1.0
Connector Card SN	6:31041:0
Connector Card Version	1.1.0

## Description

None

### 7.3.4.2 Configure Output Card Properties

Configure the connector capacity (resource usage), desired output connectors and output connector copying function. The copy connector outputs the same image as the primary output connector outputs.

## Applicable Products

P20, P20-DS, P10, Q8

## Prerequisites

- The connector capacity configuration is applicable to the P10, P20 and P20-DS.
- The function of output connector copying and the selection of output connectors are applicable to Q\_4xHDMI2.0+4x12G-SDI+8xFiber Output Card and Q\_4xHDMI2.0+4xDP1.2+8xFiber Output Card of the Q8.

## Notes

When the copy connector is already used to load the screen, you cannot enable the connector copying function for the output card where the copy connector is located.

## Interface Example (P20)

Output Card Properties	
Capacity	4k ▾

## Interface Example (Q8)



## Description

Parameter	Description
Capacity	Set the output connector capacity from the drop-down list.
Connector Copying	<p>Turn on or turn off the function.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On</li> <li><input type="checkbox"/>: Off</li> </ul> <p>The default copy relations between connectors are as follows:</p> <ul style="list-style-type: none"> <li><b>HDMI:</b> Connectors 1 and 3 are primary connectors. Connector 2 copies the output on connector 1, while connector 4 copies the output on connector 3.</li> <li><b>SDI:</b> Connectors 5 and 7 are primary connectors. Connector 6 copies the output on connector 5, while connector 8 copies the output on connector 7.</li> </ul>
Select Connector	<p>Select the desired output connectors.</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: Selected</li> <li><input type="checkbox"/>: Not selected</li> </ul> <p>When the connector copying function is disabled, select the required output connectors and click <b>Apply</b>.</p>

### 7.3.4.3 View Output Info

View the basic output properties, and change the output connector name.

## Applicable Products

P80, P20, P20-DS, P10, Q8

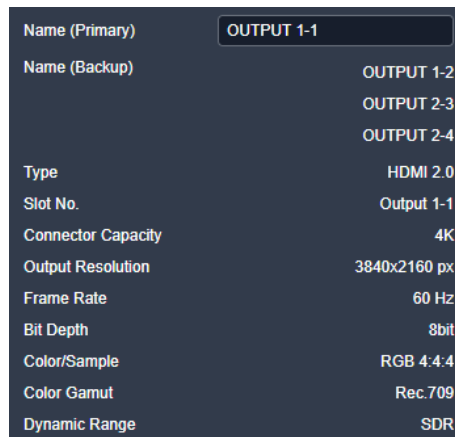
## Prerequisites

None

## Notes

None

## Interface Example (P20)



Name (Primary)	OUTPUT 1-1
Name (Backup)	OUTPUT 1-2
	OUTPUT 2-3
	OUTPUT 2-4
Type	HDMI 2.0
Slot No.	Output 1-1
Connector Capacity	4K
Output Resolution	3840x2160 px
Frame Rate	60 Hz
Bit Depth	8bit
Color/Sample	RGB 4:4:4
Color Gamut	Rec.709
Dynamic Range	SDR

## Description

On the **Basic** tab interface, enter a new connector name, and then click elsewhere in the interface to complete the connector name change.

For the P80, you can configure the mode of each pair HDMI 2.0 connectors. The options include **Copy** and **Split**.

### 7.3.4.4 Configure Output HDCP

Enable or disable the output HDCP encryption.

## Applicable Products

P80, P20, P20-DS, P10, Q8

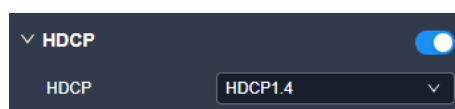
## Prerequisites

None

## Notes

None

## Interface Example (P20)



## Description

Parameter	Description
HDCP	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> On</li> <li><input type="checkbox"/> Off</li> </ul>
HDCP	Select the HDCP version.

### Note

The output HDCP is disabled by default. Once enabled, the default HDCP version is set to the lowest.

## 7.3.4.5 Configure Output Info

Configure the output-related parameters.

### Applicable Products

P80, P20, P20-DS, P10, Q8

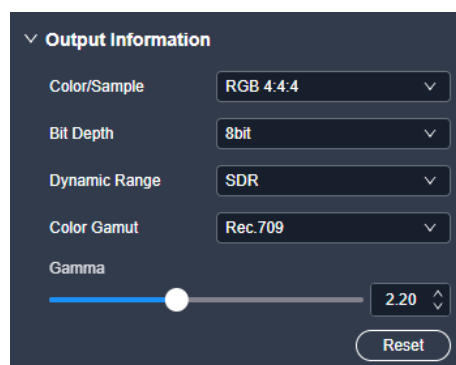
### Prerequisites

The output connector is not used by any screen.

### Notes

When **Color Space/Sample** is set to YCbCr, **Gamut** cannot be selected as DCI-P3.

## Interface Example (P20)



## Description

On the **Basic** tab interface, configure the following parameters.

Type	Parameter	Description
General parameters	Color/Sample	The sampling format of the output
	Bit Depth	The bit depth of the output, i.e., the binary digits to

Type	Parameter	Description
		represent a single color
HDR format conversion parameters	Dynamic Range	The dynamic range
	Color Gamut	The color gamut standard
	Gamma	The gamma value When <b>Dynamic Range</b> is SDR, this parameter is available.
	Peak Brightness	The peak brightness When <b>Dynamic Range</b> is HDR10 or HLG, this parameter is available.

### 7.3.4.6 Configure Output Driver Mode

- For HDMI: When the connector is connected to the backend device and the signal does not match, adjusting the output mode can try to restore the signal driving mode.
- For DP: When the DP cable degradation is excessive, adjusting the swing/pre-emphasis parameter can enhance connector performance.

#### Applicable Products

Q8

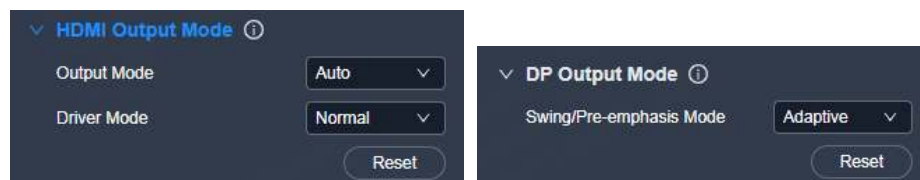
#### Prerequisites

The HDMI output mode is displayed by default. To use additional features on the HDMI and DP connectors, simultaneously press Ctrl+Shift+Alt+D to enter the developer mode.

#### Notes

None

#### Interface Example (Q8)



#### Description

On the **Basic** tab interface, configure the following parameters.

Type	Parameter	Description
HDMI Output Mode	Output Mode	The options include <b>Auto</b> , <b>HDMI</b> , <b>DVI</b> , <b>Force HDMI</b> , and <b>Force DVI</b> .

Type	Parameter	Description
		<ul style="list-style-type: none"> <li>• Auto (default): Automatically detects.</li> <li>• HDMI: Output HDMI signal.</li> <li>• DVI: Output DVI signal.</li> <li>• Force HDMI: Output HDMI signal regardless of connection to backend devices.</li> <li>• Force DVI: Output DVI signal regardless of connection to backend devices.</li> </ul>
	Driver Mode	The options include <b>Normal</b> , <b>Enhanced</b> and <b>Advanced</b> . <ul style="list-style-type: none"> <li>• Normal (default)</li> <li>• Enhanced: Suitable for long-distance environments</li> <li>• Advanced: After adjusting the advanced mode parameters, observe the signal quality.</li> </ul> The adjustable options include Pre-emphasis/De-emphasis/Slope Gear, Current/Swing Gear, and Termination Resistor Gear.
DP Output Mode	Swing/Pre-emphasis Mode	The options include <b>Adaptive</b> and <b>Manual</b> . <ul style="list-style-type: none"> <li>• Adaptive: Apply the recommended parameters.</li> <li>• Manual: Manually adjust the parameters and observe the signal quality.</li> </ul>

### 7.3.4.7 Configure OPT Port Mode

Configure the OPT port transmission mode.

#### Applicable Products

P20, P20-DS, P10

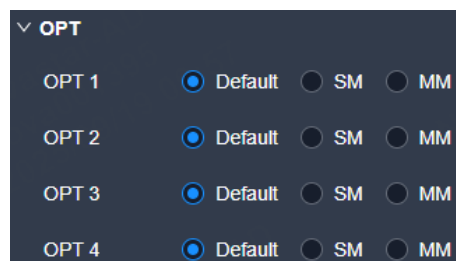
#### Prerequisites

This feature requires entering the developer mode by simultaneously pressing Ctrl+Shift+Alt+D.

#### Notes

None

#### Interface Example (P20)



## Description

On the **Basic** tab interface, set the OPT port transmission mode to **Default**, **SM** or **MM**.

### 7.3.4.8 Configure Output Timing

Configure the resolution and frame rate of the output. You can select the standard resolution provided by the device, customize a resolution, or set the advanced parameters.

## Applicable Products

P80, P20, P20-DS, P10, Q8

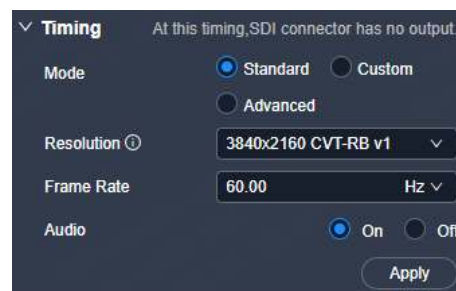
## Prerequisites

- The back-end device's EDID is obtained.
- The output connector is not used to load any screens.

## Notes

- It is recommended the advanced settings be carried out by the trained personnel only.
- Only the Q8 supports setting and displaying monitor name.
- Only the Q8, P80 and P20-DS support audio configuration. When HBlank is less than 110, the audio function cannot be enabled.

## Interface Example (P20-DS)



## Description

On the **Timing** tab interface, configure the following parameters and click **Apply** after the settings.

Parameter	Sub-Parameter	Description
Mode	-	The options include <b>Standard</b> , <b>Custom</b> and <b>Advanced</b> .

Parameter	Sub-Parameter	Description
Standard	Resolution	The number of horizontal pixels and vertical pixels of the image Config method: Select the desired resolution from the drop-down list.
	Frame Rate	The image frames per second (unit: Hz) Config method: Select the preset common frame rates from the drop-down options. The available frame rates may vary according to the chosen resolution.
	Audio	Turn on or off the audio function.
Custom	Width	The horizontal pixels of the image
	Height	The vertical pixels of the image
	Frame Rate	The image frames per second (unit: Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank	Horizontal blanking parameter to complete the current line scan and prepare for the next one. <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced Blanking</b>, HBlank is displayed but cannot be adjusted.</li> <li>When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio	Turn on or off the audio function.
Advanced	H Total	Total pixel count per line
	H Active	The horizontal size in pixels of the active area
	H Front Porch	The offset between the end of the active area and the beginning of the H sync
	H Sync	The horizontal sync width in pixels (or between pixels)
	H Polarity	The polarity of the horizontal sync pulse
	V Total	Total pixel count per column
	V Active	The vertical size in pixels of the active area
	V Front Porch	The offset in lines between the end of the active output area and the beginning of V sync
	V Sync	The vertical sync width in rows (or between rows)

Parameter	Sub-Parameter	Description
	V Polarity	The polarity of the vertical sync pulse
	Frame Rate	The image frames per second (unit: Hz)
	Audio	Turn on or off the audio function.

### 7.3.4.9 Export EDID

When the EDID compatibility of the input connector of the back-end device is good, the device can learn the EDID of the back-end device through the output connector and export the EDID to a local computer for possible future use.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

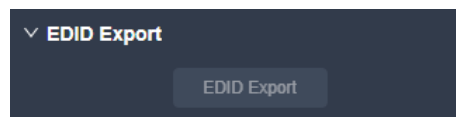
#### Prerequisites

The output connector is connected to the back-end device normally.

#### Notes

None

#### Interface Example (P20)



#### Description

On the **Timing** tab interface, click **EDID Export**. In the dialog box that appears, select a path and click **Save**.

### 7.3.4.10 Configure OPT Parameters

Configure the OPT port parameters of Q\_1xST2110(100G)+4x12G SDI Output Card of the Q8.

#### 7.3.4.10.1 Configure OPT Port IP Addresses

Configure the network settings for the primary and backup OPT ports.

#### Applicable Products

Q8

#### Prerequisites

None

## Notes

None

## Interface Example (Q8)

The screenshot shows the 'OPT IP Settings' configuration page. It is divided into two sections: 'Primary OPT' and 'Backup OPT'. Each section has a 'Network Mode' dropdown set to 'Manual'. The 'Primary OPT' section has IP Address '192 · 168 · 50 · 1', Subnet Mask '255 · 255 · 255 · 0', and Gateway '192 · 168 · 50 · 1'. The 'Backup OPT' section has IP Address '192 · 168 · 50 · 5', Subnet Mask '255 · 255 · 255 · 0', and Gateway '192 · 168 · 50 · 1'. Both sections have 'Reset' and 'Apply' buttons.

## Description

On the **ST 2110** tab interface, configure the following parameters and click **Apply**.

Parameter	Description
Network Mode	The configuration method for the OPT port <ul style="list-style-type: none"> <li>Manual: Manually configure a static IP address for the OPT port.</li> <li>DHCP: The OPT port obtains the IP address automatically.</li> </ul>
IP Address	The IP address of the OPT port
Subnet Mask	The subnet mask of the OPT port
Gateway	The default gateway of the OPT port

### 7.3.4.10.2 Configure PTP

PTP settings synchronize the clocks of all audio and video devices within the network, ensuring that separately transmitted audio, video, and auxiliary data can be precisely aligned and presented at the receiving end.

## Applicable Products

Q8

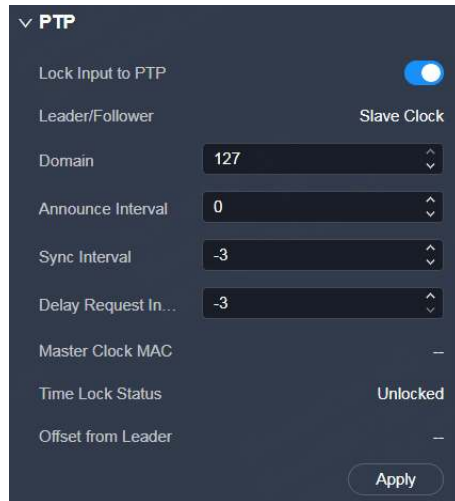
## Prerequisites

None

## Notes



None

## Interface Example (Q8)



## Description

On the **ST 2110** tab interface, configure the following parameters.

Parameter	Description
Lock Input to PTP	Turn on or turn off the function. <ul style="list-style-type: none"> <li>: On. The input is locked to PTP, which enables high-precision synchronization with the network's master clock.</li> <li>: Off. The input is not locked to PTP.</li> </ul>
Leader/Follower	Defaulted as a slave clock, which cannot be modified
Domain	PTP domain number, used to distinguish different PTP clock domains
Announce Interval	Time interval for announce messages
Sync Interval	Time interval for sync messages
Daley Request Interval	Time interval for delay request messages
Master Clock MAC	MAC address of the PTP master clock
Time Lock Status	PTP master clock synchronization status
Offset from Leader	Time difference between the master and slave clock

### 7.3.4.10.3 Configure FEC

FEC enhances video signal transmission reliability by automatically detecting and correcting errors.

## Applicable Products

Q8

## Prerequisites

None

## Notes



None

## Interface Example (Q8)



## Description

On the **ST 2110** tab interface, configure the following parameters.

Parameter	Description
Status	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul> FEC feature must be enabled on the switch and its status must match the device's before optical streaming can begin.

### 7.3.4.10.4 Check IGMP

Check the IGMP multicast protocol version number.

## Applicable Products

Q8

## Prerequisites

None

## Notes

None

## Interface Example (Q8)



## Description

View the IGMP multicast protocol version number.

### 7.3.4.10.5 Configure OPT Port Stream

Configure the related parameters for the OPT output video stream.

## Applicable Products

Q8

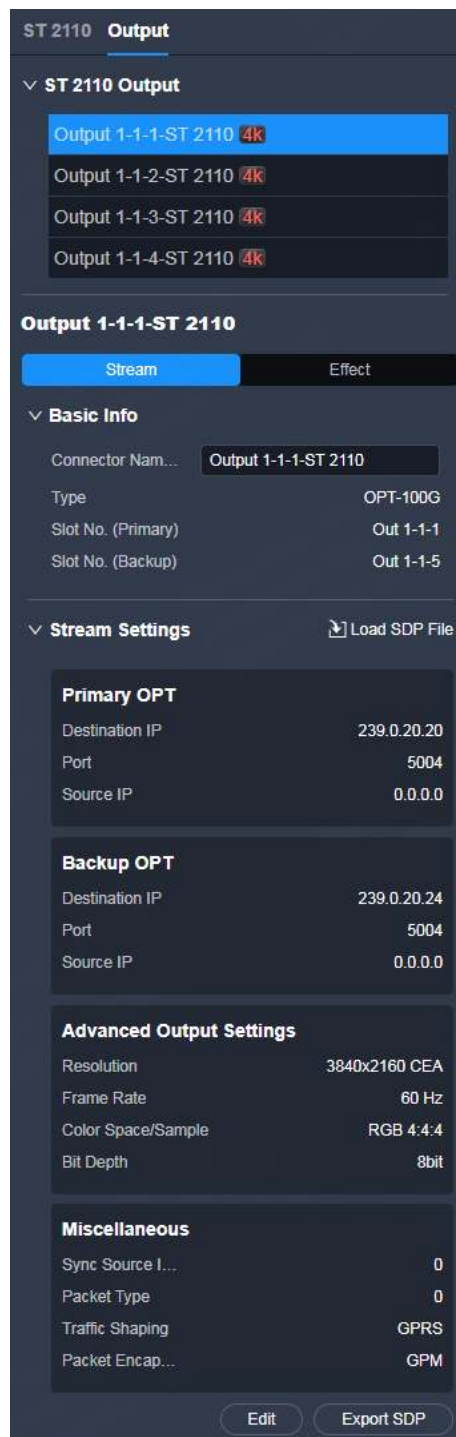
## Prerequisites

If you need to configure parameters by importing an SDP file, you must prepare the SDP file (.sdp) in advance.

## Notes

None

## Interface Example (Q8)



## Description

Select the **Output** tab on the right pane, configure the following parameters as needed and click **Apply**.

- Configure the parameters by importing an SDP file

Click **Load SDP File**, select the SDP file from the window that appears, and click **OK**.

- Manually configure the parameters

Click **Edit** and configure the following parameters as needed. After the configuration, click **OK**.

Type	Parameter	Description
Primary OPT	Destination IP	The destination IP of the video stream for the primary OPT port
	Port	The destination port of the video stream for the primary OPT port
	Source IP	The source IP of the video stream for the primary OPT port
Backup OPT	Destination IP	The destination IP of the video stream for the backup OPT port
	Port	The destination port of the video stream for the backup OPT port
	Source IP	The source IP of the video stream for the backup OPT port
Advanced Output Settings	Resolution	The resolution of the video stream
	Frame Rate	The frame rate of the video stream
	Color Space/Sample	The color space and sampling rate of the video stream
	Bit Depth	The bit depth of the video stream
Miscellaneous	Sync Source Identifier	Identifier of the sync source
	Packet Type	The encoding format of the packet
	Traffic Shaping	The algorithm used for traffic shaping
	Packet Encapsulation	The method used for data packet encapsulation

To export an SDP file, click **Export SDP**. In the dialog box that appears, select a path and click **OK**.

### 7.3.4.11 Configure Output Color

Configure the output color parameters. The ultimate output image quality is decided by the layer color, input color and output color settings.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

None

## Notes

The gamma adjustment is applicable to P80 and Q8 only.

## Interface Example (Q8)



## Description

On the **Effect** tab interface, configure the following parameters.

Parameter	Description
Contrast	The ratio of the luminance of the brightest color to that of the darkest color Adjust the contrast value either as a whole or individually adjust the RGB components.
Brightness	The shading of lights in the image Adjust the brightness value either as a whole or individually adjust the RGB components.
Hue	The relative degree of how bright or dark the image is
Saturation	The color purity of the image The higher the value, the more vivid the color.
Gamma	Adjust the gamma value.

### 7.3.4.12 Configure SDI Matrix

Configure SDI matrix for mapping any content from the input sources, MVR, PGM and flex outputs.

#### Applicable Products

P80

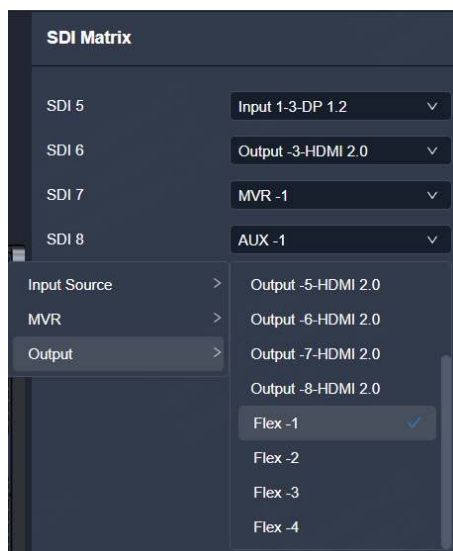
#### Prerequisites

Before you configure SDI matrix, make sure the device model is P80.

#### Notes

- Sources not meeting SDI standards cannot be selected for SDI matrix.
- SDI matrix output does not support test patterns and FTB.

#### Interface Example (P80)



#### Description

Select the SDI connectors on the flex output card and select sources for SDI matrix output.

Parameter	Description
SDI 5 to 8	Select sources for SDI 5 to 8 from the input sources, MVR, main outputs, and flex outputs.
Reset	Click <b>Reset</b> to revert to the default settings: <ul style="list-style-type: none"> <li>• SDI 5: Output-1-HDMI 2.0</li> <li>• SDI 6: Output-3-HDMI 2.0</li> <li>• SDI 7: Output-5-HDMI 2.0</li> <li>• SDI 8: Output-7-HDMI 2.0</li> </ul>

### 7.3.4.13 Configure Multiviewer

Configure the connector mode and resolution of the Multiviewer connector.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

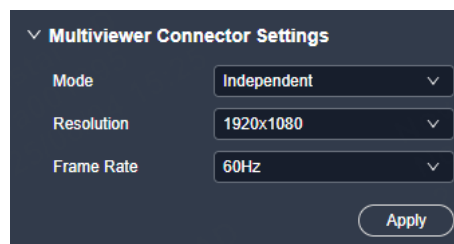
#### Prerequisites

Before you configure the Multiviewer connector mode, make sure the device model is the P80 and Q8.

#### Notes

The Multiviewer connector resolution of the P20, P20-DS and P10 is fixed at 1920×1080, with frame rate adjustable.

#### Interface Example (Q8)



#### Description

Configure the following parameters and click **Apply**.

Parameter	Description
Mode	Configure the working mode of the Multiviewer connector. <ul style="list-style-type: none"><li>Independent: Two Multiviewer connectors output their own monitoring images.</li><li>Copy: HDMI 2 copies the monitoring data on HDMI 1.</li></ul> When the output resolution is 4K×2K@60Hz, only copy mode is supported.
Resolution	Select the desired connector resolution.
Frame Rate	Select the desired frame rate.

### 7.3.4.14 Configure Multiviewer HDCP

Enable or disable the Multiviewer HDCP encryption.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

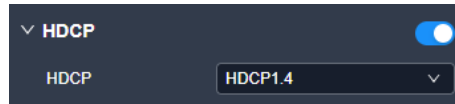
## Prerequisites

None

## Notes

None

## Interface Example (P20)



## Description

For the main output connectors, flex, AUX and MVR connectors, whether the HDCP function is enabled or not only affects whether the image content is encrypted or not during output, but does not affect the image content itself. That is, when HDCP is enabled, the output is encrypted; when HDCP is disabled, the output is decrypted.

---

### Note

- For the specific output images after configuring the global, input, output HDCP respectively, please refer to the table in [7.3.2.7 Configure HDCP](#).
- The Multiviewer HDCP is disabled by default. Once enabled, the default HDCP version is set to the lowest.

---

## 7.3.5 Configure Audio Properties

### 7.3.5.1 View Dante Info

View basic information about the Dante connectors, including Dante software information, primary Dante port, and backup Dante port.

### Applicable Products

P20-DS, P80, Q8

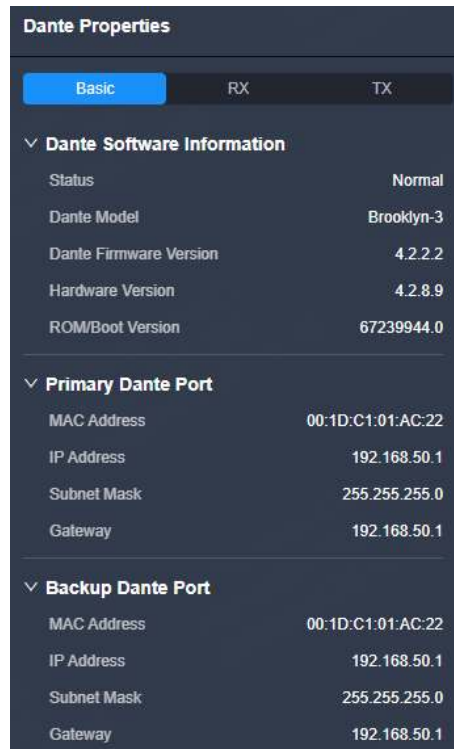
### Prerequisites

- The Dante network has been set up.
- The Dante Controller software has been installed and is running on a computer within the same network segment.

### Notes

None

## Interface Example (P20-DS)



## Description

Click the Dante connector on the device rear panel, and view the basic properties in the **Basic** tab in the **Dante Properties** area on the right pane.

### Note

How to set up the Dante network and use Dante Controller software, please contact the technical support.

## 7.3.5.2 Configure RX

View audio data input from the Dante audio network, and support renaming audio channel names.

## Applicable Products

P20-DS, P80, Q8

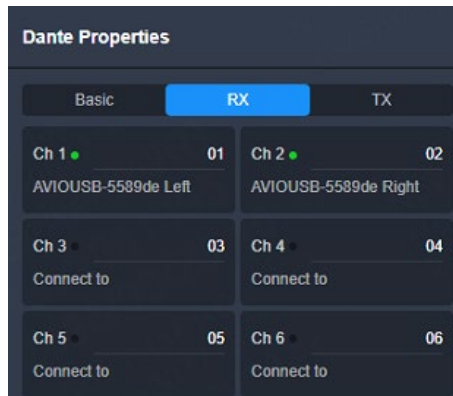
## Prerequisites

The Dante network matrix configuration has been completed in Dante Controller software.

## Notes

None

## Interface Example (P20-DS)



### Description

- Rename audio channels: In the **RX** tab, click the channel name to edit it.
- View audio source: After completing the matrix configuration in Dante Controller, the RX end will display the currently connected audio source.

### 7.3.5.3 Configure TX

The TX end serves as the audio output of the device, allowing audio to be output to the Dante network.

### Applicable Products

P20-DS, P80, Q8

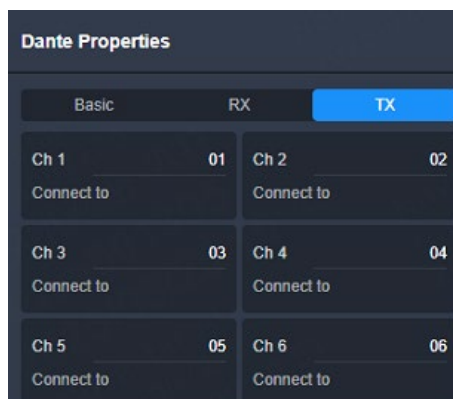
### Prerequisites

The Dante audio matrix configuration has been completed in PixelFlow. For specific operations, refer to [7.7 Audio Matrix](#).

### Notes

None

## Interface Example (P20-DS)



## Description

- Rename audio channels: In the **TX** tab, click the channel name to edit it.
- View audio source: After completing the matrix configuration in PixelFlow, the TX end will display which audio source is currently assigned to the TX channel.

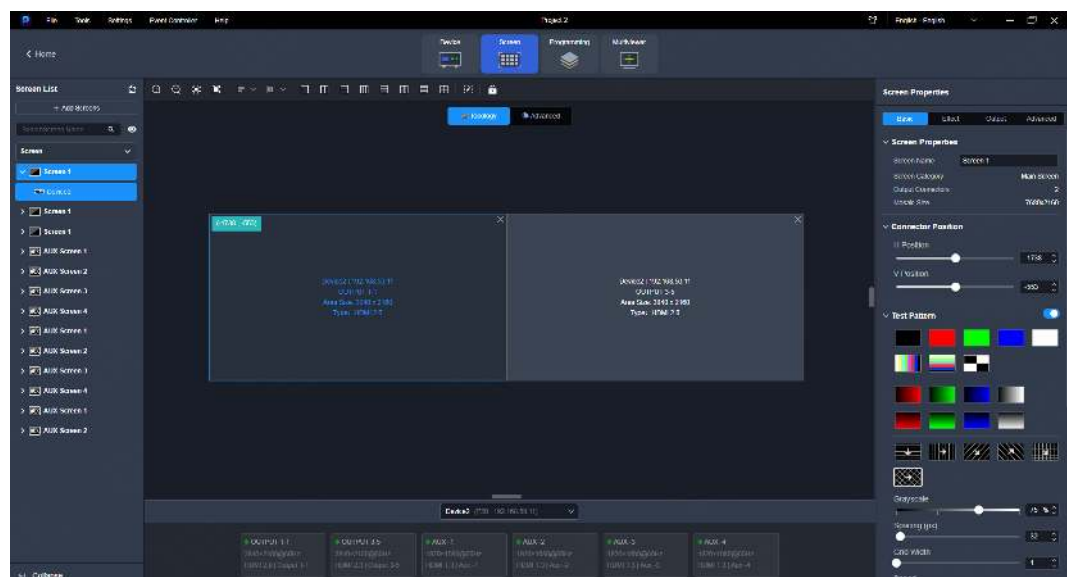
## 7.4 Screen Configuration

### 7.4.1 Configure Screens

Configure the layout of a main screen, as well as add and replace the output connectors. The connectors of the same type and output resolution can be configured for the same mosaic screen.

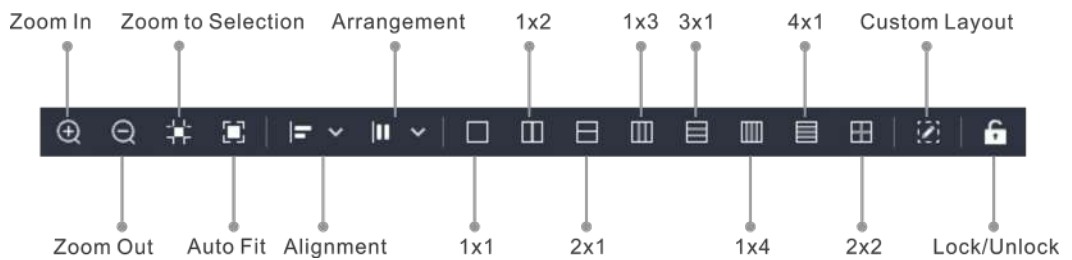
- Step 1 Enter the device configuration page as described in [7.3.1 Enter Device Configuration Page](#).
- Step 2 Select the target device on the left, and then select **Screen** at the top of the page.

Figure 7-16 Screen configuration (P20)

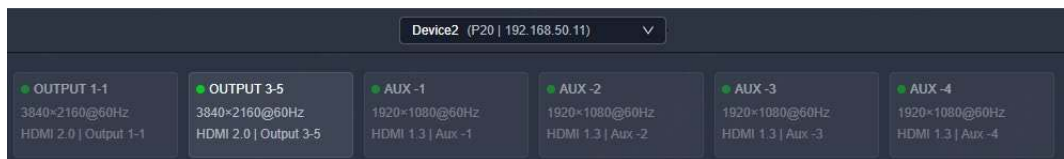


- Step 3 Click **+** to add a new screen, or click **I→** in the lower-left to create a new screen. The following steps illustrate creating a screen by expanding the screen list.
- Step 4 Click **I→** to expand the screen list on the left, then click **Add Screens**.
  - Search for screens by name and click **👁** or **👁** to hide or show devices under each screen.
  - To adjust screen order, drag the screens manually.
  - To delete a single screen, place the mouse on the screen name and click **🗑**. To delete all screens, click **🗑**.
- Step 5 Click the layout style icon in the toolbar above the editing area, or click **📐** to customize the layout by setting the number of rows and columns.

Figure 7-17 Toolbar (P20)



Step 6 Drag the output connector at the bottom to the desired screen to complete the screen configuration.



To change an output, simply drag another output connector to the screen.

## 7.4.2 Configure Screen Properties

Click the desired screen, and then set the screen-related properties in the property area on the right pane.

### 7.4.2.1 Rename Screens

Change the screen name.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

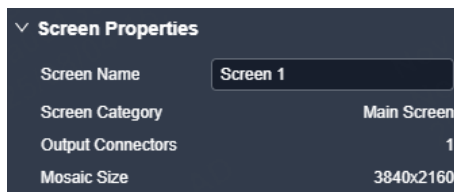
#### Prerequisites

None

#### Notes

None

#### Interface Example (P20)



#### Description

On the **Basic** tab interface, enter a new screen name, and then click elsewhere in the interface to complete the screen name change.

## 7.4.2.2 Configure Connector Position

Configure the start position of the output connector.

### Applicable Products

P80, P20, P20-DS, P10, Q8

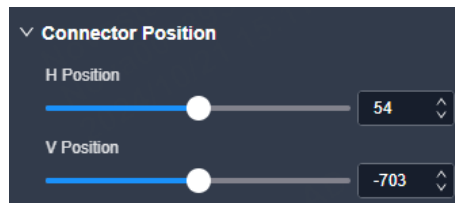
### Prerequisites

The screen is a main (not flex/AUX) screen.

### Notes

None

### Interface Example (P20)



### Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
H Position	The horizontal start position of the output connector
V Position	The vertical start position of the output connector

## 7.4.2.3 Configure Test Patterns

Test patterns are used to check the connection relation between the output connectors and the screen, and check whether the screen display is good.

### Applicable Products

P80, P20, P20-DS, P10, Q8

### Prerequisites

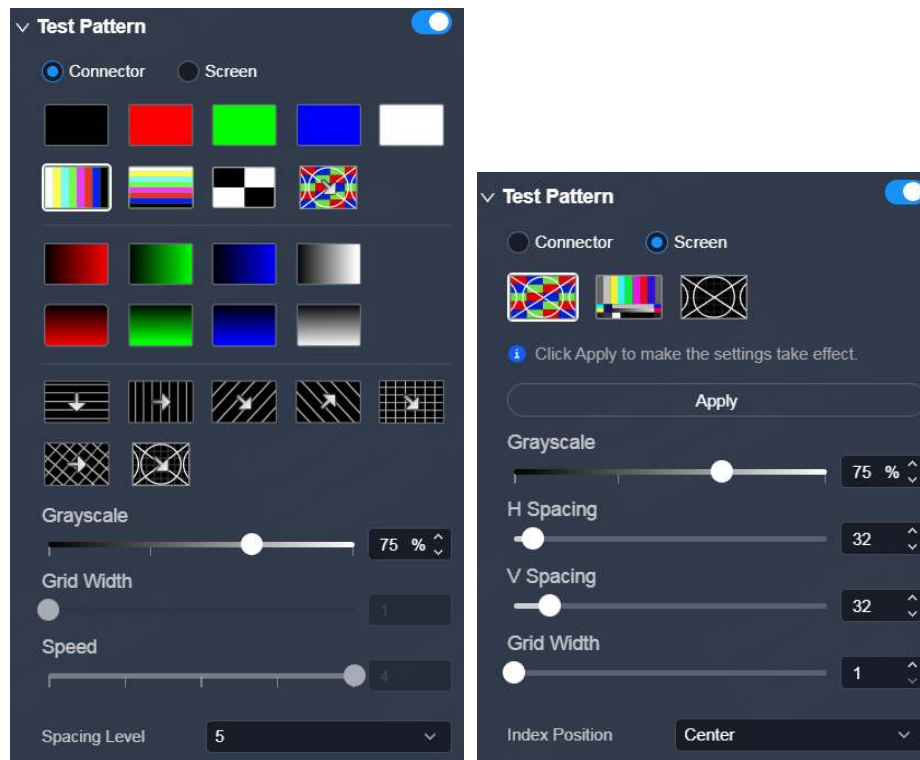
- The screen is a main screen.
- Only the Q8 supports the screen-level test patterns.

### Notes

- Once the screen test pattern is enabled, the Device page does not allow operations related to output connectors, such as adjusting positions.

- Once the screen test pattern is enabled, if the configured screen resolution exceeds the maximum limit of 16383×16383, the screen test pattern cannot be used.

### Interface Example (Q8)



### Description

On the **Basic** tab interface, configure the following parameters.

Type	Parameter	Description
Test Pattern	/	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>
Connector	Connector	Display only the enabled test pattern within the connector, excluding SMPTE.
	Grayscale	Adjust the overall grayscale of the test pattern (4 levels) to suit different display environments.
	H Spacing	Adjust the lateral distribution of vertical lines. This parameter can be adjusted when the device model is Q8 and the grid style pattern is selected.
	V Spacing	Adjust the longitudinal distribution of horizontal lines. This parameter can be adjusted when the device model is Q8 and the grid style pattern is selected.
	Spacing Level	Adjust the spacing between colors.

Type	Parameter	Description
		<p>This parameter can be adjusted when the device model is and the color style pattern is multi-color or gradient.</p> <p>The spacing levels range from <b>Auto</b> to <b>1-8</b>. When the color style is striped, it can be set to <b>Auto</b>.</p>
	Spacing (px)	<p>Adjust the grid line spacing.</p> <p>This is adjustable when the device models are N10/N20 and the grid style is configured</p> <p>This parameter can be adjusted when the device model is P80, P20, P20-DS, and P10 and the grid style pattern is selected.</p>
	Grid Width	<p>Adjust the thickness of grid lines to test display's clarity and edge-rendering capability under varying line width conditions.</p> <p>This parameter can be adjusted when the grid style pattern is selected.</p>
	Speed	<p>Adjust the speed of grid line movement (5 levels).</p> <p>This parameter can be adjusted when the grid style pattern is selected.</p>
Screen	Screen	<p>Display only the enabled test pattern within the screen, including SMPTE, circular alignment checkerboard, and circular alignment grid.</p> <p>Once settings are complete, click <b>Apply</b> to make the settings take effect.</p>
	Grayscale	<p>Adjust the overall grayscale of the test pattern (4 levels) to suit different display environments.</p>
	H Spacing	<p>Adjust the lateral distribution of vertical lines.</p> <p>This parameter can be adjusted when the circular alignment grid is selected.</p>
	V Spacing	<p>Adjust the longitudinal distribution of horizontal lines.</p> <p>This parameter can be adjusted when the circular alignment grid is selected.</p>
	Spacing Level	<p>Adjust the spacing between colors.</p> <p>This parameter can be adjusted when the circular alignment grid is selected.</p>
	Grid Width	<p>Adjust the thickness of grid lines to test display's clarity and edge-rendering capability under varying line width conditions.</p> <p>This parameter can be adjusted when the circular alignment grid is selected.</p>

Type	Parameter	Description
	Index Position	Adjust the display position of grid-based locator markings.  This parameter can be adjusted when the circular alignment checkerboard or circular alignment grid is selected.

### 7.4.2.4 Configure AOI

When the output connector resolution is greater than the actual screen resolution, you can configure an unequal mosaic rather than changing the resolution of the output connector.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

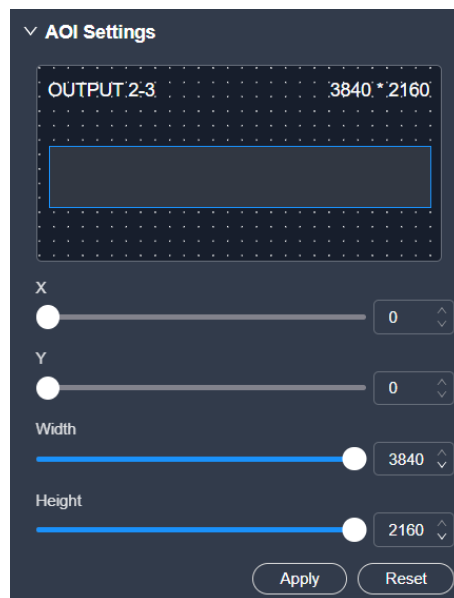
#### Prerequisites

The screen is a main or flex (not AUX) screen.

#### Notes

None

#### Interface Example (P20)



#### Description

Select the output connector on the canvas, and then configure the following parameters on the **Basic** tab interface. After the settings, click **Apply**.

Parameter	Description
X	The horizontal offset relative to the starting position of the original connector
Y	The vertical offset relative to the starting position of the original connector
Width	The horizontal pixels
Height	The vertical pixels

### 7.4.2.5 Configure Screen Color

Configure the screen color parameters.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

None

#### Notes

The gamma adjustment is applicable to P80 and Q8 only.

## Interface Example (Q8)



## Description

On the **Effect** tab interface, configure the following parameters.

Parameter	Description
Contrast	The ratio of the luminance of the brightest color to that of the darkest color Adjust the contrast value either as a whole or individually adjust the RGB components.
Brightness	The shading of lights in the image Adjust the brightness value either as a whole or individually adjust the RGB components.
Hue	The relative degree of how bright or dark the image is
Saturation	The color purity of the image The higher the value, the more vivid the color.
Gamma	Adjust the gamma value.

## 7.4.2.6 Configure Timing

Configure the resolution and frame rate of the output. You can select the standard resolution provided by the device, customize a resolution, or set the advanced parameters.

### Applicable Products

P80, P20, P20-DS, P10, Q8

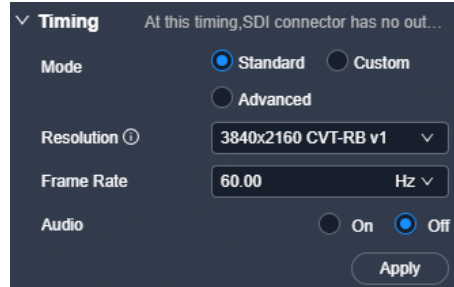
### Prerequisites

The EDID of the back-end device is obtained.

### Notes

- It is recommended the advanced settings be carried out by the trained personnel only.
- Once the output resolution is changed, the AOI parameters associated with the connector will be automatically reset.
- Only the Q8, P80 and P20-DS support audio configuration. When HBlank is less than 110, the audio function cannot be enabled.

### Interface Example (P20-DS)



### Description

On the **Output** tab interface, configure the following parameters and click **Apply**.

Parameter	Sub-Parameter	Description
Mode	-	The options include <b>Standard</b> , <b>Custom</b> and <b>Advanced</b> .
Standard	Resolution	The number of horizontal pixels and vertical pixels of the image Config method: Select the desired resolution from the drop-down list.
	Frame Rate	The image frames per second (unit: Hz) Config method: Select the preset common frame rates from the drop-down options. The available frame rates may vary according to the chosen resolution.

Parameter	Sub-Parameter	Description
	Audio	Turn on or off the audio function.
Custom	Width	The horizontal pixels of the image
	Height	The vertical pixels of the image
	Frame Rate	The image frames per second (unit: Hz)
	Reduced Blanking	Start and end times, as well as the duration of the horizontal and vertical blanking intervals in the video signal to ensure synchronized image display Options include <b>Standard</b> , <b>CVT-RBv1</b> , <b>CVT-RBv2</b> , and <b>CVT-RBv3</b> .
	HBlank	Horizontal blanking parameter to complete the current line scan and prepare for the next one. <ul style="list-style-type: none"> <li>When <b>Standard</b> is selected for <b>Reduced Blanking</b>, HBlank is displayed but cannot be adjusted.</li> <li>When <b>CVT-RBv1</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 160.</li> <li>When <b>CVT-RBv2</b> is selected for <b>Reduced Blanking</b>, HBlank is fixed at 80.</li> <li>When <b>CVT-RBv3</b> is selected for <b>Reduced Blanking</b>, HBlank is adjustable, ranging from 80 to 200.</li> </ul>
	Audio	Turn on or off the audio function.
Advanced	H Total	Total pixel count per line
	H Active	The horizontal size in pixels of the active area
	H Front Porch	The offset between the end of the active area and the beginning of the H sync
	H Sync	The horizontal sync width in pixels (or between pixels)
	H Polarity	The polarity of the horizontal sync pulse
	V Total	Total pixel count per column
	V Active	The vertical size in pixels of the active area
	V Front Porch	The offset in lines between the end of the active output area and the beginning of V sync
	V Sync	The vertical sync width in rows (or between rows)
	V Polarity	The polarity of the vertical sync pulse
	Frame Rate	The image frames per second (unit: Hz)
	Audio	Turn on or off the audio function.

### 7.4.2.7 Configure Output Parameters

Configure the output-related parameters.

## Applicable Products

P80, P20, P20-DS, P10, Q8

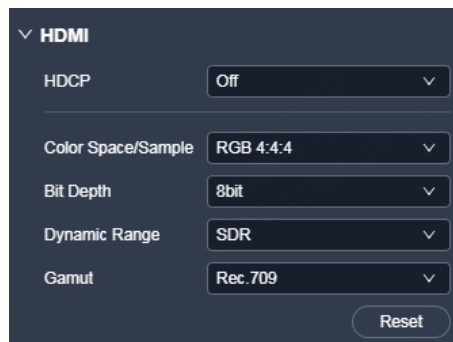
## Prerequisites

- The general parameters are applicable to both the main screen, flex screen and AUX screen.
- Before setting the HDR-related parameters here, make sure the screen is a main or flex (not AUX) screen.

## Notes

None

## Interface Example (P20)



## Description

On the **Output** tab interface, configure the following parameters.

Type	Parameter	Description
General parameters	Color Space/Sample	The sampling format of the output
	Bit Depth	The bit depth of the output, i.e., the binary digits to represent a single color
HDR parameters	Dynamic Range	The dynamic range format of the output
	Color Gamut	The color gamut standard of the output
	Gamma	The Gamma value When <b>Dynamic Range</b> is SDR, this parameter is available.
	Peak Brightness	The peak brightness When <b>Dynamic Range</b> is HDR10 or HLG, this parameter is available.

### Note

- For the P20-DS, the output connector parameter area is divided into two parts: **HDMI** and **SDI**.

- The HDMI connector parameters of the P20-DS are consistent with those of the P20.
- The SDI area allows only viewing the **Color Space/Sample** and **Bit Depth** info.

---

### 7.4.2.8 Configure Screen HDCP

Configure the HDCP settings for all connectors of the screen.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

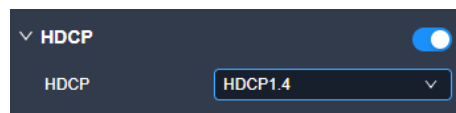
#### Prerequisites

The function is applicable to the LCD screens only.

#### Notes

None

#### Interface Example (P20)



#### Description

Enable or disable the HDCP encryption function for all connectors of the device that loads the LCD screen.

---

#### Note

- For the specific output images after configuring the global, input, output HDCP respectively, please refer to the table in [7.3.2.7 Configure HDCP](#).
- The screen HDCP is disabled by default. Once enabled, the default HDCP version is set to the lowest.
- For the P20-DS, HDCP setting is only applicable to the HDMI connector.

---

### 7.4.2.9 Configure Connector Rotation

Rotate the currently-selected output connector clockwise from the center point. Only the connector rotates, not the image, making it suitable for vertical playback or creative mosaic application scenarios.

#### Applicable Products

Q8

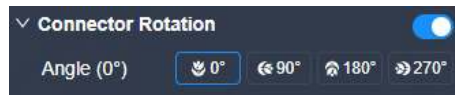
#### Prerequisites

The screen is a main (not AUX) screen.

## Notes



- When the vertical or horizontal resolution of the connector exceeds 4096 pixels, rotation operations are prohibited.
- Once the connector rotation is enabled, the virtual pixel function will be reset, and there will be an additional one-frame delay from input to output.

## Interface Example (Q8)



## Description

On the **Advanced** tab interface, configure the following parameters.

Parameter	Description
Connector Rotation	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
Angle (0°)	Rotate the output connector clockwise from the central point.

## 7.4.2.10 Configure Virtual Pixels

With the help of the virtual pixel function, the complicated calculations during the screen configuration process will not be troublesome.

## Applicable Products

P80, P20, P20-DS, P10, Q8

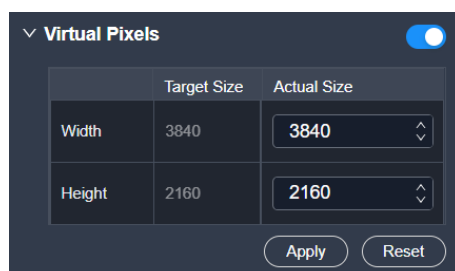
## Prerequisites

The screen is a main or flex (not AUX) screen.

## Notes



The virtual pixels have no effect on the actual output content.

## Interface Example (P20)



## Description

On the **Advanced** tab interface, configure the following parameters and click **Apply**.

Parameter	Description
Virtual Pixels	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>
Width (Actual Size)	The width of the actual screen
Height (Actual Size)	The height of the actual screen

### 7.4.2.11 Configure 3D

Enable the 3D feature on the current screen and set the eye priority to optimize the 3D visual effect.

#### Applicable Products

P80, Q8

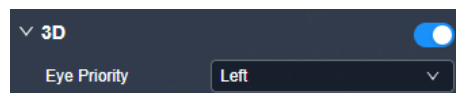
#### Prerequisites

The screen is a main or flex (not AUX) screen.

#### Notes



None

#### Interface Example (Q8)



#### Description

In the **Advanced** tab, configure the following parameters:

Parameter	Description
3D	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul>
Eye Priority	Set the eye priority.

### 7.4.2.12 Configure LCD Bezel Compensation

Configure the edge compensation parameters for LCD splicing screens to make the image visually integrated.

## Applicable Products

P80, P20, P20-DS, P10, Q8

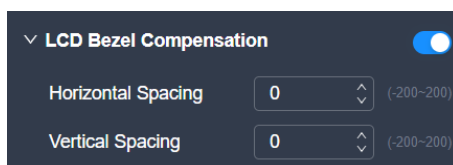
## Prerequisites

The screen is a main (not flex/AUX) screen.

## Notes



Edge blending and LCD bezel compensation are mutually exclusive.

## Interface Example (P20)



## Description

In the canvas area, click the **Advanced** tab and configure the following parameters on the right pane.

Parameter	Description
LCD Bezel Compensation	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
Horizontal Spacing	The total width of the borders at the horizontal joints of the screens
Vertical Spacing	The total width of the borders at the vertical joints of the screens

### 7.4.2.13 Configure Edge Blending

Edge blending is a technique used when using multiple projectors to display different regions of a single image. To display a single seamless image, adjacent projectors need to overlap edges slightly and compensate for the double brightness created in different regions.

## Applicable Products

P80, P20, P20-DS, P10, Q8

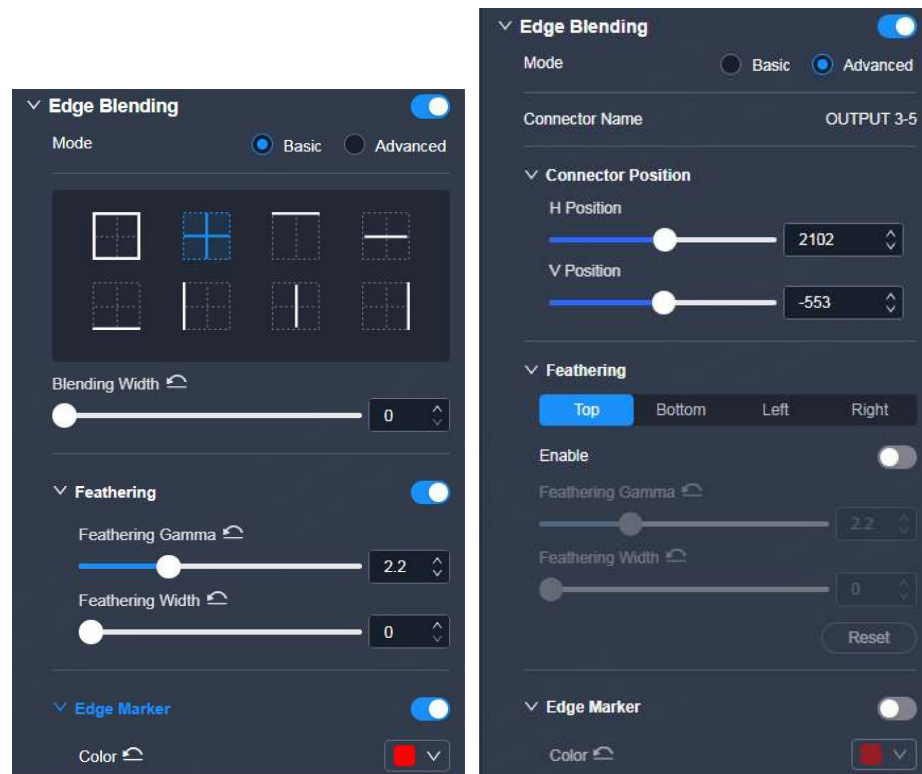
## Prerequisites

- The screen is a main (not flex/AUX) screen.
- The offset angles of the projectors have been adjusted.

## Notes

Edge blending and LCD bezel compensation are mutually exclusive.





## Interface Example (P20)



## Description

In the canvas area, click the **Advanced** tab and configure the following parameters on the right pane.

Parameter	Description
Edge Blending	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> On</li> <li><input type="checkbox"/> Off</li> </ul>
Mode	Select the edge blending mode. <ul style="list-style-type: none"> <li>Basic: Applicable to standard mosaic screens</li> <li>Advanced: Applicable to both standard and irregular mosaic screens</li> </ul>
Blending Width	Set the width of the blending area. When <b>Basic</b> is selected, this parameter is available. Select the desired screen edge, then configure the blending area width.
Connector Position	Set the horizontal and vertical start positions of the output connector. When <b>Advanced</b> is selected, this parameter is available.

Parameter	Description
Feathering	Turn on or turn off the function. <ul style="list-style-type: none"> <li>• : On</li> <li>• : Off</li> </ul> In the <b>Advanced</b> mode, set the feathering parameters, including function switch, Gamma, width, for each output edge. For the Q8, each output supports up to two blending areas, with a min size of 64×64.
Feathering Gamma	Set the feathering Gamma for the blending area.
Feathering Width	Set the feathering width (inward direction) of the blending area.
Edge Marker	Highlight the edges of the output connector's loading area: <ul style="list-style-type: none"> <li>• : On, highlight the edges of the output connector's loading area in the output image.</li> <li>• : Off</li> </ul>
Color	Select the highlight color.

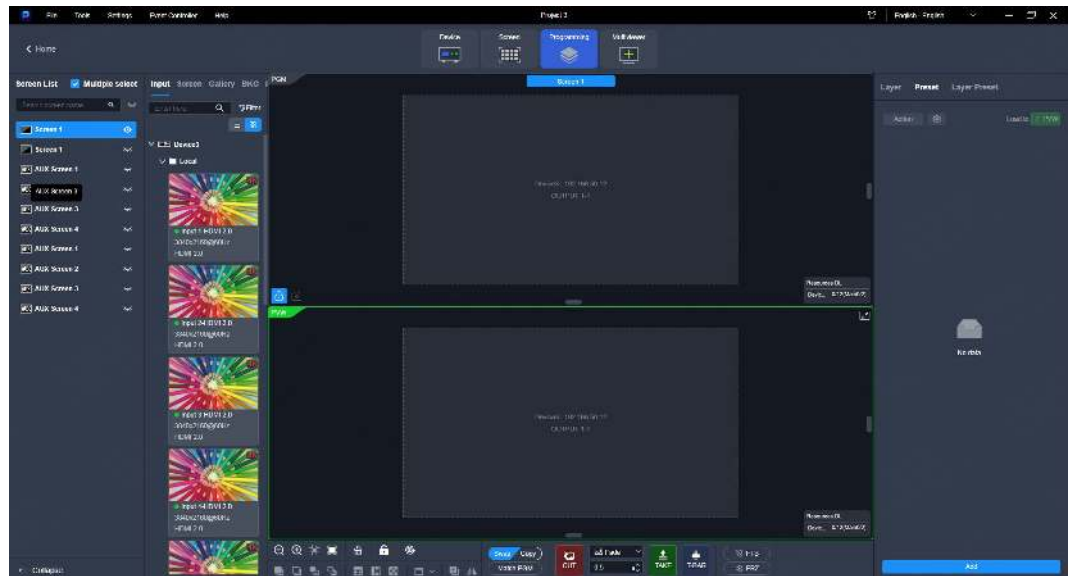
## 7.5 Layer Operations

### 7.5.1 Add Layers

Add the layers to the screen. Multiple layers can be added to a main screen, but only one layer can be added to a flex/AUX screen.

- Step 1 Enter the device configuration page as described in [7.3.1 Enter Device Configuration Page](#).
- Step 2 Select **Programming** at the top of the page, and then select the target screen from **Screen List** on the left.

Figure 7-18 Programming (P20)



Step 3 Add the layers to the screens.

- Main/Flex screen: Drag an input source, screen, local image, or MVR source (Q8) from the gallery to the screen.

If **Screen Resources** is enabled in **Settings > Preferences**, the current layer resource usage appears at the bottom right of the programming area.

When adding a layer using a 3D video source (P80/Q8):


- 3D NOT enabled on the screen: The original 3D video source is displayed.
- 3D enabled on the screen: The display synchronizes with the screen.

Side-by-side source: The left-eye image is displayed.

Top-and-bottom source: The upper image is displayed.

- AUX screen: Drag an input source, screen, or local image from the gallery to the AUX screen.

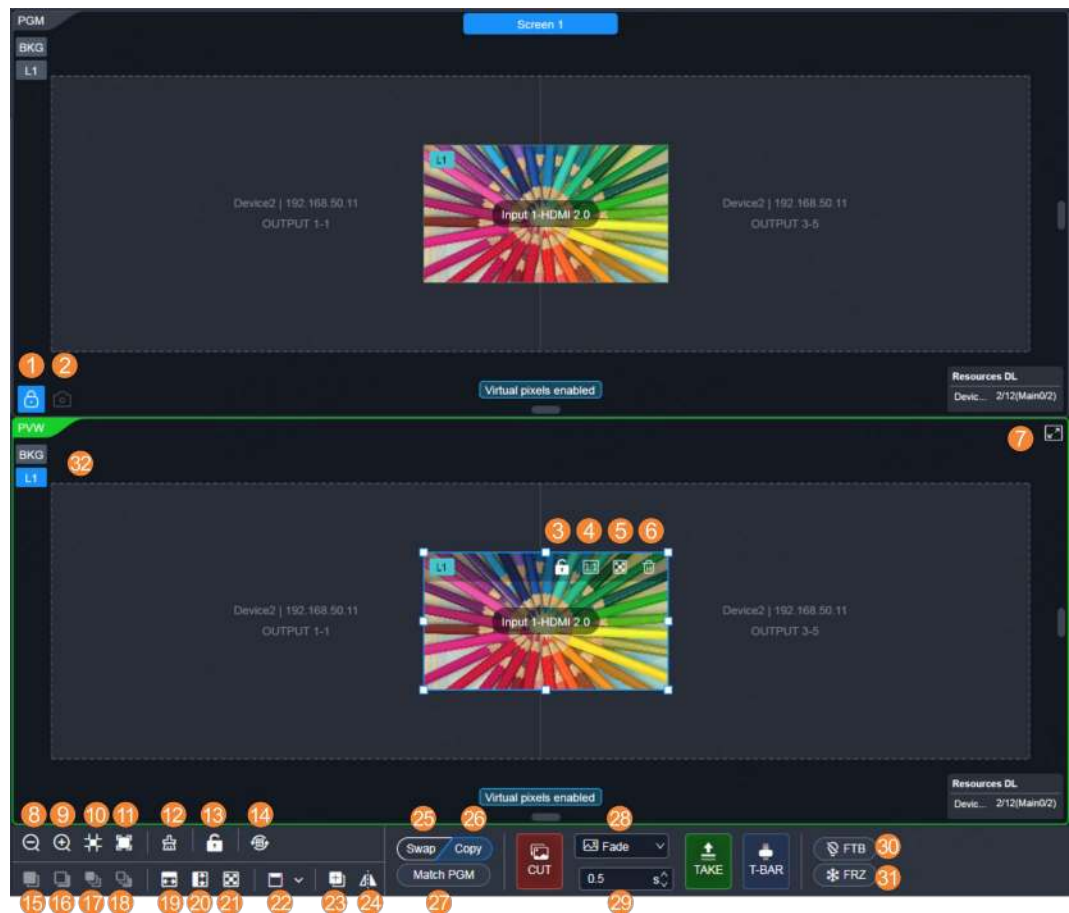
**Note**

In the input source list, hover over an input source and click . In the pop-up, you can:

- Capture the input source.
- Configure the auto switch status.

Step 4 Perform the desired layer operations as required.

Figure 7-19 Layer operations



1	Lock/Unlock PGM	17	Bring to front
2	Capture PGM	18	Send to back
3	Lock/Unlock layer	19	Fill horizontally
4	1:1 display	20	Fill vertically
5	Maximize display	21	Fill screen
6	Delete	22	Align
7	Maximize/Restore	23	Copy
8	Zoom out	24	Mirror horizontally
9	Zoom in	25	Swap PVW and PGM
10	Zoom to selected	26	Copy PVW to PGM
11	Auto fit	27	Match PVW with PGM
12	Clear	28	Transition effect
13	Lock/Unlock PGM and PVW	29	Transition duration
14	Reset current view	30	FTB
15	Bring forward	31	Freeze

16	Send backward	32	Select layer <ul style="list-style-type: none"> <li>• BKG: Background layer</li> <li>• Lx: Regular layer</li> <li>• Ax: AUX layer</li> <li>• Fx: Flex layer</li> </ul>
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To move a layer, drag it directly with the mouse to the desired position, or use the arrow keys to move, and Shift + arrow keys for quick movement.

Send PVM to PGM via the following three ways:

- CUT: Send PVW to PGM without any transition effect.
- TAKE: Send PVW to PGM with a time-specified transition effect.
- T-BAR: Send PVW to PGM with a transition effect, and the transition duration depends on the time duration you push the T-Bar.

 **Note**

The layer or preset operations are NOT allowed during the transition process.

## 7.5.2 Manage Gallery

In the input source list area, select the **Gallery** tab, then perform the actions as needed.

### Import Images


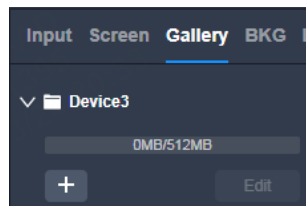

Click , select the desired images in the displayed dialog box and then click **OK**.



Figure 7-20 Gallery (P20)



### Export Images

Click **Edit**, select the images you want to export, and click . In the pop-up dialog box, choose a destination path, and click **OK**.

### Delete Images

Click **Edit**, select the images to be deleted, and then click  or click  in the top right of the image. In the pop-up dialog box, click **Yes**.

## 7.5.3 Manage BKGs

### 7.5.3.1 Image BKGs

In the input source list area, select the **BKG** tab, then perform the actions as needed.

#### Enable or Disable BKGs

Turn on or turn off the function.



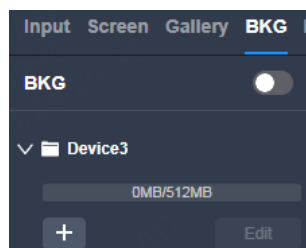

- : The function is turned on.
- : The function is turned off.

Figure 7-21 BKG (P20)





#### Import BKGs

Click , select the desired BKGs in the displayed dialog box and then click **OK**.

#### Export BKGs

Click **Edit**, select the BKGs you want to export, and click . In the pop-up dialog box, choose a destination path, and click **OK**.

#### Delete BKGs

Click **Edit**, select the BKGs to be deleted, and then click  or click  in the top right of the BKG. In the pop-up dialog box, click **Yes**.

### 7.5.3.2 Live BKGs

This feature enables use of any live input signal as the background layer, eliminating the need for pre-loading media files. It supports quick switching of dynamic backgrounds via presets, facilitating real-time visual transitions between different event segments.

#### Applicable Products

P80

#### Prerequisites

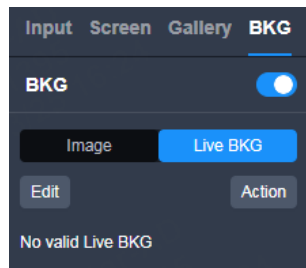
The screen is a main (not flex/AUX) screen.

## Notes

- Live BKG and image BKG cannot be used simultaneously. Only one can be active at a time.
- A maximum of 16 Live BKGs can be stored per screen.
- Interlaced signal input sources are not supported for use as Live BKGs.

## Procedure

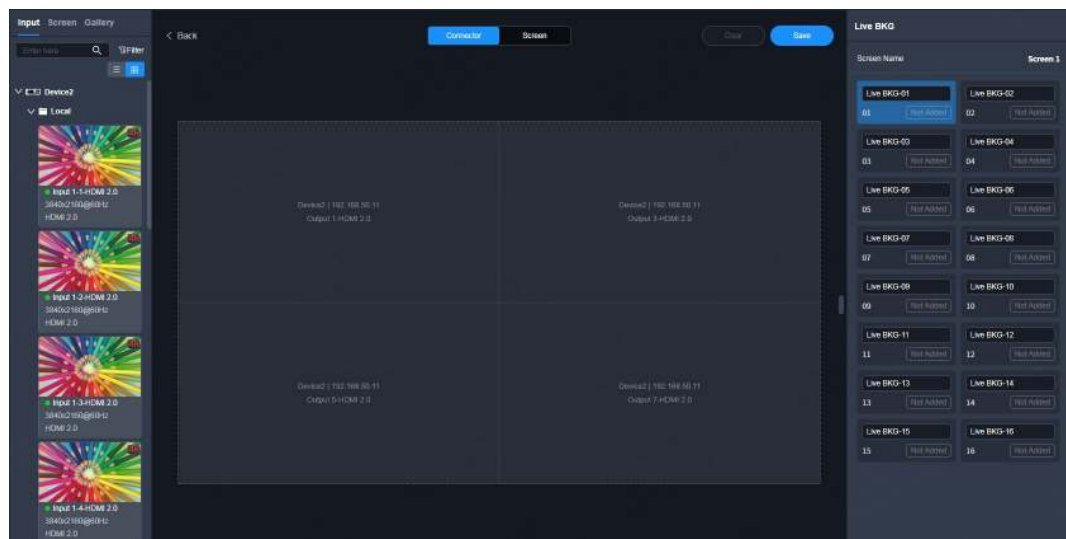
Step 1 In the input source list area, select the **BKG** tab.



Step 2 (Optional) Toggle the **BKG** switch.

Step 3 Select the **Live BKG** tab.

Step 4 Click **Edit** and go to the right pane to add live BKGs.





Step 5 Select the **Connector** or **Screen** tab from the top of the editing area.

- Connector: Create a live BKG by assigning one source to each connector within a screen, with each source displayed in its corresponding connector area.
- Screen: Create a live BKG by assigning one source to the entire screen.

Step 6 Drag a source from the **Input**, **Screen** or **Gallery** area to the editing area.

Step 7 Select a live BKG slot from the **Live BKG** pane on the right and click **Save** to save a live BKG, or click **Clear** to cancel the operation.

Step 8 Click **Back** and drag the saved live BKG to the PVW or PGM area to complete the BKG adding.

If you want to delete a single live BKG, click  in the top right; if you want to delete some or all live BKGs, click **Action** and select the BKGs to be deleted or check **Select All**, and then click . In the pop-up dialog box, click **Yes**.

## 7.5.4 Manage Logos

In the input source list area, select the **LOGO** tab, then perform the actions as needed. The P80 and Q8 do not support the logo function.

### Import Logos


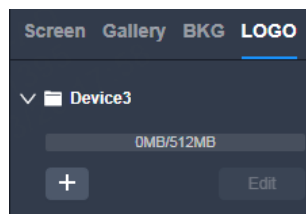
Click , select the desired logos in the displayed dialog box and then click **OK**.

Figure 7-22 Logo (P20)



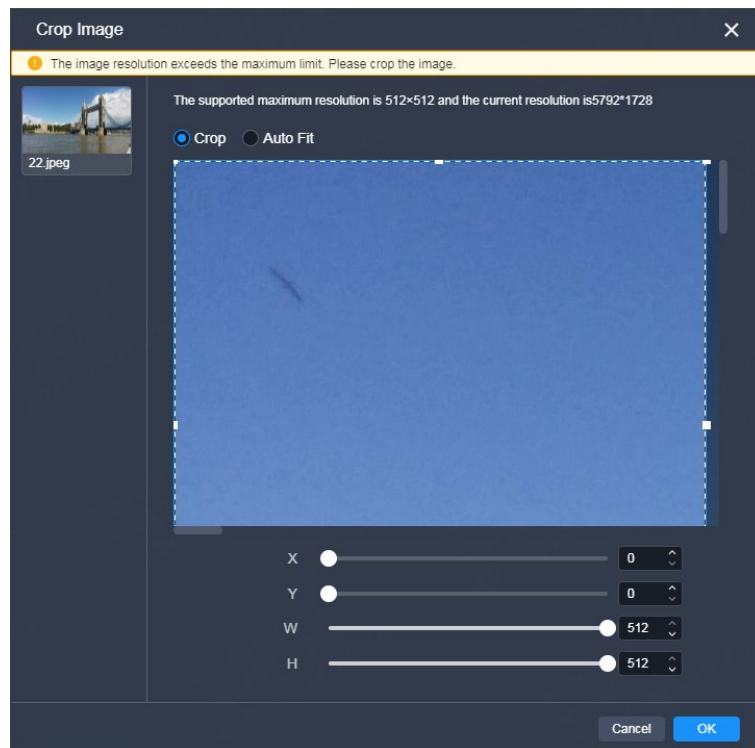
### Note

When the interface cannot display all tabs, press and hold Shift while scrolling the mouse wheel to navigate to the **LOGO** tab page.


When the selected logo file's resolution exceeds 512×512 pixels, the **Crop Image** dialog will automatically appear. Perform the corresponding operation as needed.

- Select **Crop** and set the coordinates (X, Y) and size (W, H) of the crop area.
- Select **Auto Fit** to automatically adjust the logo's size.



Figure 7-23 Crop images



## Export Logos

Click **Edit**, select the logos you want to export, and click . In the pop-up dialog box, choose a destination path, and click **OK**.

## Delete Logos

Click **Edit**, select the logos to be deleted, and then click  or click  in the top right of the logo. In the pop-up dialog box, click **Yes**.

## 7.5.5 Configure Layer Properties

Select the desired layer, and then set the layer-related properties in the property area on the right pane.

### 7.5.5.1 Configure Basic Properties

Configure the layer name, flipping, aspect ratio, position and size, as well as 3D.

## Applicable Products

P80, P20, P20-DS, P10, Q8

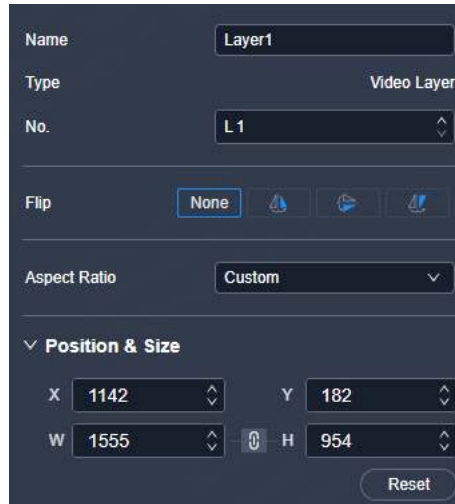
## Prerequisites

- The flipping function is applicable to the regular layers only.
- Only the Q8 supports the 3D function.

## Notes

After enabling the 3D function in the **Screen** interface, the 3D switch for all layers is turned on. If you need to use a 2D layer, please navigate to the **Screen** interface to disable the function.

## Interface Example (P20)



## Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
Name	The layer name
Type	The layer type
No.	The layer number
Flip	The layer flipping mode The supported options include <b>None, Flip Horizontally, Flip Vertically, Flip Horizontally and Vertically.</b>
Aspect Ratio	The ratio of the layer's width to its height After the aspect ratio is changed, the height of the layer remains unchanged, and the device automatically calculates its width.
X	The horizontal starting position of the layer on the screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
Y	The vertical starting position of the layer on the screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
W	The horizontal size of the layer The minimum width of a layer can only be scaled down to 1/64 of the layer width.
H	The vertical size of the layer

Parameter	Description
	The minimum height of a layer can only be scaled down to 1/64 of the layer height.

### 7.5.5.2 Configure Layer Borders

Configure the border style of a layer.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

The layer is a regular (not flex/AUX) layer.

#### Notes

If the layer mask function is turned on, the border function is turned off.

#### Interface Example (P20)



#### Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
Border	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On</li> <li><input type="checkbox"/>: Off</li> </ul>
Type	The layer border type
Width	The width of the layer left and right borders
Height	The height of the top and bottom borders
Color	The layer border color When the border function is set to <input checked="" type="checkbox"/> , this parameter is available.

### 7.5.5.3 Configure Layer Mask

Configure the mask-related parameters. The masked area becomes transparent and the layer size remains the same.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

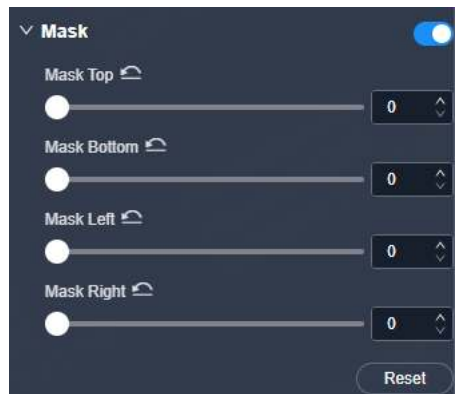
#### Prerequisites

The layer is a regular or flex (not AUX) layer.

#### Notes



If the layer mask function is turned on, the border function is turned off.

#### Interface Example (P20)



#### Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
Mask	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
Mask Top	Set the masked area height from the top edge of the layer.
Mask Bottom	Set the masked area height from the bottom edge of the layer.
Mask Left	Set the masked area width from the left edge of the layer.
Mask Right	Set the masked area width from the right edge of the layer.

### 7.5.5.4 Configure Layer Shadow

Configure the layer shadow parameters, including the shadow position, size, opacity, edge blurring and shadow color.

## Applicable Products

P80, P20, P20-DS, P10, Q8

## Prerequisites

The layer is a regular (not flex/AUX) layer.

## Notes



None

## Interface Example (P20)



## Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
Shadow	Turn on or turn off the function. <ul style="list-style-type: none"><li>• : On</li><li>• : Off</li></ul>
X	The horizontal start position of the shadow on the screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
Y	The vertical start position of the shadow on the screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
Width	The width of the shadow
Height	The height of the shadow
Opacity	The opacity of the shadow

Parameter	Description
Shadow Blur	The blurring degree of the shadow edge The greater the value, the more blurring the shadow edges
Color	The shadow color

### 7.5.5.5 Configure KeyFrame

Configure the speed, start time and animation duration for KeyFrame (the transition of layer position and size).

#### Applicable Products

P20, P20-DS, P10, Q8, P80

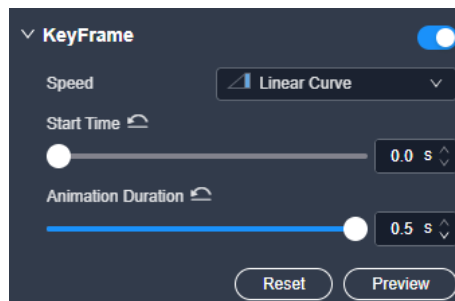
#### Prerequisites

None

#### Notes

None

#### Interface Example (P20)



#### Description

On the **Basic** tab interface, configure the following parameters.

Parameter	Description
KeyFrame	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On</li> <li><input type="checkbox"/>: Off</li> </ul>
Speed	<ul style="list-style-type: none"> <li>Linear Curve (default): The speed is constant.</li> <li>S-Curve: The speed alternates between fast and slow.</li> </ul>
Start Time	Time after which the KeyFrame effect commences
Animation Duration	Total time required for the transition effect

 **Note**

After enabling the function, a persistent "KF" marker will display on the layer, serving as a visual cue to users.

### 7.5.5.6 Crop Layer Sources (P20/P20-DS/P10)

When there are black borders or other redundant info in the input source image, the required picture can be retained through the cropping the input source, so as to improve the screen utilization.

#### Applicable Products

P20, P20-DS, P10

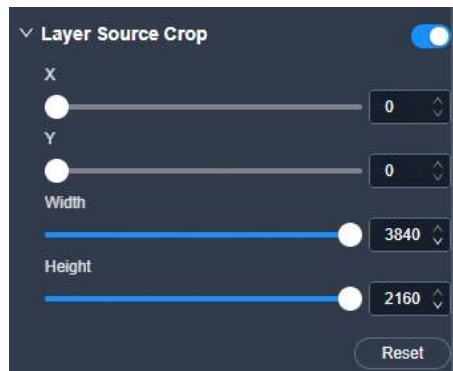
#### Prerequisites

A fine signal is connected to the input connector.

#### Notes



The properties and capacity of the cropped source remain consistent with the original one.

#### Interface Example (P20)



#### Description

On the **Advanced** tab interface, configure the following parameters.

Parameter	Description
Layer Source Crop	Turn on or turn off the function. <ul style="list-style-type: none"><li>: On</li><li>: Off</li></ul>
X	The horizontal start position of the cropped area relative to the original source
Y	The vertical start position of the cropped area relative to the original source

Parameter	Description
Width	The number of horizontal pixels (width) of the cropped area
Height	The number of vertical pixels (height) of the cropped area

### 7.5.5.7 Crop Layer Sources (P80/Q8)

#### Applicable Products

P80, Q8

#### Prerequisites


A fine signal is connected to the input connector.

#### Notes

The properties and capacity of the cropped source remain consistent with the original one.

#### Procedure

Step 1 Select the **Input** tab.

Step 2 Click the desired input source, then select  > **Crop**.



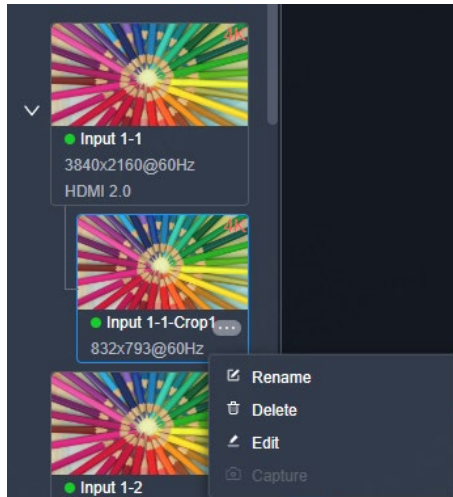
Step 3 In the pop-up, configure these parameters and click **Save** to save the configuration.



- Name: Set the name for the cropped source.

- X: Set the horizontal starting position relative to the original input source.
- Y: Set the vertical starting position relative to the original input source.
- Width: Set the number of horizontal pixels (width) of the cropped source.
- Height: Set the number of vertical pixels (height) of the cropped source.

Step 4 Perform **Rename**, **Delete**, **Edit**, or **Capture** on the cropped source as required.



### 7.5.5.8 Configure Cut & Fill

Configure the relevant parameters for the Cut & Fill function.

The original layer serves as the Fill layer, and the output will display the Cut layer that overlaps with the Fill layer, allowing users to define the output shape and effect more flexibly.

### Applicable Products

P80, P20, P20-DS, P10, Q8

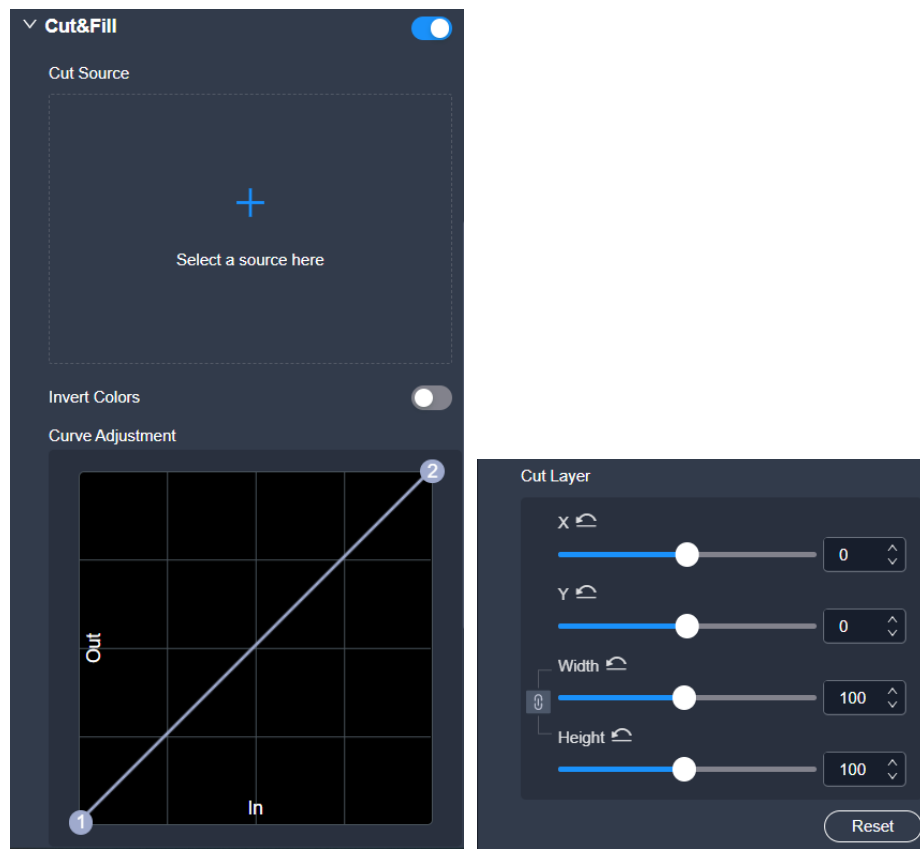
### Prerequisites

The layer is a regular (not flex/AUX) layer.

### Notes


- When the Cut & Fill function is enabled, the DSK function is disabled.
- For the Q8 and P80, the Cut & Fill function occupies two layer resources.
- For the P10, P20 and P20-DS, the total resources for the Cut layer are 2x DL (1x 4K), and the Cut layer capacity must be less than or equal to that of the Fill layer.

## Interface Example (P20)



## Description

On the **Advanced** tab interface, configure the following parameters.

Parameter	Description
Cut & Fill	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On</li> <li><input type="checkbox"/>: Off</li> </ul>
Cut Source	The input source of the Cut layer Config method: Click  to select an input source in the pop-up dialog box, and click <b>OK</b> . You can also delete or replace the input source if necessary.
Invert Colors	Turn on or turn off the function. <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/>: On, allowing black areas to be transparent and white areas to be cut</li> <li><input type="checkbox"/>: Off, allowing white areas to be transparent and black areas to be cut</li> </ul>
Curve Adjustment	The color curve for the Cut layer, which is used to adjust the transition effect of the Cut layer The farther apart the X coordinates of <b>1</b> and <b>2</b> are, the smoother the transition will be.

Parameter	Description
X	The horizontal initial position of the Cut layer relative to the Fill layer
Y	The vertical initial position of the Cut layer relative to the Fill layer
Width	The horizontal pixels of the Cut layer
Height	The vertical pixels of the Cut layer

### 7.5.5.9 Configure DSK

Achieve the luma, chroma and smart keying effect on the input source.

#### Applicable Products

P80, P20, P20-DS, P10

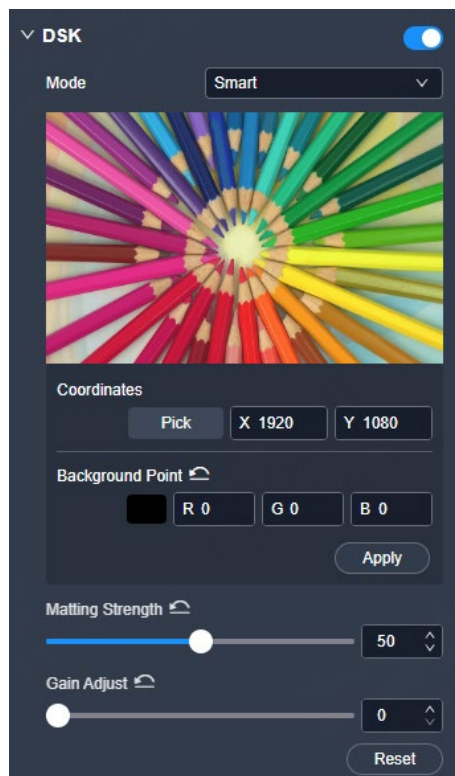
#### Prerequisites

The layer is a regular (not flex/AUX) layer, and the layer input source is a good one.

#### Notes





After the DSK function is enabled, the layer capacity will automatically change to 4K, and the cut & fill function will be disabled.

#### Interface Example (P20)



## Description

On the **DSK** tab interface, configure the following parameters.

Type	Parameter	Description
Function switch	DSK	<p>Turns on or turn off the function.</p> <ul style="list-style-type: none"> <li>: On</li> <li>: Off</li> </ul> <p>Description:</p> <ul style="list-style-type: none"> <li>Smart: Suitable for standard keying scenarios. This feature reduces the need for parameter adjustments, facilitating a more convenient and swift fulfillment of user requirements for image keying.</li> <li>Luma: Suitable for application scenarios where the brightness of the background is significantly smaller than that of the foreground. The result of luma key is that the background becomes transparent and the foreground is keyed out.</li> <li>Chroma: Suitable for application scenarios with a single background color, such as blue/green screen matting</li> </ul>
Smart key parameters	Pick	<p>The RGB values of the pick point</p> <ul style="list-style-type: none"> <li>Config method 1: Click <b>Pick</b>, and then click the position to be picked in the input source image.</li> <li>Config method 2: Set the coordinates of the pick point in the input source image.</li> <li>Config method 3: Set the RGB values of <b>Background Point</b>.</li> </ul> <p>After the settings, click <b>Apply</b>. You can also adjust the following parameters to optimize the keying effect.</p>
	Matting Strength	To adjust the intensity with which the background is processed
	Gain Adjust	To adjust the shadow/noise areas present in the foreground
Luma key parameters	Clip	To distinguish between the foreground and background
	Smooth	<p>The hue softness of the transition area</p> <p>The larger the value, the softer the transition.</p>
	Foreground Color	<p>Turn on or turn off the function.</p> <ul style="list-style-type: none"> <li>: On. After the function is turned on, the associated parameter <b>Color</b> can be used to adjust the keying effect.</li> <li>: Off</li> </ul>
	Color	The RGB values of the foreground color

Type	Parameter	Description
Chroma key parameters	Pick	The RGB values of the pick point <ul style="list-style-type: none"> <li>Config method 1: Click <b>Pick</b>, and then click the position to be picked in the input source image.</li> <li>Config method 2: Set the coordinates of the pick point in the input source image.</li> <li>Config method 3: Set the RGB values of <b>Background Point</b>.</li> </ul> After the settings, click <b>Apply</b> . You can also adjust the following parameters to optimize the keying effect.
	Hue Ramp	To distinguish between the foreground and background
	Hue Clip	The hue range The larger the value, the larger the removal area. The maximum value is the current value of <b>Hue Ramp</b> .
	Saturation Clip	To distinguish between the foreground and background
	Saturation Gain	The hue softness of the transition area The larger the value, the softer the transition.
	Spill	To remove the overflow from the foreground image edges and semi-transparent areas
	Shadow	To remove the shadow areas
	Highlight	To remove the highlight areas

### 7.5.5.10 Configure Layer Color

Configure the layer color parameters.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

- The layer color settings are applicable to regular (not AUX) layers only.
- For the P80, the layer color settings apply to both regular and flex layers, except for opacity, which does not apply to flex layers.

#### Notes

None

## Interface Example (P20)



## Description

On the **Effect** tab interface, configure the following parameters.

Parameter	Description
Contrast	The ratio of the luminance of the brightest color to that of the darkest color Adjust the contrast value either as a whole or individually adjust the RGB components.
Brightness	The shading of lights in the image Adjust the brightness value either as a whole or individually adjust the RGB components.
Hue	The relative degree of how bright or dark the image is
Saturation	The color purity of the image The higher the value, the more vivid the color.
Opacity	The layer opacity

Parameter	Description
Monochrome	Turn on or turn off the function. <ul style="list-style-type: none"><li><input checked="" type="checkbox"/>: On, and the layer image is show in black and white.</li><li><input type="checkbox"/>: Off</li></ul>
Invert Colors	Turn on or turn off the function. <ul style="list-style-type: none"><li><input checked="" type="checkbox"/>: On, and the layer image is show in the complementary color of its original color.</li><li><input type="checkbox"/>: Off</li></ul>

### 7.5.5.11 Configure BKG Properties

Configure the aspect ratio, position and size of the BKG.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

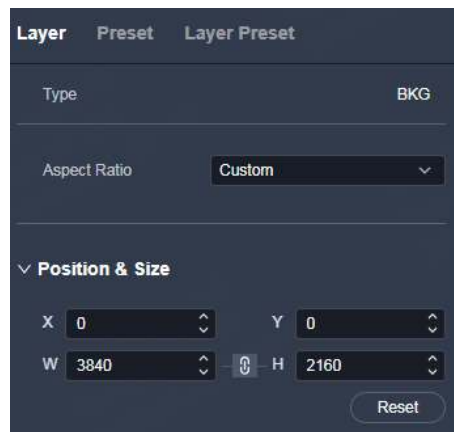
#### Prerequisites

None

#### Notes

None

#### Interface Example (P20)



#### Description

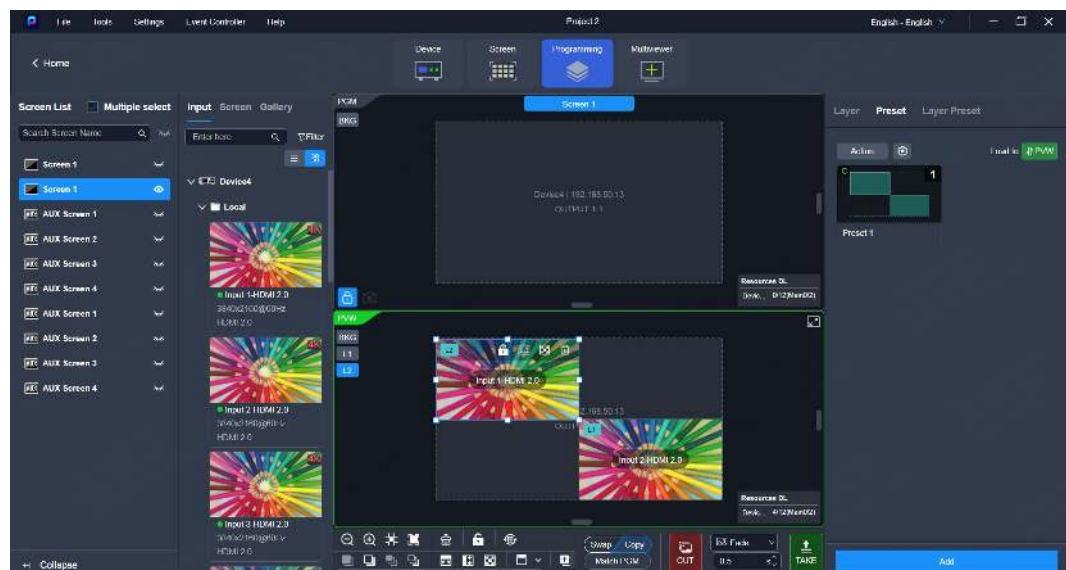
Select the BKG image and configure the following parameters in the property area on the right.

Parameter	Description
Aspect Ratio	The proportional relationship between the horizontal width and the vertical height of the BKG Upon changing the aspect ratio, the height of the BKG remains unchanged and the system automatically calculates the width.
X	The horizontal starting position of the BKG on a screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
Y	The vertical starting position of the BKG on a screen The coordinates of the first pixel in the upper left corner of the screen are (0,0).
W	The horizontal pixels of the BKG
H	The vertical pixels of the BKG

## 7.5.6 Manage Presets

Click **Preset** on the right side of the **Programming** interface and perform the corresponding actions as needed.

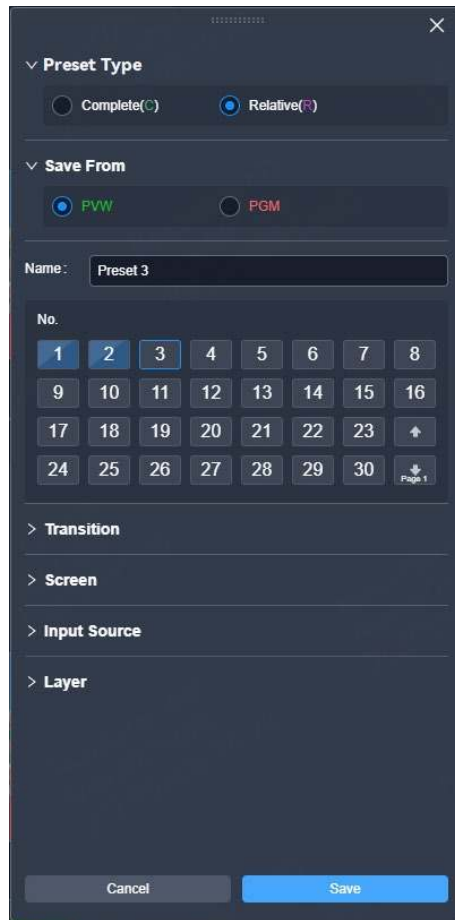
Figure 7-24 Preset management (P20)



### Save Presets

Click **Add**, set the relevant preset parameters, and click **Save** after completing the settings.

Figure 7-25 Save presets



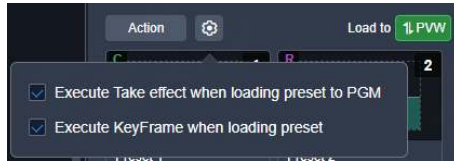
- Load Method:
  - Relative: Load all layer parameters in the preset while retaining layers not included.
  - Complete: Load all layer parameters and remove layers not included in the preset.
- Save From: Select **PVW** or **PGM**.
- Name: Set the name for the new preset.
- Transition: **Take Duration** can be selected.  
This option is unavailable in PGM Only mode for the P10, P20 and P20-DS.
- Screen: Choose a screen.  
Empty screens cannot be saved.
- Input Source: Options for image quality or DSK can be selected.
- Layer: Select the layer (shown when **Relative** loading method is selected).

## Preset Settings



Click  to select

- Execute Take effect when loading preset to PGM

- Execute KeyFrame when loading preset (only appears if **Execute Take effect when loading preset to PGM** is selected)






## Load Presets


In the preset list, click  or  (appears in Switcher mode for the Q8, P10, P20 and P20-DS) to load the preset to PGM or PVW.

- Q8, P80  
The preset is loaded to PVW or PGM.
- P20, P20-DS, P10
  - Switcher mode: The preset is loaded to PVW or PGM.
  - PGM only mode: The preset is loaded directly to PGM.


Upon successful loading, the indicator light at the top left of the preset preview will illuminate:

- : The preset is in PVW.
- : The preset is in PGM.
-  (P20, P20-DS, P10 PGM Only mode): The preset is in PGM.


## Rename Presets

Hover the mouse over the preset and select  > **Rename**. Enter a new name and then click elsewhere to make the change take effect.


## View Preset Details

Hover the mouse over the preset and select  > **Details**. In the pop-up dialog box, edit the preset name as needed, verify the preset display, and click **OK** to confirm.

## Delete Single Preset

Hover the mouse over the preset and select  > **Delete**. In the pop-up dialog box, click **OK**.

## Delete All Presets

Click **Action**, select the desired presets or select **Select All**, and then click . In the pop-up dialog box, click **OK**.

## 7.5.7 Manage Layer Presets

Users can preserve the layer properties and apply these configurations swiftly to other layers.

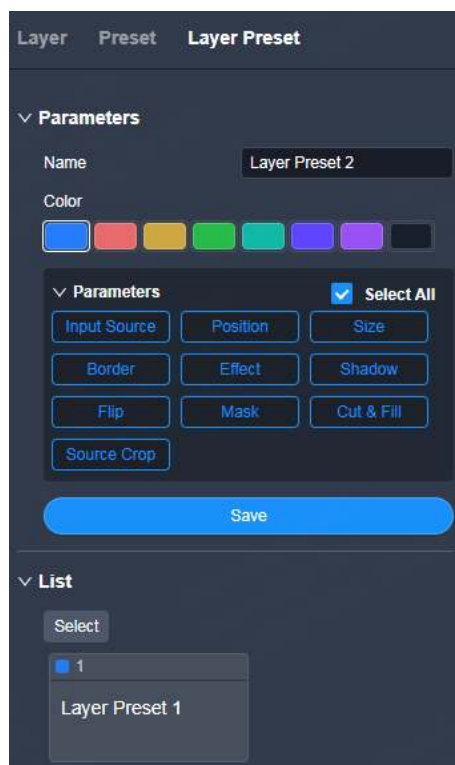
 **Note**

- Up to 1024 layer presets can be saved.
- Layer presets do not differentiate between PGM and PVW.
- Layer presets are solely properties of the device and do not follow the screen.
- The layer preset can be applied to one layer at a time.

## Save Layer Presets

Step 1 Select **Layer Preset** on the right side of the **Programming** interface.

Figure 7-26 Layer presets



Step 2 Assign a name to the layer preset.


Step 3 Click to select a color, assigning it to the layer preset.

Step 4 Click to select the data you wish to save, or check **Select All** to include all data.


Step 5 Once the parameters are set, click **Save**.

Upon successful saving, the list area will display a corresponding entry.

## Modify Layer Presets

Within the layer preset list, go to  > **Edit** to modify relevant information of the layer preset.

## Delete Layer Presets

- To delete a single layer preset: In the layer preset list, click  > **Delete**.
- To delete all layer presets: Click **Select**, check **Select All**, then click **Delete**.

## Apply Layer Presets

To apply a layer preset, proceed with any of the following actions:

- Select a layer, then double-click the target layer preset in the list area.
- Simply drag the layer preset to the target layer.

# 7.6 Multiviewer (MVR)

## 7.6.1 Configure MVR Layout

Configure the layout of the MVR windows. When the bandwidth of the input source exceeds the limit, the corresponding MVR image is black.

### Applicable Products

P80, P20, P20-DS, P10, Q8

### Prerequisites

None

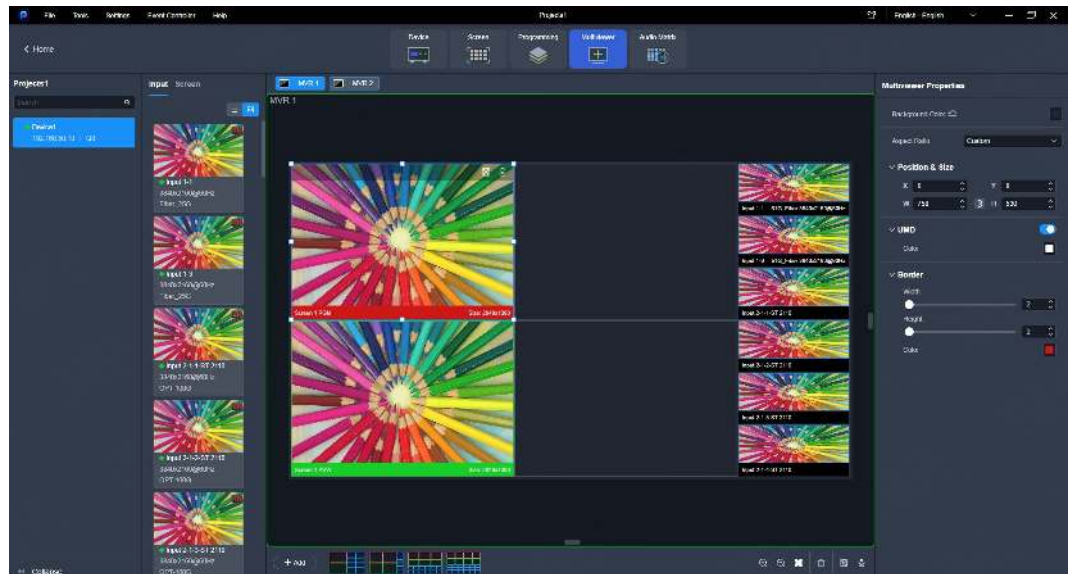
### Notes

Only the Q8 and P80 support custom MVR layouts, allowing for a maximum of 8 custom layouts.

### Description

- Step 1 Enter the device configuration page as described in [7.3.1 Enter Device Configuration Page](#).
- Step 2 Select the target device on the left, and then select **Multiviewer** at the top of the page.

Figure 7-27 MVR management (Q8)



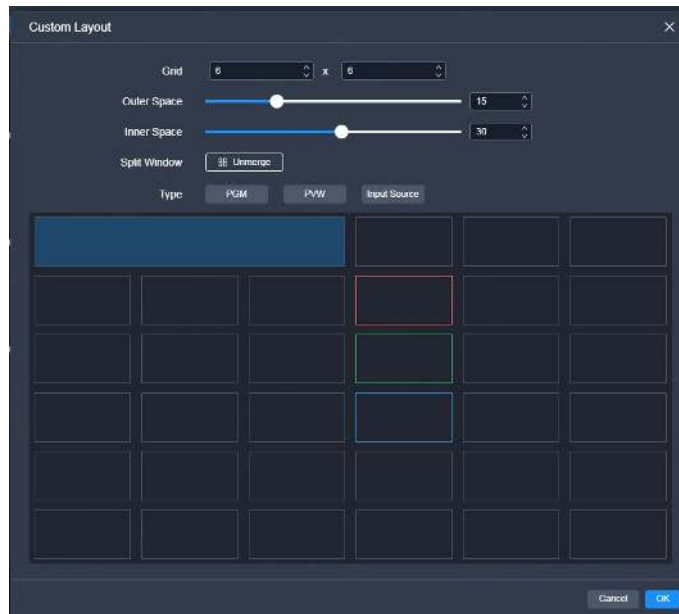
Step 3 Select a layout style.

Step 4 (Optional) Add a custom layout

To add a custom layout, click **Add**. In the **Custom Layout** window, configure the number of rows and columns, the outer and inner window spaces, window merging, and window type.

- Grid: Set the layout's rows and columns, with a maximum of 12×12 and a minimum of 1×1. This field cannot be empty.
- Outer Space: Configure the external margin surrounding the windows.
- Inner Space: Configure the margin between the windows.
- Split Window: Use the mouse or hold down the Ctrl key to select multiple windows, then click **Merge** to combine them. Select a merged window and click **Unmerge** to separate them.
- Type: Upon selecting a window, you can set its type to PGM, PVW, or input source.

Figure 7-28 Add custom layouts





After setting up, click **OK**. You can then **Edit**, **Delete**, or **Clear All** from the added custom templates.

- Edit: Modify the current custom layout template.
- Delete: Remove the added layout template.
- Clear All: Delete all added layout templates.






Step 5 If the device model is P80/Q8, drag an input in the input list or drag PVW and PGM in the screen list to the MVR window.

If the device model is the P20, P20-DS and P10, please skip this step.

To replace a signal of a specified window, simply drag another signal to the window. If the device model is the P80/Q8, the following operations can be performed:

- Delete signal: Click  to delete the signal from the window.
- Maximize signal image: Click  to maximize the signal image according to the windows it crosses.

## Toolbar Operations

- : Zoom in the MVR layout.
- : Zoom out the MVR layout.
- : Adaptively display the MVR layout.
- : Enable or disable snapping to grid.
- : Clear all current MVR content.

## 7.6.2 Configure MVR Windows

Configure the aspect ratio, position, size, UMD and borders of the MVR window.

### Applicable Products

P80, P20, P20-DS, P10, Q8

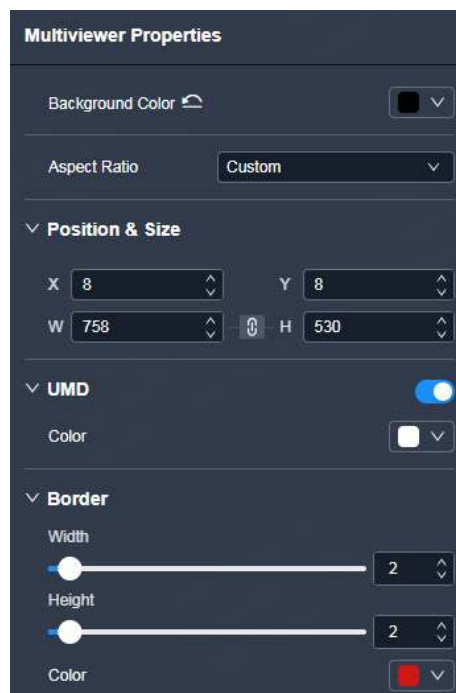
### Prerequisites

- The settings of the aspect ratio, position and size are applicable to the P80, P20, P20-DS, P10 and Q8.
- The UMD and border settings are applicable to the P80 and Q8 only.
- The background color setting is applicable to the P80 and Q8 only.

### Notes

None



### Interface Example (Q8)



### Description

Select an MVR window (P80/Q8) or select a PGM or PVW MVR window (P20/P20-DS/P10), and then set the related properties in the property area on the right pane.

Type	Parameter	Description
-	Background Color	The background color the MVR layout
-	Aspect Ratio	The aspect ratio of the MVR window

Type	Parameter	Description
Window position	X	The X coordinate of the window on the MVR screen
	Y	The Y coordinate of the window on the MVR screen
	W	The horizontal pixels of the window
	H	The vertical pixels of the window
UMD	UMD	Turn on or turn off the function. <ul style="list-style-type: none"> <li>: On</li> <li>: Off</li> </ul>
	Color	The color of the UMD text
Border	Width	The width of the layer left or right border
	Height	The height of the top or bottom border
	Color	The window border color

## 7.7 Audio Matrix

Configure the audio matrix to precisely manage and transmit audio signals within the Dante network.

### Applicable Products

P20-DS, P80, Q8

### Prerequisites

- The device has been connected to the Dante network.
- The Dante network matrix configuration has been completed in Dante Controller software.

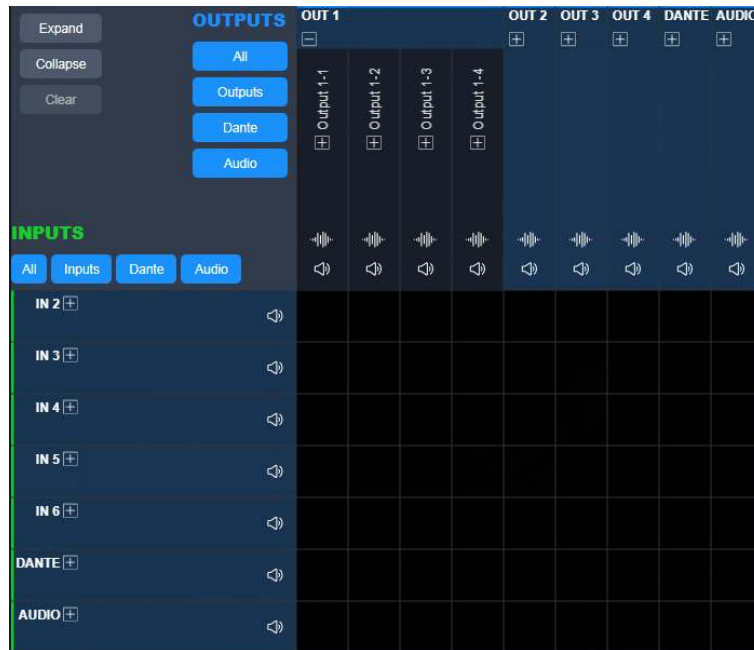
### Notes

None

### Description

- Step 1 Enter the device configuration page as described in [7.3.1 Enter Device Configuration Page](#).
- Step 2 Select the device on the left side of the interface, then choose **Audio Matrix** at the top.




Figure 5-22 Audio matrix (Q8)





Step 3 Select the input and output audio source type.

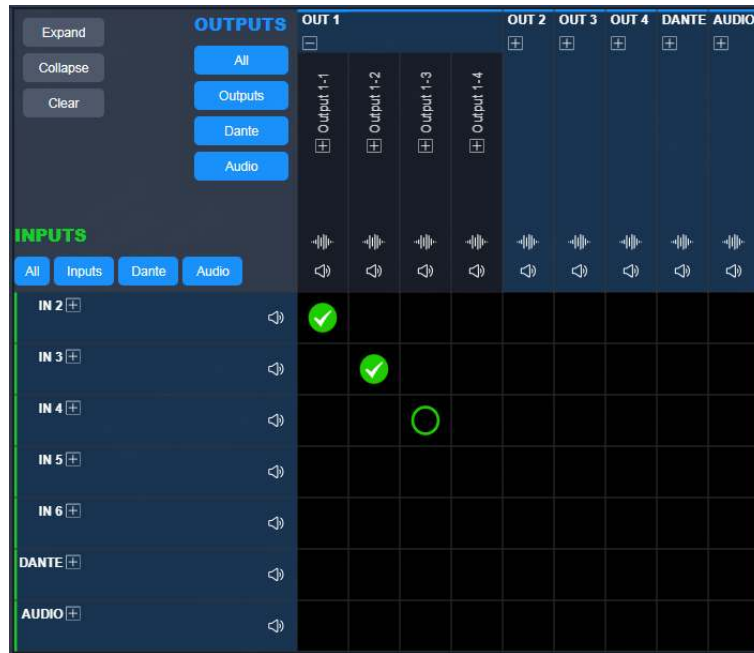
You can click **All** to select all input and output audio source types, or switch between the three audio source types: **Inputs/Outputs** (embedded), **Dante** and **Audio** (analog).

The input audio supports the mute function, and the output audio supports both mute and test tone functions.

- : Normal audio playback
- : Mute
- : Test Tone: A fixed audio segment is output regardless of whether the output audio has been mapped to a source, used to check if the audio link is connected.

Step 4 In the matrix grid, select the intersection cell of the input audio source and output audio source. After clicking, the following indicators will appear:

- : Indicates that all output channels in this group have been mapped to audio sources, and the audio link is complete and configured.
- : Indicates that some output channels in this group have been mapped to audio sources.
- Empty: Indicates that no output channels in this group have been mapped to audio sources.



Step 5 (Optional) Click or **Expand** to expand the audio source types, or click or **Collapse** to collapse the audio source types. Click **Clear** to clear all mapping relationships between input and output audio sources.

**Note**

The audio matrix configuration functions for the P20-DS, P80 and Q8 are identical, with the only difference being the number of audio channels. The Q8 and P80 supports 64x64 channels, while P20-DS supports 32x32 channels.

## 7.8 Tools

### 7.8.1 Maintenance

In the menu bar, navigate to **Tools > Maintain**. Select the **Device List** or **Screen List** tab and the target devices or screens, and then do the following as required.

Figure 7-29 Maintenance



**Note**

The P80 and Q8 support the separate update, restart, factory reset and log export for input cards, output cards, and main control card.

## Update

---

### **Caution**

During the update process, power-off and all operations are NOT allowed.

---

Step 1 Click **Update**.

Step 2 In the pop-up dialog box, select the update file (.img) and click **OK**.

Step 3 Confirm the devices to be updated, and click the **Update** button.

Step 4 In the pop-up dialog box, click **Yes** and wait until the update completes.

Step 5 After the update completes, click **OK**.

## Restart

Click **Restart**. In the displayed dialog box, click **Yes** to restart the device.

## Factory Reset

---

### **Caution**

- Please do this with great caution.
  - The reset action does not affect the device firmware version.
  - Power-off is NOT allowed during the reset process.
  - The device will restart automatically after the reset is completed.
- 

Click **Factory Reset**. In the pop-up dialog box, select the desired reset option and then click **OK**.

- Retain user data

Retain the device IP address, input connector EDID, gallery files, device language settings, device name and belonged project.

- Retain IP only

Retain the device IP address.

- Reset all

Retain the device IP address and belonged project.

## Export Logs

Click **Export Log**. In the dialog box that appears, select a path and click **Save** to save the device logs to local computer.

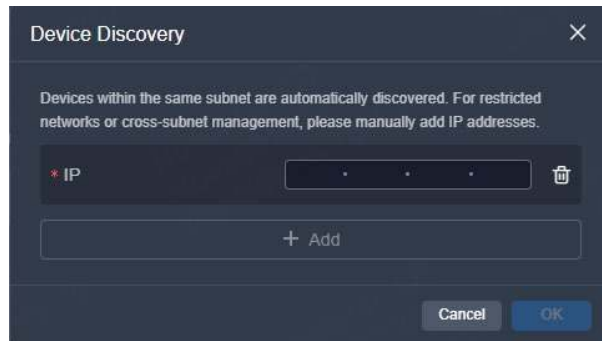
## Diagnostics

Click **Diagnostics**. After the diagnostics completes, you can view the test result and take necessary measures as required.

## 7.8.2 Device Discovery

Navigate to **Tools > Device Discovery** from the menu bar. In the popup, click **Add** to manually input the device IP. Once added, click **OK**.

Figure 7-30 Device discovery



## 7.8.3 Advanced Uniform Control

For devices in the same project, the advanced uniform control function can be activated to facilitate simultaneous operations on multiple seamless switchers.

- Step 1 Access the device configuration interface as described in [7.3.1 Enter Device Configuration Page](#).
- Step 2 Navigate to **Tools > Uniform Control** from the menu bar.

Figure 7-31 Uniform control



- Step 3 In the window that appears, toggle on the switch.

### Notes

- A single event controller or control PC can simultaneously control multiple seamless switchers.
- All seamless switchers within the same local network and project as the event controller can be controlled simultaneously.
- With advanced uniform control function enabled, if multiple seamless switchers are together used to control a screen and the sync sources of the switchers are consistent, it ensures that the content displayed and switched on the screen remains frame-synchronized.

## 7.8.4 Test Tool

Utilize test patterns to assess display performance and pinpoint issues.

### Applicable Products

P80, P20, P20-DS, P10, Q8

### Prerequisites

For better software operation when the display window is large, it is recommended to prepare an extended display for viewing test patterns.

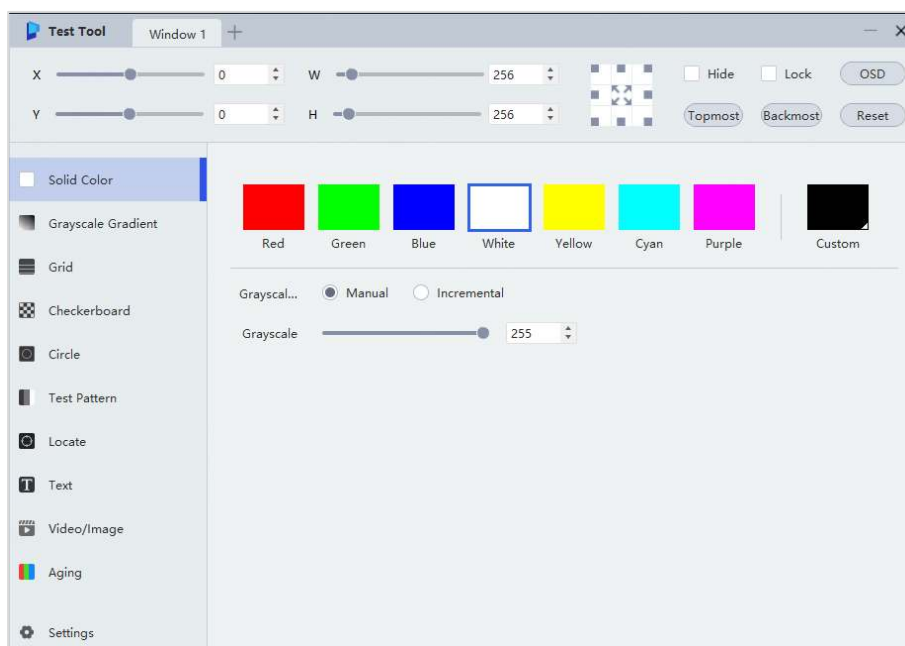
### Notes

The test tool only supports Windows operating systems.

### Description

Navigate to **Tools > Test Tool** from the menu bar to open the test tool configuration interface. Please refer to the *Test Tools User Manual* for specific operations.

Figure 7-32 Test tool



## 7.8.5 Plugins

PixelFlow supports the Companion plugin. For Companion operations, please refer to *Stream Deck Configuration Guide*.

## 7.9 Settings

### 7.9.1 Export Logs

In the menu bar, go to **Settings > Export Log**.

- On a PC, you can export the logs of the PixelFlow software.
- On an event controller, you can export the logs of both the PixelFlow software and event controller.

### 7.9.2 Preferences

In the menu bar, navigate to **Settings > Preferences**. Turn on the desired features (checked "✓") or off (unchecked).

- Lock Aspect Ratio: Lock the aspect ratio when adjusting the width and height of new layers if enabled.
- Input View: Show the live image of the input source on the software interface if enabled.
- Screen Resources: Show the usage of the main screen resources on the **Programming** interface if enabled.
- Sync Visibility with Selection: When enabled, the screen's visibility aligns with its selection status. Select to make it visible; deselect to hide it.

### 7.9.3 Input View Settings

When a project contains a large number of devices, it can cause the software to become sluggish. In such cases, you can manually disable the input view function. If the number of devices exceeds a predefined threshold, the software will automatically disable the function for all devices to ensure smooth operation.

#### Applicable Products

P80, P20, P20-DS, P10, Q8

#### Prerequisites

None

#### Notes

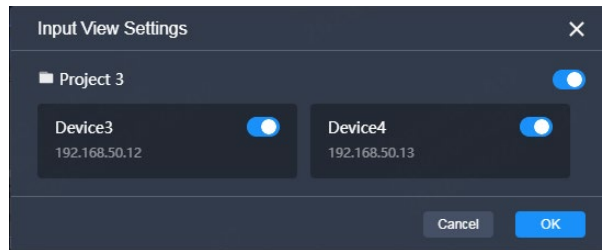
None

#### Description

Step 1 From the menu bar, go to **Settings > Input View Settings**.

Step 2 In the dialog box that appears, perform the operations as needed.

Figure 7-33 Input view settings



- Configure project-level input view:
  - : The input view switch for all devices in the project becomes configurable. The input view is shown or hidden based on each device's current switch state.
  - : The input view switches for all devices in the project are non-configurable and maintain their previous state. The input view for all devices is hidden.
- Configure device-specific input view:
  - : The input view for this device is displayed.
  - : The input view for this device is hidden.

Step 3 After configuration, click **OK**.

## 7.9.4 Link Settings

By configuring the link function, two devices under the same local area network can establish a link relationship, allowing input source sharing via the device link ports.

### Applicable Products

Q8, P80

### Prerequisites

- The link ports between devices are connected.
- Devices to be shared must be within the same project.
- The model, version, and link card type of shared devices must be identical.

### Notes

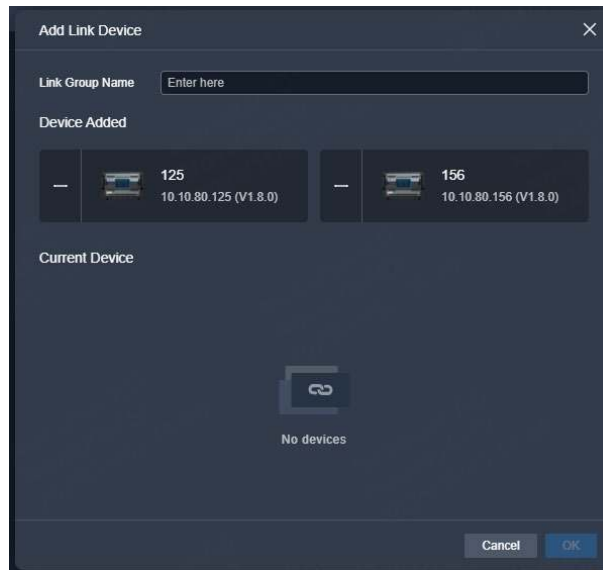
The connected status of link ports must align with the mapping relationship.

### Description

Step 1 From the menu bar, go to **Settings > Link Settings**.

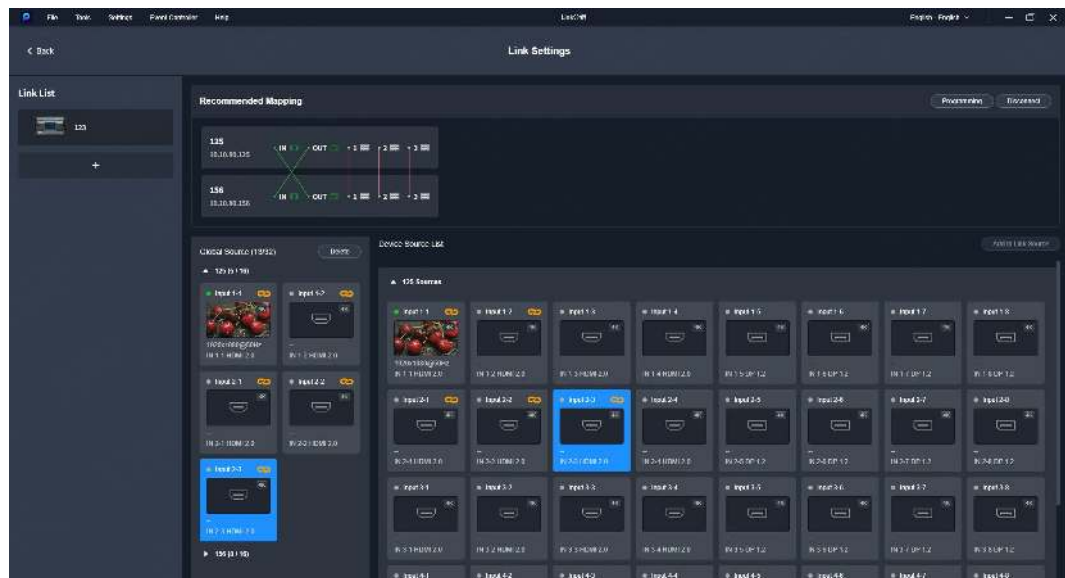
Step 2 In the **Add Link Device** window, click  to add devices to be linked and set the link group name. Once configured, click **OK**.


Figure 7-34 Add link devices (Q8)




Step 3 The **Link Settings** interface displays the recommended mapping relationships between two linked devices, global sources, and device source list.

Figure 7-35 Link settings (Q8)



- Add link group: Click  on the left to add a link group.
- Recommended mapping relationship:

Q8: For the three CXP ports, the mapping relationship is a one-to-one connection: 1->1, 2->2, 3->3. For the eight QSFP ports, the mapping is similarly paired: 1->1, 2->2, 3->3, 4->4, 5->5, 6->6, 7->7, 8->8. This forms a loop with LINK IN (input) to LINK OUT (output).

Click **Edit** or  next to the link group to modify the current group, or click **Disconnect** to break the mapping between two devices.


---

 **Note**

A link group can only be disconnected, not edited, under the following conditions:

- A device in the link group is offline.
- Inconsistencies in model, version, or lin card type within the link group

- 
- Global source: Input sources shared from other devices
  - Device source list: All input sources of the two current devices

Step 4 Select an input source from one of the devices, then click  or **Add to Link Source** to include it in the mapping source (global source). Once added, the other device can also utilize this input source (global source).

You can also batch add or batch delete the sources by checking the **Batch Add** option in the **Device Source List** area or the **Batch Delete** option in the **Global source** area.

## 7.9.5 Configure VPU

4K layer resources from a device's output cards can be shared across cards. Once a resource borrowing relationship is established, the borrowing card can utilize the layer resources of the lending card, enabling more complex editing and display scenarios.

### Applicable Products

Q8

### Prerequisites

None

### Notes

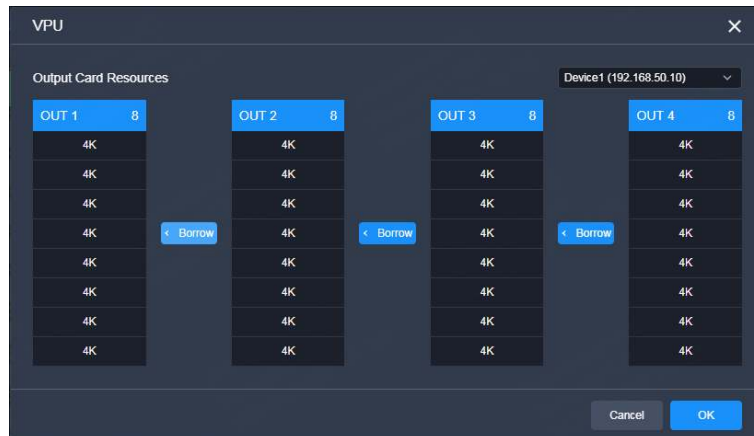
The hot-swapping of the output cards does not affect the VPU configuration.

### Description

Step 1 From the menu bar, go to **Settings > VPU**.

Step 2 In the dialog box that appears, select the target device from the dropdown menu in the top-right corner.

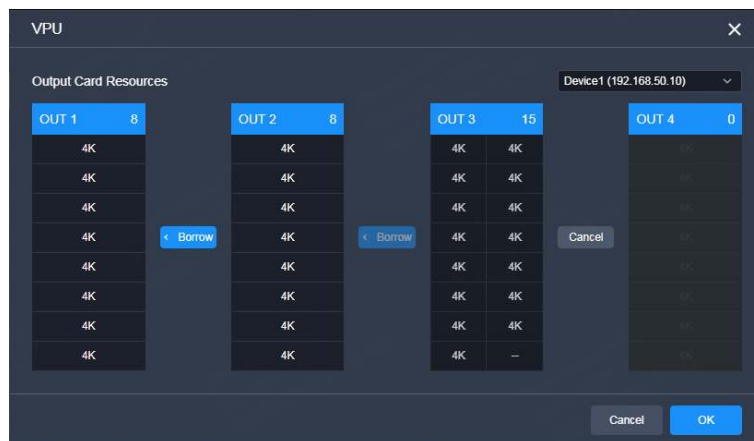
Figure 7-36 VPU



Step 3 Locate the adjacent borrowing and lending cards. Click **Borrow** between the two cards to allocate layer resources from the card on the right to the card on the left.

To cancel a borrowing relationship, click **Cancel**.

Figure 7-37 Resource borrowing



Step 4 After configuration, click **OK**.

## 7.10 Event Controller

The event controller offers the same functionalities as the physical event controller's operation panel, enabling you to use the keys and display business statuses in PixelFlow. The features of the event controller include:

- Option to simulate the U5 or U5 Pro event controller
- Display of a simulation operation panel in a pop-up window on a PC
- Device control through the simulation operation panel

Fully customizable keys, identical to those on the physical event controller. For more information, refer to [8.3.16 Key Customization](#).

## 7.11 Help

### 7.11.1 About Us

In the menu bar, go to **Help > About Us** to view the software-related info and user manual.

### 7.11.2 User Manual

In the menu bar, go to **Help > User Manual** to scan the QR code or click the link provided to access the latest product documentation.

## 7.12 User Interface Settings

### 7.12.1 Change Skin


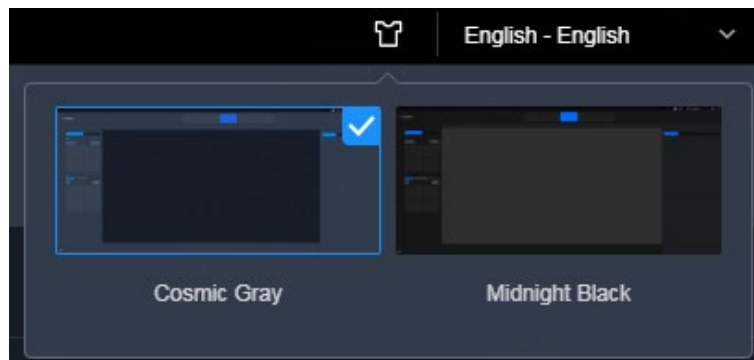
In the upper right corner of the interface, click  to select the desired skin.

Figure 7-38 Change skin



### 7.12.2 Switch Language

In the top right corner, switch the language as needed. The options include English, Simplified Chinese, and Traditional Chinese.

# 8 U5/U5 Pro Event Controllers

---

## About This Chapter

This chapter introduces you to the U5/U5 Pro event controller.

## Overview

- Introduction
- Device Operations

## 8.1 Introduction

The U5 series event controllers are equipped with two touchscreens, a main touchscreen and a smart touchscreen. On the main touchscreen, you can do various intuitive and free configurations for the seamless switchers, such as configurations of layers, layer position, input sources, output resolutions, input keying, layer borders, input crop and presets.

The 8" smart touchscreen displays still images, timecode, switcher and event controller status, and a Multiviewer image (Multiviewer 1, Multiviewer 2, or HDMI 1.3), and can be customized as a simulation MIDI keyboard.

The U5 series event controllers include the following two models:

- U5 event controller
- U5 Pro event controller

## 8.2 Hardware Introduction

### 8.2.1 Front Panel

#### U5 Front Panel

Figure 8-1 U5 front panel



- |                          |                           |
|--------------------------|---------------------------|
| 1. Main touchscreen      | 7. Function control area  |
| 2. Screen buttons        | 8. Switching control area |
| 3. Layer buttons         | 9. T-Bar                  |
| 4. Signal source buttons | 10. Power button          |
| 5. Preset buttons        | 11. MIDI module area      |
| 6. Smart touchscreen     |                           |

#### Note

The U5 LCD screen can be folded and locked at any angle between 45° and 125°.

## U5 Pro Front Panel

Figure 8-2 U5 Pro front panel



- |                                     |                            |
|-------------------------------------|----------------------------|
| 1. Main touchscreen                 | 9. Number buttons          |
| 2. Screen buttons                   | 10. Switching control area |
| 3. Signal source buttons            | 11. MIDI module area       |
| 4. Layer buttons                    | 12. Power button           |
| 5. Preset buttons                   | 13. T-Bar                  |
| 6. Function control area            | 14. Keyboard               |
| 7. Camera and timecode control area | 15. Drawers                |
| 8. Smart touchscreen                |                            |

## 8.2.2 Rear Panel

### U5 Rear Panel

Figure 8-3 U5 rear panel



- |                              |                                       |
|------------------------------|---------------------------------------|
| 1. 2x USB 3.0                | 5. 2x HDMI 2.0+1x HDMI 1.3 connectors |
| 2. Timecode module connector | 6. 4x USB 2.0 ports                   |
| 3. Gooseneck lamp connector  | 7. USB (type-B)                       |
| 4. 2x ETHERNET ports         | 8. 1x Power module                    |

### U5 Pro Rear Panel

Figure 8-4 U5 Pro rear panel



- |                              |                                       |
|------------------------------|---------------------------------------|
| 1. 2x USB 3.0                | 5. 2x HDMI 2.0+1x HDMI 1.3 connectors |
| 2. Gooseneck lamp connector  | 6. USB (type-B)                       |
| 3. Timecode module connector | 7. 4x USB 2.0 ports                   |
| 4. 2x ETHERNET ports         | 8. 2x Power modules                   |



## Connector Description

No.	Area		Connector	Qty	Function
1	USB		USB 3.0	2	2x USB 3.0 on the right side of U5 Connect to the mouse, keyboard, USB drive, etc.
2	Gooseneck lamp connector		-	1 or 2	Connect the gooseneck lamp. The U5 has one gooseneck lamp connector and the U5 Pro has two.
3	Timecode module	LTC	3-pin XLR connector	3	1x LTC IN, 2x LTC OUT <ul style="list-style-type: none"> <li>Connect to the external LTC-format timecode input device.</li> <li>LTC timecode output</li> </ul>
		MTC	5-pin XLR connector	3	1x MTC IN, 1x MTC OUT, 1x USB (type-B) <ul style="list-style-type: none"> <li>MTC IN: Connect to the external MTC-format timecode input device.</li> <li>MTC OUT: MTC timecode output</li> <li>USB DEVICE: Support input and output of MTC timecodes from USB MIDI device</li> </ul>
4	ETHERNET		Neutrik Ethernet ports	2	2x Neutrik Gigabit Ethernet ports <ul style="list-style-type: none"> <li>Connect to the Ethernet control port of the backend control device.</li> <li>Support mutual backup mode. The two Ethernet ports use the same IP address.</li> <li>Support independent mode. The two Ethernet ports use two IP addresses.</li> <li>Support transmission of the input view information.</li> </ul>
5	MULTIVIEWER		HDMI 2.0	2	<ul style="list-style-type: none"> <li>Generally connect to the MVR connector of the seamless switcher to view the output</li> </ul>

				monitoring. <ul style="list-style-type: none"> <li>Up to 4K×2K@60Hz</li> </ul>
	HDMI	HDMI 1.3	1	<ul style="list-style-type: none"> <li>Generally connect to the output connector of the media server to display its user interface.</li> <li>Up to 2K×1K@60Hz</li> </ul>
6	USB	USB 2.0	4	Connect to the mouse, keyboard, USB drive, etc.
7	MIDI / KVM	USB (type-B)	1	<ul style="list-style-type: none"> <li>KVM: Connect to a PC or media server via USB cable for KVM control.</li> <li>MIDI: Connect to the MIDI control device for MIDI command output.</li> <li>KVM and MIDI can be turned on at the same time.</li> </ul>
8	Power module -	-	1 or 2	<ul style="list-style-type: none"> <li>Power connector specifications: 100-240V~, 6A, 50/60Hz</li> <li>The U5 has one power module.</li> <li>The U5 Pro has two power modules, one primary and one backup.</li> </ul>

## 8.3 Device Operations

### 8.3.1 Basic Operations


- Press: Press the button and release it within 3 seconds.
- Hold down: Press and hold the button for 1.5 seconds or longer.
- Click/Tap: Click or tap the menu once on the screen.
- Double click/tap: Click or tap the same area twice quickly.
- Combination of buttons: Hold down  or  to activate combination function and then press another function button to trigger the corresponding function.
- Pinch in or stretch out: Place two fingers on the touchscreen and pinch in or stretch out. This operation is only to zoom in or out pictures on the smart touchscreen.

### 8.3.2 Startup and Shutdown

#### Prerequisites



A power supply is connected and the power is supplied normally.

## Startup

Press the  button in the upper right corner of the panel, and the system will automatically start up. After startup, the main touchscreen displays the home screen.

## Shutdown

Power off the event controller through the following methods:

- Press the  button in the upper right corner of the panel, select **OK** in the pop-up dialog box on the main touchscreen, and the system will shut down.
- During the startup process, hold down the  button to force shutdown.
- On the main touchscreen, choose **Settings > Event Controller** at the top and select the **Other** tab on the displayed page. In the Event Controller Power area, click **Shut Down**, and the device will automatically shut down.

## Restart Event Controller

On the main touchscreen, choose **Settings > Event Controller** at the top and select the **Other** tab on the displayed page. In the **Event Controller Power** area, click **Restart**, and the device will automatically restart.



### Note

During startup or shutdown, the PIXELHUE logo is displayed on the home screen.

---

## 8.3.3 Main Touchscreen

The U5 has a 21.5" multi-touch main touchscreen with a resolution of 1920×1080.

The U5 Pro has a 43.8" multi-touch main touchscreen with a resolution of 1920×1080.

On the main touchscreen, the built-in software user interface is displayed for you to do a lot of operations, such as adding devices, configuring screens, configuring inputs and outputs, configuring gallery, adding and deleting layers, configuring presets, configuring Multiviewer, importing and exporting project files, configuring the smart touchscreen, configuring the event controller skin, language and light, and much more.

The main touchscreen supports the click, double-click, tap and double tap operations via the connected mouse or your finger.

## 8.3.4 Screen Buttons

Pressing a screen button selects the corresponding screen, and the PVW page of that screen will be displayed on the main touchscreen.

The screen name displayed in the screen button can be modified through the screen editing page.

The screen quantity and screen name depend on the selected device connected to the event controller.

Figure 8-5 Screen buttons



## Screen Button Status

The screen buttons have the following statuses:



- Green: Screens are added to this button and being operated.
- Yellow: Screens are added to this button but not selected.
- Blank: No screens are added to this button.


## Screen Button Operations





- Press the screen button (yellow) bound with screens to select this screen. After the screen is selected, the screen button turns green, and the corresponding screen in the main touchscreen enters the PVW activated status (the button will have a dazzling effect upon activation).
- Press different screen buttons consecutively to select multiple screens.
- Holding down the selected screen cancels screen selection. The button will turn yellow, and the screen corresponding to the button will become unselected in the main touchscreen.
- Pressing the button with no screens bound (blank button) quickly creates a screen. For that created screen, the system uses an unused and top-ranked output connector to add a screen. If there is no unused output connector, an empty screen will be created.

## Screen Page Up/Down

If there are too many screens, they will be displayed on different screen pages on the screen buttons. The first page is displayed by default and the page jumping operation is performed in the following method.

- Page Down: Press  to jump to the next page. For example, when the page button displays **Page 1** currently, press  to jump to the screens displayed in **Page 2**.

- Page Up: Press  or use a key combination to jump to the previous page:

U5: Press  while holding down the control button  in the control area to jump to the previous page. For example, when the page button displays **Page 2** currently, use the combination of  and  buttons to jump to the screens displayed in **Page 1**.

### 8.3.5 Signal Source Buttons

Press to select a signal source for the layer.

When a layer is selected, press a signal source button to switch the layer's signal source.

The U5 Pro has 28 signal source buttons, 1 device switching button, 1 signal source type switching button, and 2 page turning buttons.

The U5 has 12 signal source buttons, 1 device switching button, 1 signal source type switching button, and 2 page turning buttons.

Figure 8-6 Signal source buttons



- SWITCH DEVICE: Switch the device of the currently active screen and display a list of signal sources for the selected device.
- Signal SOURCE: Switch between signal source types, including input sources, gallery, screen sources, MVR sources, etc.
- The signal source page turning buttons support cyclic page turning.
- All the signal sources are bound to the buttons by default. When the signal source changes, the button name will be automatically updated.
- The status of signal source buttons are described as follows:
  - Green: The signal source is being used by the selected layer.
  - Yellow: The signal source has signal but it is not used by the layer.
  - Red: The signal source has no signal but it is used by the layer.
  - Orange: The signal source exceeds the connector's load capacity.
  - White: The input source has no signal.
  - Blank button: The button does not have corresponding signal source.

### 8.3.6 Layer Buttons

Pressing a layer button selects the corresponding layer and the PVW page of the screen corresponding to that layer will be displayed on the main touchscreen with that layer in the selected status.

The layer name displayed in the layer button can be modified on the layer editing page.

- The U5 Pro has 30 layer buttons and 2 page turning buttons.
- The U5 has 14 layer buttons and 2 page turning button.

Figure 8-7 Layer buttons



## Layer Button Status

- Green: The layer is selected.
- Yellow: The layer is added but not selected.
- Blank button: The button does not have corresponding layer.

## Layer Button Operations

- Pressing the layer button (yellow) bound with layer selects this layer. After the layer is selected, the layer button turns green. On the main touchscreen, the PVW area of the screen where the layer belongs to enters the activated status and the corresponding layer is selected.
- Pressing the button with no layers bound (blank button) quickly creates a layer. The system uses an unused and top-ranked source with signal as the source for that created layer.

The default source used by the system is the one connected to the input connector that has the smallest number on the input card with the smallest number as well.

## 8.3.7 Preset Buttons

Pressing the preset button loads a saved preset to the screen PVW area.

The preset name displayed in the preset button can be modified on the preset list page.

- The U5 Pro has 30 preset buttons and 2 page turning buttons.
- The U5 has 14 preset buttons and 2 page turning button.

Figure 8-8 Preset buttons



### Preset Button Status
















- Green: The preset has been loaded to the screen PVW.
- Yellow: The preset is saved but not loaded.
- Red: The preset has been loaded to the screen PGM.
- Blue: This button is bound with the program of the media server. Pressing this button switches the program of the media server.
- Purple: This button is bound with a preset and the program of the media server. Press this button to switch the program of the media server and switch the preset of the seamless switcher.
- Blank button: The button does not have corresponding preset or program.

## 8.3.8 Function Control Area

Figure 8-9 Function control area of U5 Pro




- **FTB**: FTB: Make the output image fade to black.
- **FRZ**: FRZ: Freeze the current frame of the output image.
- **MATCH PGM**: MATCH PGM: Press to synchronize all layer information in PGM to PVW.
- **PGM EDIT**: PGM EDIT: Enable or disable the PGM editing function. After it is enabled, the layers in the current screen PGM can be edited.

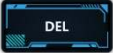
-  / : Control button, which can be used together with another button. Press and hold this key, and then press another function button (**Page/TIME**) to realize the corresponding function. For example, press  while holding down  on the U5 Pro to jump to the previous page.
- : MVR button for checking the Multiviewer image on the right side of the main touchscreen from the MULTIVIEWER and HDMI IN connectors on the rear panel. If you press it consecutively, the Multiviewer image will be switched with the order of MULTIVIEWER (HDMI 1) > MULTIVIEWER (HDMI 2) > HDMI I
- : MEDIA button. When the HDMI IN connector is connected to the media server, its user interface will be displayed on the main touchscreen. If its user interface is displayed by pressing the MVR button, pressing the MEDIA button enables KVM control.
- : Press to stretch the selected layer to fill the screen area(s) in which the selected layer is located before it is stretched.
- : Press to enter the DSK page for you to do chroma key and luma key operations on the input source.
- : Press to bring the selected layer to front.
- : Press to send the selected layer to back.
- : Press to copy the selected layer.
- : Press to flip the selected layer
- : Hold down to lock the T-Bar. After it is locked and then pushed, the layer will not be switched.
- : Hold down to lock the front panel and main touchscreen of the event controller. After locked, they cannot be used.
- : In the U5 event controller, press this button to turn the page of the two rows of buttons on the left of this button.
- Blank button: Reserved button for custom functions.

### 8.3.9 Camera and Timecode Control Area

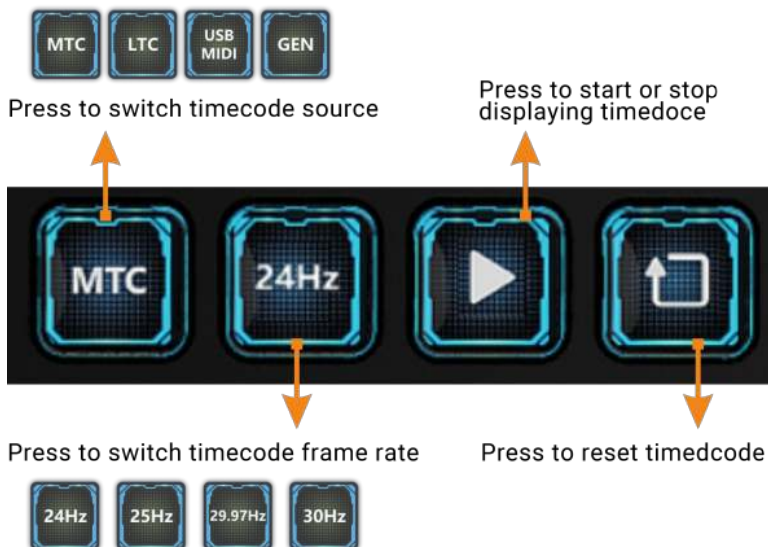
The U5 and U5 Pro allow for adjusting the PTZ camera position and the timecode output. (The U5 requires key customization to enable this feature.)




-  : Save to button. Press to activate the save to function and the button flashes yellow. Then, press a preset button, and the current layer or program will be saved to the selected preset.


-  : Delete button. Press to activate the delete function and the button flashes yellow. Then, press a preset, layer or screen button, and the selected preset, layer or screen will be deleted.



-  : Timecode module control buttons



- PTZ camera adjustment buttons:

-  : Save the PTZ position after adjustment as a pattern for quick PTZ switching in the future. Press the button to activate it and it flashes yellow. Then, press **Pattern 1** or **Pattern 2** to save the PTZ camera positions in the two buttons.

-  : Adjust the PTZ camera shooting angle up, down, left and right.

-  / : The saved PTZ camera positions. Press these buttons to apply the position to quickly adjust the PTZ camera.

### 8.3.10 Smart Touchscreen

Figure 8-10 Smart touchscreen home



#### Import Still Images or Files


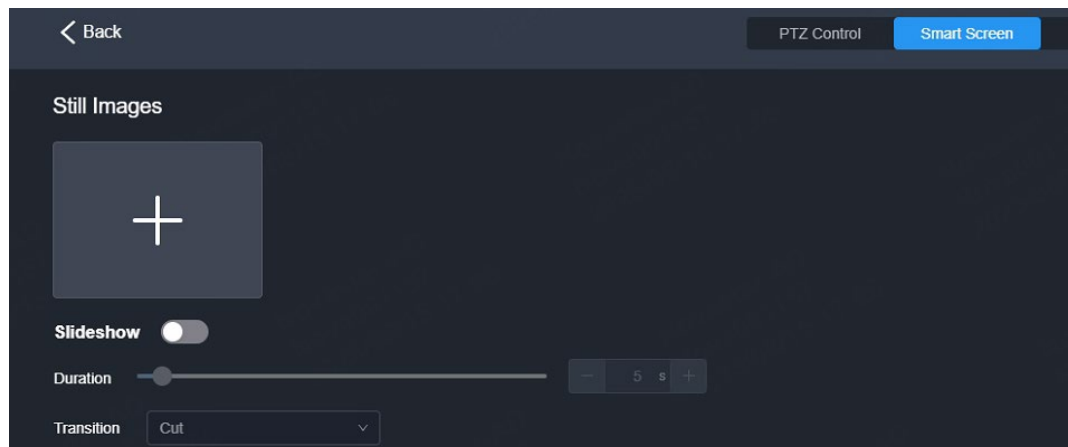
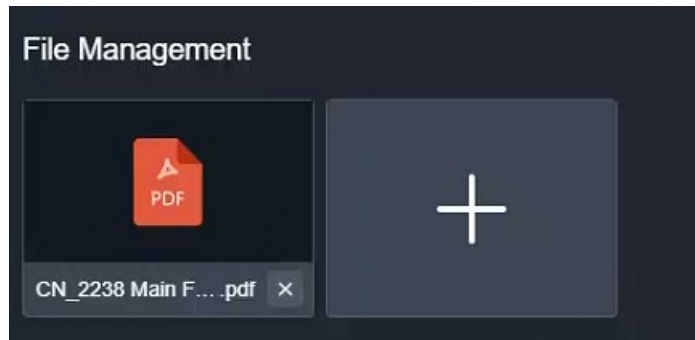
- Step 1 Save the pictures or files to be imported into the smart touchscreen to the USB drive.
- Step 2 Insert the USB drive to the USB port on the side panel of the event controller.
- Step 3 On the main touchscreen, choose **Settings > Event Controller**, and select the **Smart Screen** tab to enter the tab page.
- Step 4 In the **Still Images** or **Files** area, click  to add pictures or files.

Figure 8-11 Still images



Enable **Slideshow** as needed and set the duration and transition.

Figure 8-12 File management



Step 5 Select the inserted USB drive in the pop-up dialog box, select the necessary pictures or files, and click **Open** to import the selected pictures or files to the smart touchscreen.

- Up to 8 pictures in png, jpeg, jpg, and bmp formats can be imported into the smart touchscreen.
- Up to 20 files can be imported into the smart touchscreen, with each file not exceeding 50 MB. After importing, you can open up to 5 files simultaneously and delete files as needed. Supported file formats for the smart touchscreen include PDF (.pdf), PowerPoint (.ppt, .pptx), Word (.doc, .docx), Excel (.xls, .xlsx), and text (.txt).

## View Images on Smart Touchscreen

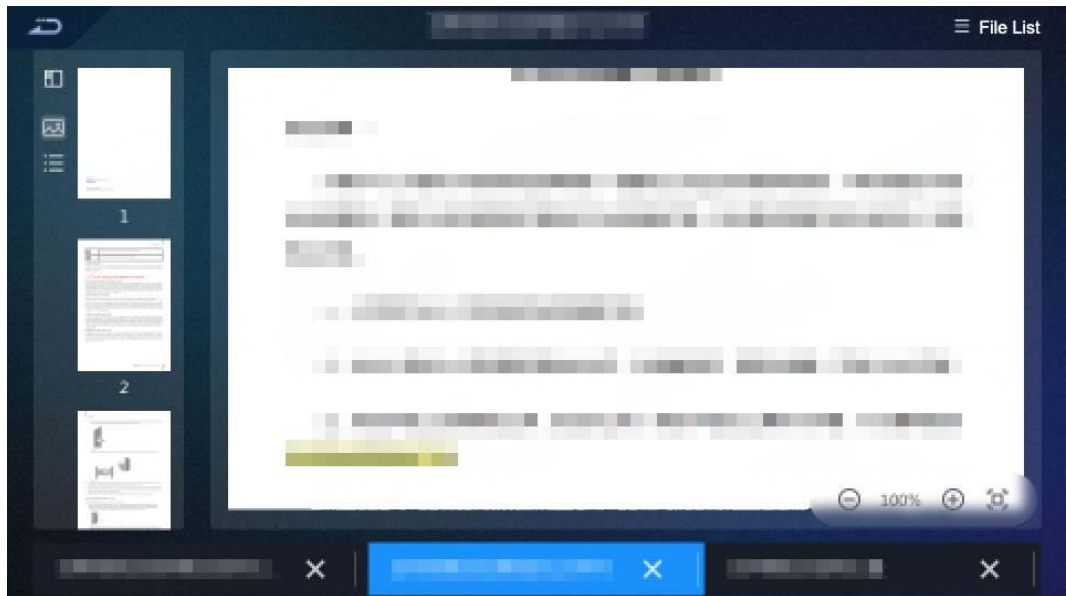
On the smart touchscreen, tap **Still Images** to enter the subpage.

- Still images are displayed in full screen mode on the smart touchscreen by default.
- Swipe left or right to view the next or previous image. The images will cycle in a continuous loop as long as you keep swapping.
- After you turn on slideshow function, the images will automatically cycle in a continuous loop as long as the slideshow function is turned on.
- Pinch with two fingers to zoom in or out the still images.

## View Files on Smart Touchscreen

On the smart touchscreen, tap **Files** to enter the file display screen.

Figure 8-13 Viewing files

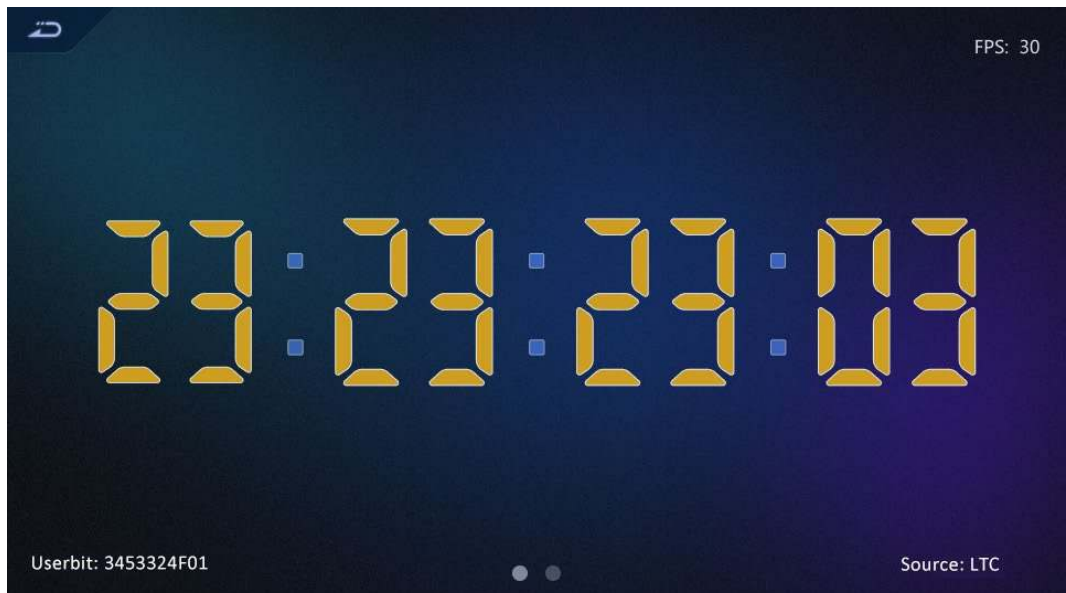


- You can view the file list and open multiple files.
- Pinch with two fingers to zoom in or out the files.

## View Timecode

On the smart touchscreen, tap **Timecode** and view the timecode information of output.

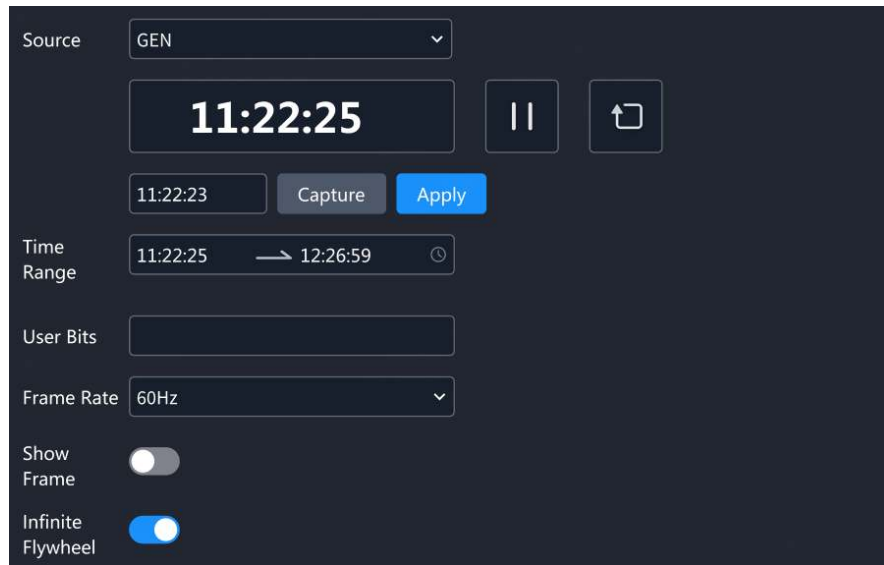
Figure 8-14 Timecode displayed



There are two ways to configure timecode:

- On the main touchscreen, choose **Settings > Event Controller**, select the **Smart Screen** tab to enter the tab page, and configure the timecode display format and display information.

Figure 8-15 Timecode information

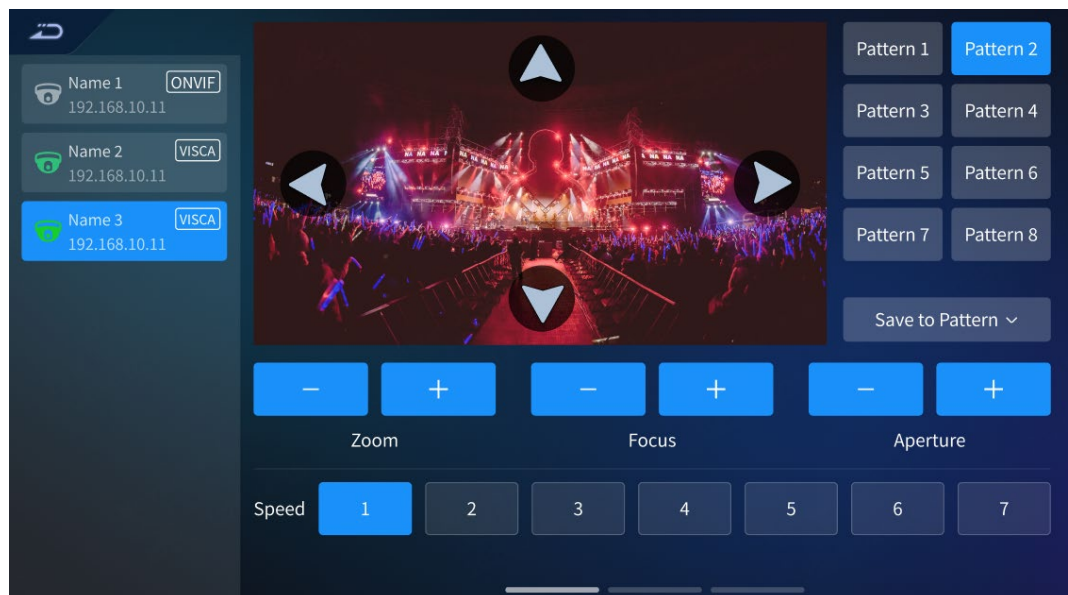


- In the “timecode control area” on the U5 Pro panel, press the corresponding button to change the timecode format, enable or reset timecode.



## PTZ Control

On the smart touchscreen, tap **PTZ** to enter the PTZ control screen, where you can perform the following operations for cameras using different protocols:

Figure 8-16 PTZ



Protocol	Common Operations	Other Operations (VISCA Protocol Only)
ONVIF	<ul style="list-style-type: none"> <li>• Patterns 1~8: Eight patterns for saving IP camera related parameters.</li> <li>• Save to Pattern: Save</li> </ul>	/
VISCA		<ul style="list-style-type: none"> <li>• White Balance (K): Calibrate the color temperature of light sources to ensure white objects appear without a color cast. Support <b>Preset</b>, <b>Auto</b>, and <b>Manual</b> modes. In <b>Auto</b> mode, click <b>Calibrate</b> for automatic white balance.</li> </ul>

Protocol	Common Operations	Other Operations (VISCA Protocol Only)
	<p>the configured pattern.</p> <ul style="list-style-type: none"> <li>• Zoom: Control the camera's zoom function to zoom in (+) or out (-).</li> <li>• Focus: Adjust the camera's focus for closer (+) or farther (-) objects.</li> <li>• Aperture: Control the camera's aperture size to increase (+) or decrease (-).</li> <li>• Speed: Adjust the camera's movement speed, ranging from 1 to 7 levels, with options to increase (+) or decrease (-).</li> </ul>	<ul style="list-style-type: none"> <li>• Mode: Support <b>Indoor</b> and <b>Outdoor</b> modes. Available when <b>White Balance (K)</b> is set to <b>Preset</b>.</li> <li>• Red Gain: Adjust red channel gain to correct green or cyan tints. Adjustable when <b>White Balance (K)</b> is set to <b>Preset</b>.</li> <li>• Blue Gain: Adjust blue channel gain to correct yellow or red tints. Adjustable when <b>White Balance (K)</b> is set to <b>Preset</b>.</li> <li>• Exposure Control (EV): Select exposure mode. Support <b>Manual</b>, <b>Auto</b>, <b>Shutter Priority</b>, and <b>Aperture Priority</b> modes.</li> <li>• Exposure Compensation: Manually adjust brightness on top of automatic exposure to retain depth between background and subject. Adjustable when <b>Exposure Control (EV)</b> is set to <b>Auto</b> or <b>Aperture Priority</b>.</li> <li>• Backlight Compensation: Automatically increase the foreground brightness to counteract silhouetting caused by strong backlight.                         <ul style="list-style-type: none"> <li>- : On.</li> <li>- : Off.</li> </ul>                     Adjustable when <b>Exposure Control (EV)</b> is set to <b>Auto</b>.                 </li> <li>• Shutter Speed: Control exposure time per frame. Adjustable when <b>Exposure Control (EV)</b> is set to <b>Manual</b> or <b>Shutter Priority</b>.</li> <li>• Gain: Increase brightness of dark areas. Adjustable when <b>Exposure Control (EV)</b> is set to <b>Manual</b>.</li> <li>• Aperture: Control camera's aperture size. Adjustable when <b>Exposure Control (EV)</b> is set to <b>Aperture Priority</b>.</li> </ul>

## Check Event Controller Running Status

On the home of smart touchscreen, click **Health** to enter the subpage where you can check the following information:

- CPU, RAM, motherboard, and disk running status
- Power supply and HDMI connector connection status
- Transmission rate of the Ethernet ports

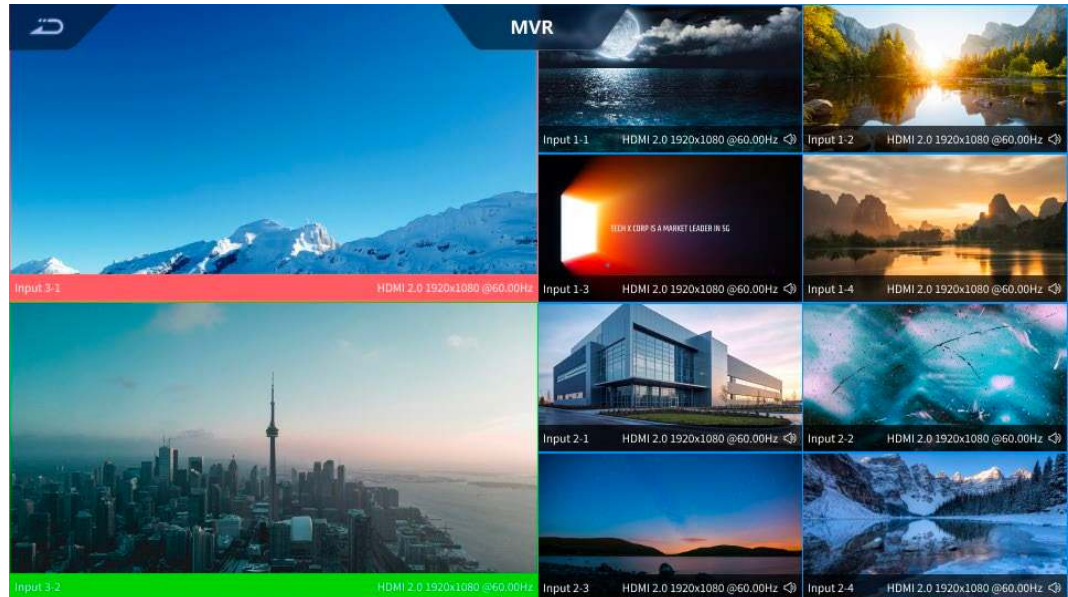
Figure 8-17 Event controller health



## View Multiviewer Images


On the home of smart touchscreen, click **Multiviewer** to enter the Multiviewer (MVR) page.

Figure 8-18 Video page



The following requirements must be met to view Multiviewer images.

- The HDMI 2.0 connector in the **MULTIVIEWER** area on the rear panel of the event controller has been connected to the Multiviewer connector of the seamless switcher.
- The Multiviewer configuration is completed on the main touchscreen.
- The software control output connector of the media server has been connected to the HDMI 1.3 connector on the rear panel of the event controller.








- On the event controller area of the front panel, press  to switch between Multiviewer image and image from the media server. Each time you press it, the image displayed on the smart touchscreen display screen changes from MVR1 to MVR2 and then HDMI 1.3 (control interface of the media server).

### 8.3.11 Number Buttons

The U5 Pro is equipped with number buttons, which are used to enter numbers when adjusting layer size, position, etc.

Figure 8-19 Number buttons



-  to : Press to enter the corresponding number.
- : Press to subtract 1 from the current number for fine adjustment.
- : Press to add 1 to the current number for fine adjustment.
- : Press to enter the decimal point.
- : Press to delete a number or character to the left of the cursor.
- : Confirm and exit the current input.



## 8.3.12 Switching and Control Area

Figure 8-20 Switching and control area



- FRZ: Freeze all the images of the selected screen.
- FTB: Make the output images displayed on the selected screens fade to black.
- LOCK T-BAR: Lock the T-Bar. After it is lock, pushing T-Bar does not take effect.
- SWAP: Press the button to enable or disable the SWAP function.
- SWAP enabled: The button is solid green and the switching mode from PVW to PGM is swapping. That is, the PVW and PGM images are swapped during image switching.
- SWAP disabled: The button is off and the switching mode from PVW to PGM is copying. That is, PGM copies the PVW image during image switching.
- TIME: Set the transition effect duration.

The combination key operations for C5 and C5 Pro are as follows:

- U5: While holding down  in the control area, press **TIME** to decrease the effect duration; holding down **TIME** (>300ms) to rapidly decreases the effect duration.
- U5 Pro: While holding down  in the control area, press **TIME** to decrease the effect duration; holding down **TIME** (>300ms) to rapidly decreases the effect duration.

- Trans: Set the transition effect during switching. Currently only the **Fade** effect is supported.
- CUT: Press to send PVW to PGM directly without transition effect.
- TAKE: Press to send PVW to PGM with a selected transition effect.

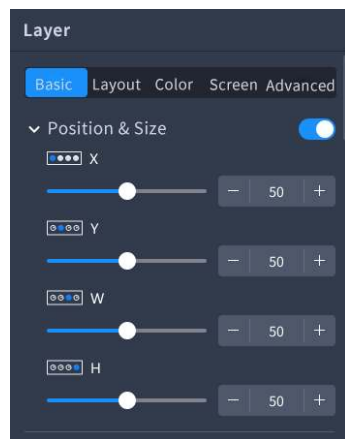
## 8.3.13 MIDI Module Area

The MIDI module has 4 encoders and 8 faders, which can be used for property adjustment or MIDI keyboard control.

- When used as a property adjustment, they can adjust the layer size, position, image quality, etc.
- To use them used as a MIDI keyboard, connect the USB (MIDI/KVM) connector of the event controller to the controlled device, such as an audio console, a lighting console, etc.

After the property adjustment information is bound to the encoders and faders, the corresponding encoder or fader icons will be displayed on the property adjustment page.

Figure 8-21 Bound to encoders

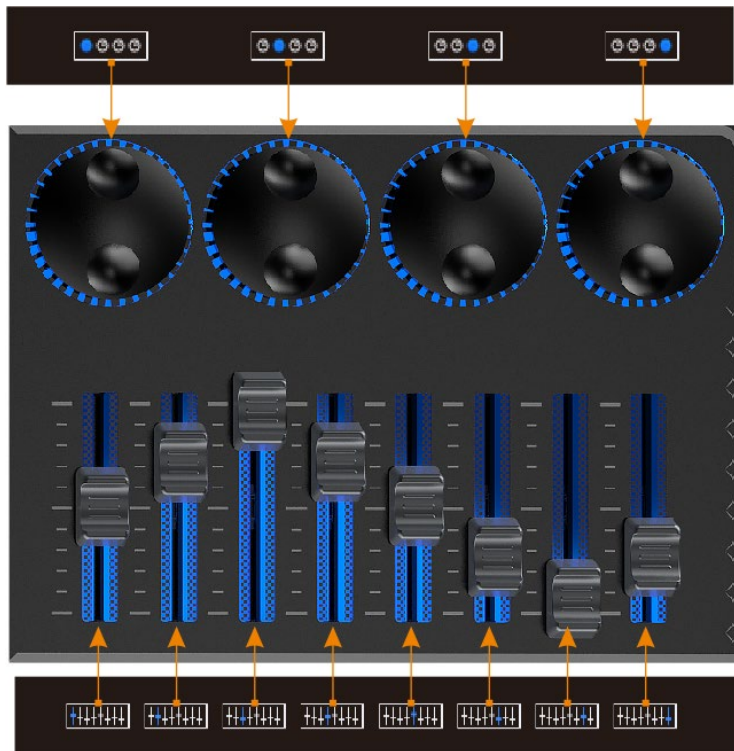


When you enter a property area, the adjustment parameters are automatically bound to the encoders and faders, and the binding relation icons are displayed under the menu in the property area. The corresponding relation between the icons and MIDI buttons is shown in the figure below.




When you rotate an encoder or a fader, the system automatically adjusts the parameters corresponding to the encoder or fader. If a property parameter does not have a corresponding encoder or fader, rotating the encoder or pushing the fader does not take effect.

- Turn the encoder right to increase the corresponding parameter value, and turn the encoder left to decrease the value.
- Push the fader up to increase the corresponding parameter value, and pull the fader up down to decrease the value.

Figure 8-22 Binding relationship between menu adjustment and MIDI buttons



### 8.3.14 Power Button

- Press the  button in the upper right corner of the panel, and the system will automatically start up. After startup, the main touchscreen displays the home screen.
- Power off the event controller through the following methods:
  - Press the  button in the upper right corner of the panel, select OK in the pop-up dialog box on the main touchscreen, and the system will shut down.
  - During the startup process, hold down the  button to force shutdown.

### 8.3.15 T-Bar

Pushing the T-Bar up or pulling it down to manually control the switching from PVW to PGM. The LED indicator shows the switching progress.

During the process of pushing or pulling the T-Bar, pressing the buttons on the front panel of the event controller does not take effect.

Figure 8-23 T-Bar area



## 8.3.16 Key Customization

This feature supports the following functions:

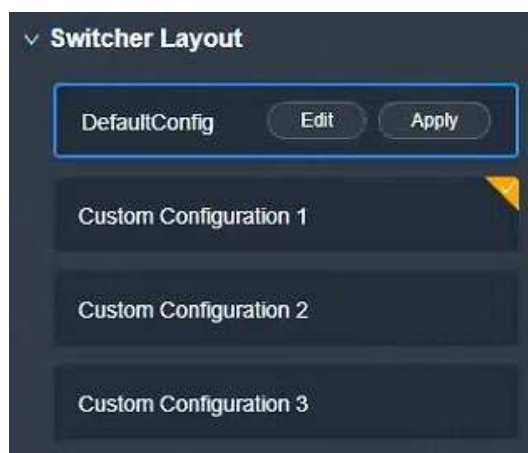
- Supports simulation of all physical keys, encoders, faders and T-bar of the event controller.
- Allows you to customize the business bound to the keys, key function properties, key styles, and MIDI parameters.
- Allows you to save the key customizations as multiple configuration files for easy recall and transfer them across different event controllers.

### 8.3.16.1 Switcher Layout Configuration

This function allows you to bind devices, screens, inputs, layers and presets to the physical keys in the corresponding key area on the event controller.

- Step 1 From the device list on the primary touchscreen, double tap a device to enter its page.
- Step 2 From the menu bar on the top, tap **Custom Keys**.
- Step 3 In the **Switcher Layout** area, select a configuration file and tap **Edit**.

Figure 8-24 Switcher layout configuration



- Step 4 From the switcher layout menu bar on the left, select a desired business and bind it to a key (Refer to [Figure 8-33](#) for key area description and [Table 8-1](#) for binding area restrictions.)

Figure 8-25 Binding switcher business to keys



- Tap a desired business and then tap the target key in the corresponding area to complete binding.
- Tap and drag a business to the target key in the corresponding area to complete binding.
- Batch binding: In the **Batch Bind** area in the left menu bar, select the binding type, enter the business start, business end, key start and key interval, and tap **Bind**.

Step 5 (Optional) Reset: From the switcher layout menu bar on the left, tap **Reset** in the corresponding business property area.

Figure 8-26 Reset



 **Note**

- You can only edit and save the default switcher layout configuration file.
- You can bind a business to multiple physical keys.
- You can not clear the binding relationships of the switcher layout configuration.

### 8.3.16.2 Event Controller Layout Configuration

This feature allows you to configure the key properties for areas 1 to 8 (refer to [Table 8-2](#) for key area descriptions) as device, screen, input, layer, preset, or custom settings. You can also bind keys to various events, including system functions, layer editing, timecode editing, PTZ control, input parameter adjustment, output parameter

adjustment, screen parameter adjustment, layer parameter adjustment, and PTZ parameter adjustment.

- Step 1 From the device list on the primary touchscreen, double tap a device to enter its page.
- Step 2 From the menu bar on the top, tap **Custom Keys**.
- Step 3 In the **Event Controller Layout** area, tap **New** to enter the layout configuration file editing page (To edit an existing file, tap to select it and then tap **Edit**.)

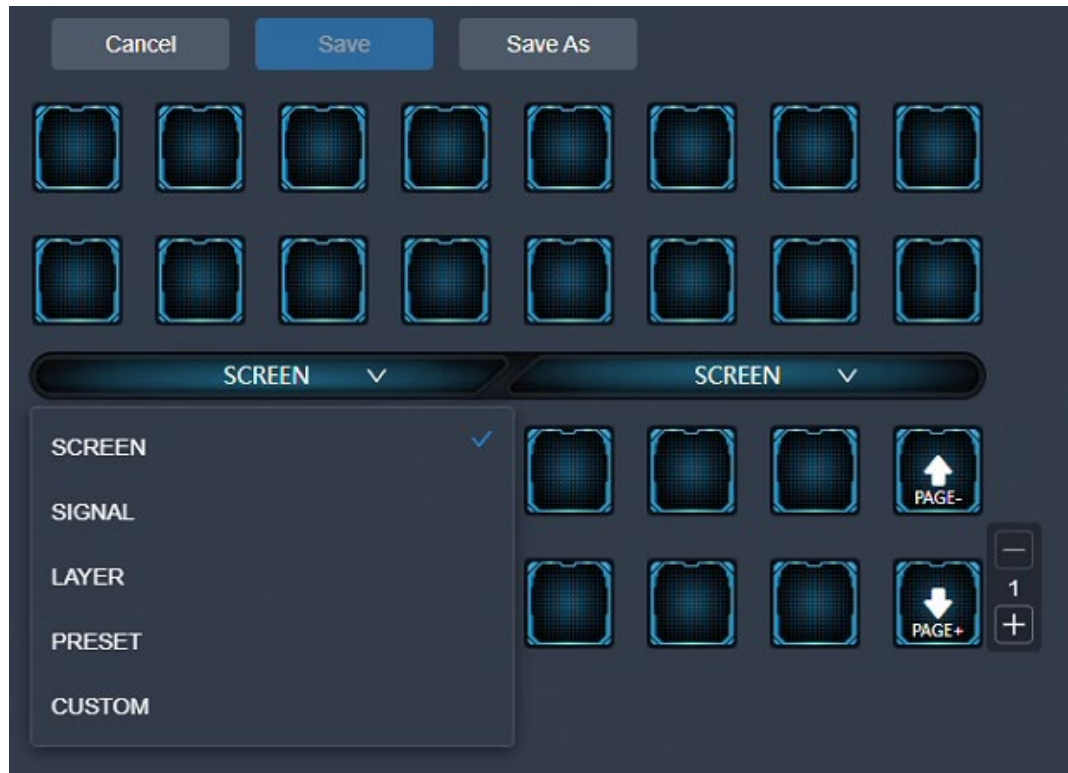
Figure 8-27 New/Edit



- Step 4 From the key property drop-down box, select a property to complete key area property customization.

For example, after you set the property of a key area to **SCREEN**, you can bind screens to keys in this key area. After you set the property of a key area to **CUSTOM**, you can bind the system functions, layer editing, timecode editing, and PTZ control events to keys in this key area.

Figure 8-28 Key properties



Step 5 From the left menu bar, select an event and bind it to a key. (Refer to [Figure 8-33](#) for key area description and [Table 8-1](#) for binding area restrictions.)

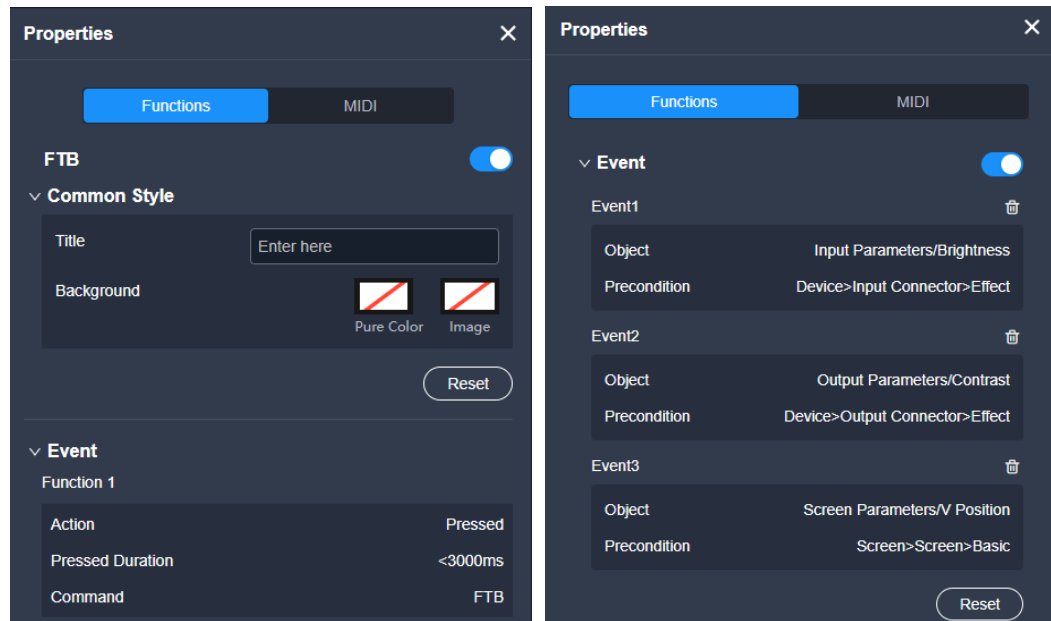
Figure 8-29 Binding events to keys



- Select an event, and tap the target key in the corresponding key area.
- Tap and drag an event to the target key in the corresponding key area.

Step 6 (Optional) Set the key properties. (Refer to [Table 8-2](#) for related restrictions.)

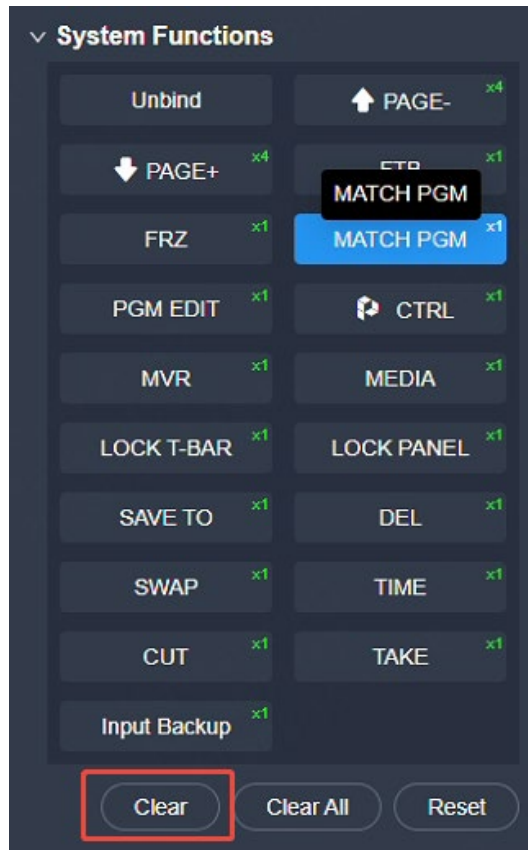
Figure 8-30 Property settings



- Enable/Disable key functions/events: Tap the switch button on the right menu bar.
- Set common style: select a key and set the title and background on the right menu bar.
- Event precondition: Only the events that can be bound to key area 11 have precondition.
- Set MIDI: Select **MIDI** from the right menu bar, enable the event switch, and set the MIDI parameters.

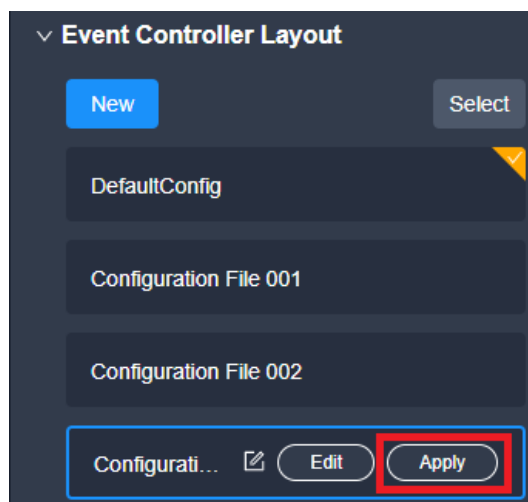
Step 7 (Optional) Clear binding: On the menu bar of event controller configuration, tap **Clear** in a business property area.

Figure 8-31 Clearing



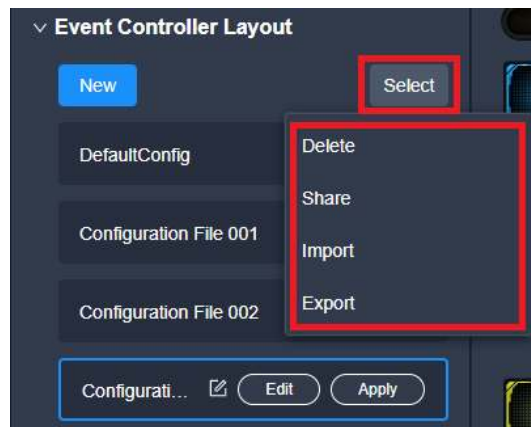
- Step 8 Tap **Save** or **Save As** to save your customization as a configuration file.
- Step 9 Go back to the configuration file list, select a configuration and tap **Apply** to apply it to the event controller.

Figure 8-32 Applying



- Step 10 Tap **Select** at the top of the layout configuration file list. A drop-down menu will appear, allowing you to delete, share, import, or export configuration files.

Figure 8-33 Related operations



**Note**

- You can create up to 128 event controller layout configuration files, including one default configuration.
- The default configuration file can be edited, but cannot be deleted, shared, or exported.
- A single event can be bound to multiple physical keys.
- The event controller supports MIDI key parameter customization and MIDI output switch settings, but these features are not available in the PixelFlow on PC.

Figure 8-34 Key areas of the U5 Pro (the U5 lacks areas 5 to 9)



Table 8-1 Binding area restrictions

Business/Event Properties		Available Key Areas	
Switcher layout configuration	Screen	1, 2	
	Input	7, 8	
	Layer	5, 6	
	Preset	3, 4	
Event controller layout configuration	System functions	Page+, Page-	1 to 10, 12 to 15, custom property key area
		Others	9, 10, 13, custom property key area

Business/Event Properties		Available Key Areas
	Layer editing	9, 10, 13, custom property key area
	Timecode editing	9, 10, 13, custom property key area
	PTZ control	9, 10, 13, custom property key area
	Input parameter adjustment	11
	Output parameter adjustment	11
	Screen parameter adjustment	11
	MVR parameter adjustment	11
	Layer parameter adjustment	11
	PTZ parameter adjustment	11

Table 8-2 Key area description

Key Area	Key Property Settings	Number of Businesses/Events That Can Be Bound to a Key
1 to 8	None	1 business
9	Support common style settings	1 event
10	Support common style settings	1 event
11	Support event and MIDI settings	Multiple events (The preconditions for these events must be distinct.)
12 to 15	None	Do not support binding.

### 8.3.17 Keyboard

The U5 Pro has a built-in 61-key mechanical keyboard. To open the keyboard, just pull the middle section on the front panel.



### 8.3.18 Drawers

The U5 Pro is equipped with two drawers for you to put some wires or small objects. To open the drawers, just pull the two sections next to the keyboard out on the front panel.

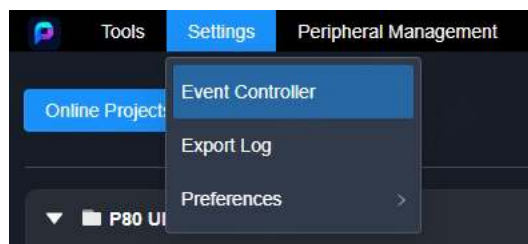


### 8.3.19 Event Controller Settings

#### 8.3.19.1 PTZ Control

Step 1 In the top menu bar, select **Settings > Event Controller**.

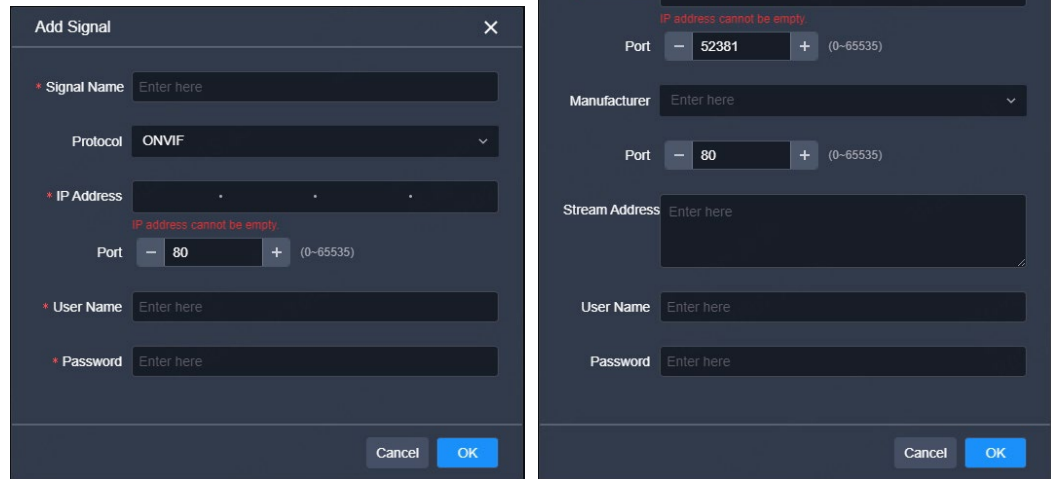
Figure 8-35 Event controller settings



Step 2 Select the **PTZ Control** tab.

Step 3 In the device list, click **Add Device**.

Step 4 In the **Add Signal** pop-up window, configure the relevant information.



- Signal Name: Name of the signal source accessed by the camera.
- Protocol: Select the protocol type, including ONVIF and VISCA.
- IP Address: The IP address of the camera.
- Port: The protocol communication port for the camera (1-65535).
- User Name: Enter the user name.
- Password: Enter the password.
- Manufacturer: Select the manufacturer. This parameter is available when **VISCA** is selected as the protocol.
- Stream Address: After selecting the protocol, the corresponding stream address will be automatically filled. If **Other** is selected, it can be entered manually. This parameter is available when **VISCA** is selected as the protocol.

Step 5 After configuration, click **OK** to view the added device, and you can edit, view details, or delete the device.

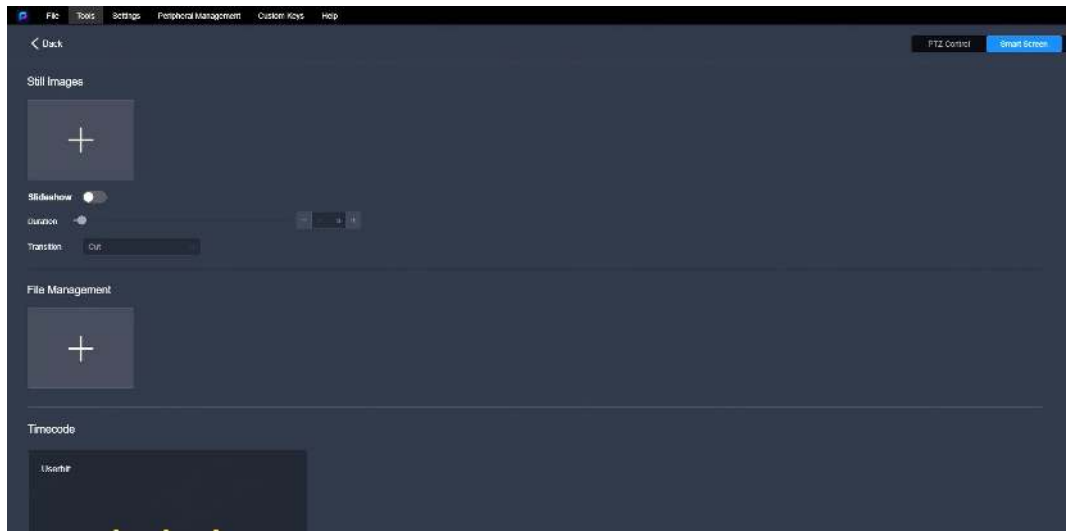
### 8.3.19.2 Smart Touchscreen Configuration

Step 1 In the top menu bar, select **Settings > Event Controller**.

Step 2 Select the **Smart Screen** tab.

Step 3 Import still images and files, and configure timecode information. For detailed operations, refer to [Smart Touchscreen](#).

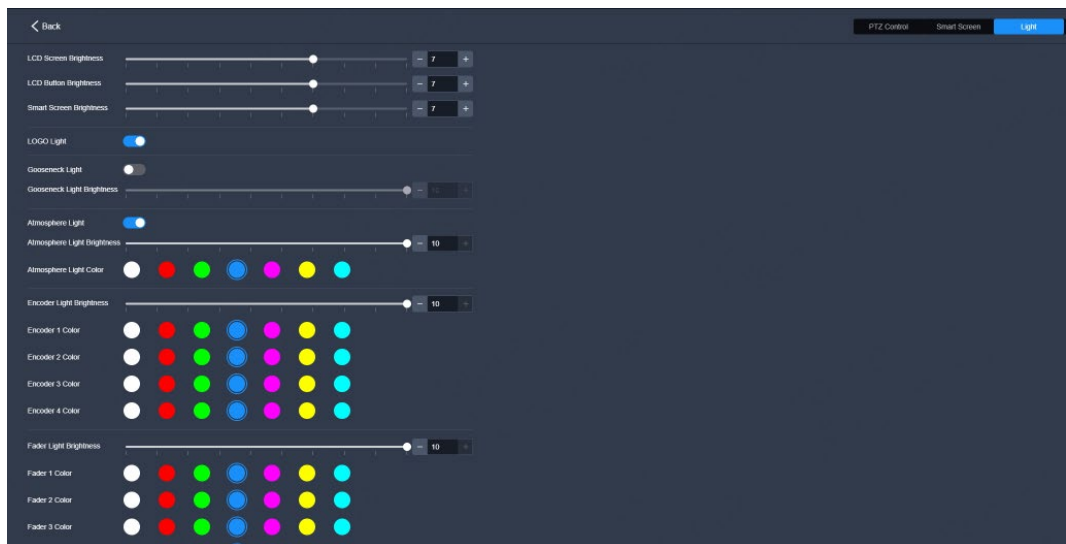
Figure 8-36 Smart touchscreen configuration



### 8.3.19.3 Light Settings

- Step 1 In the top menu bar, select **Settings > Event Controller**.
- Step 2 Select the **Light** tab.
- Step 3 Adjust screen brightness, light switches, light brightness, and light color as needed.

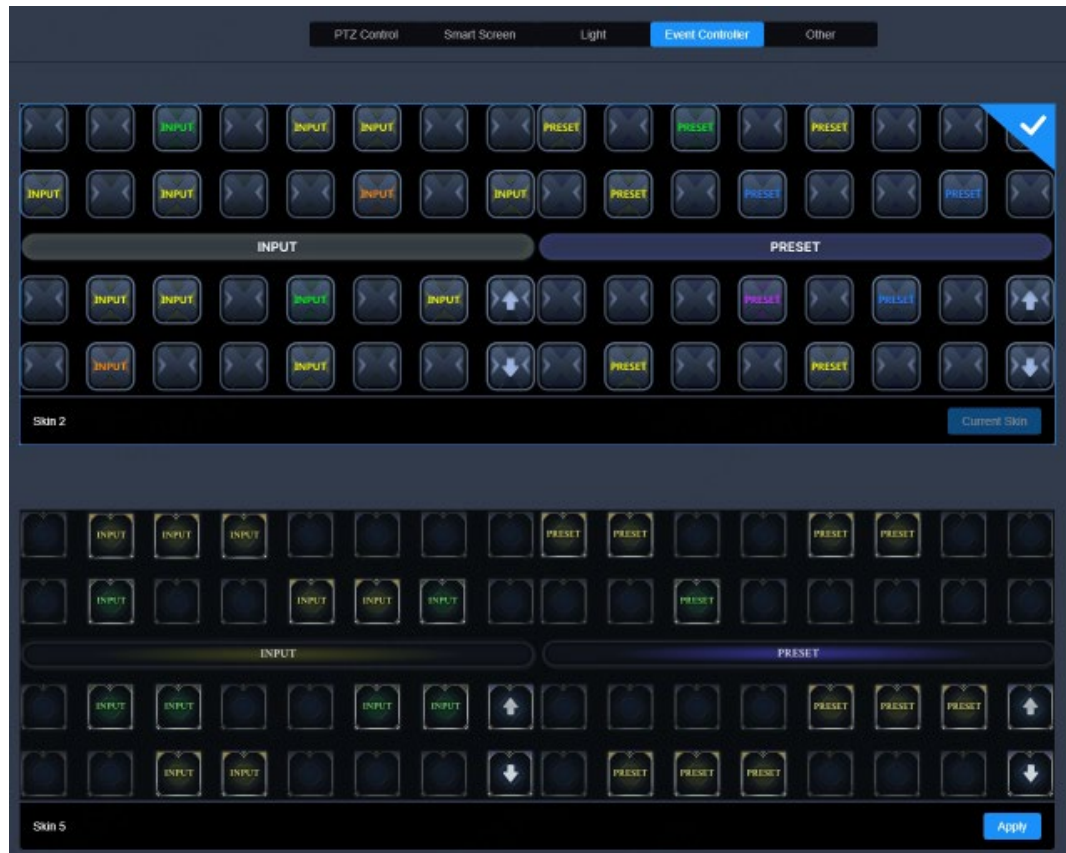
Figure 8-37 Light settings



### 8.3.19.4 Button Style

- Step 1 In the top menu bar, select **Settings > Event Controller**.
- Step 2 Select the **Event Controller** tab.
- Step 3 Change the button style as needed, and click **Apply** after selection. You can preview the new style on the simulation event controller.

Figure 8-38 Changing button style



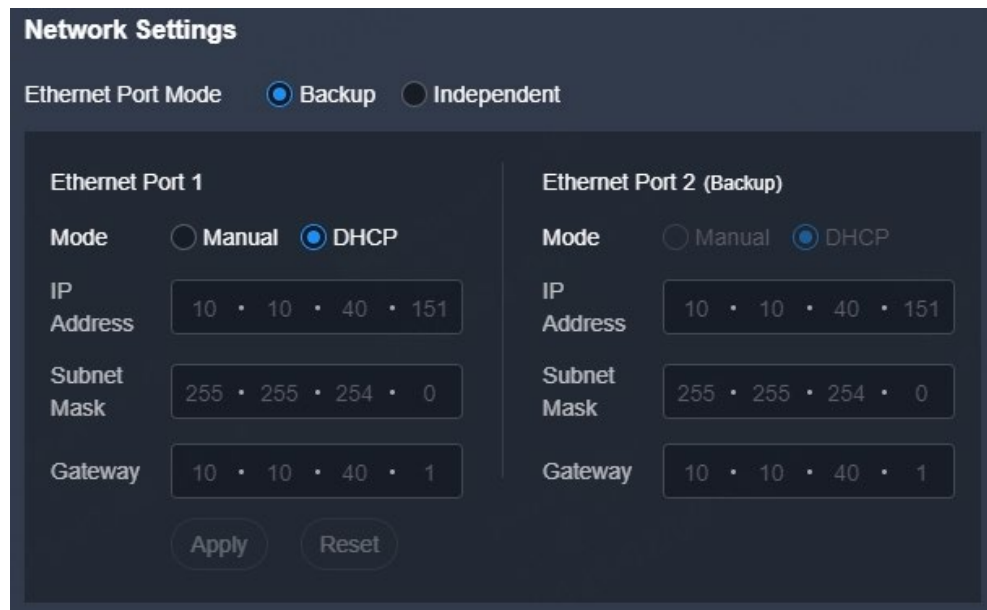
### 8.3.19.5 Basic Info

- Step 1 In the top menu bar, select **Settings > Event Controller**.
- Step 2 Select the **Basic Info** tab.
- Step 3 Perform network settings, time settings, event controller maintenance, factory reset, and power operations.

### Network Settings

- Step 1 Select the Ethernet port mode: **Backup** or **Independent**.
  - Backup Mode: Configure network settings on Ethernet port 1; Port 2 will mirror Ethernet port 1 and cannot be modified.
  - Independent Mode: Configure network settings for both Ethernet port 1 and Ethernet port 2.
- Step 2 Once done, set the mode (**Manual** or **DHCP**), IP address, subnet mask, and gateway.
- Step 3 Click **Apply**.

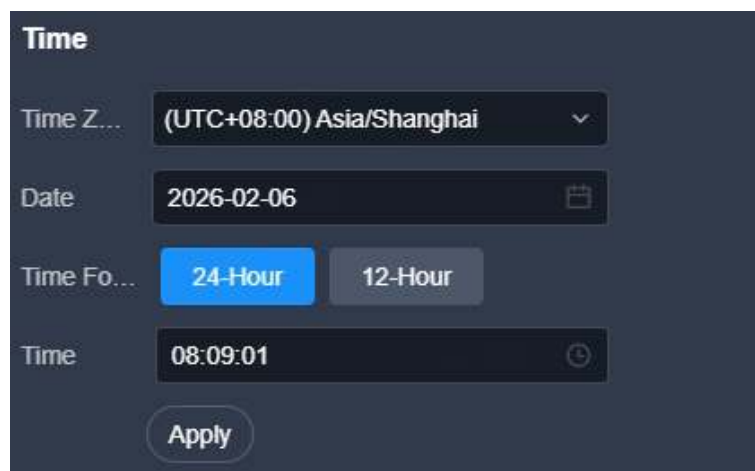
Figure 8-39 Network settings



## Time Settings

Configure time zone, date, time format, and time. Click **Apply** when done.

Figure 8-40 Time settings



## Event Controller Maintenance

Perform maintenance or updates. Click **Maintain** for diagnostics (refer to [Event Controller Diagnostics](#)). Click **Update** to select files for updating.

## Factory Reset

Select the reset conditions for factory reset and click **Apply**. The device will reset according to the chosen conditions. After restoring factory settings, the device will automatically restart.


- **Retain IP only:** During a factory reset, the event controller retains its IP address, while all other parameters are restored to their default values.

- **Reset all:** During a factory reset, all parameters of the event controller are restored to their default values.

## Event Controller Power

Set event controller power options. Click **Restart** to reboot or **Shut Down** to power off.

### 8.3.19.6 Event Controller Skin

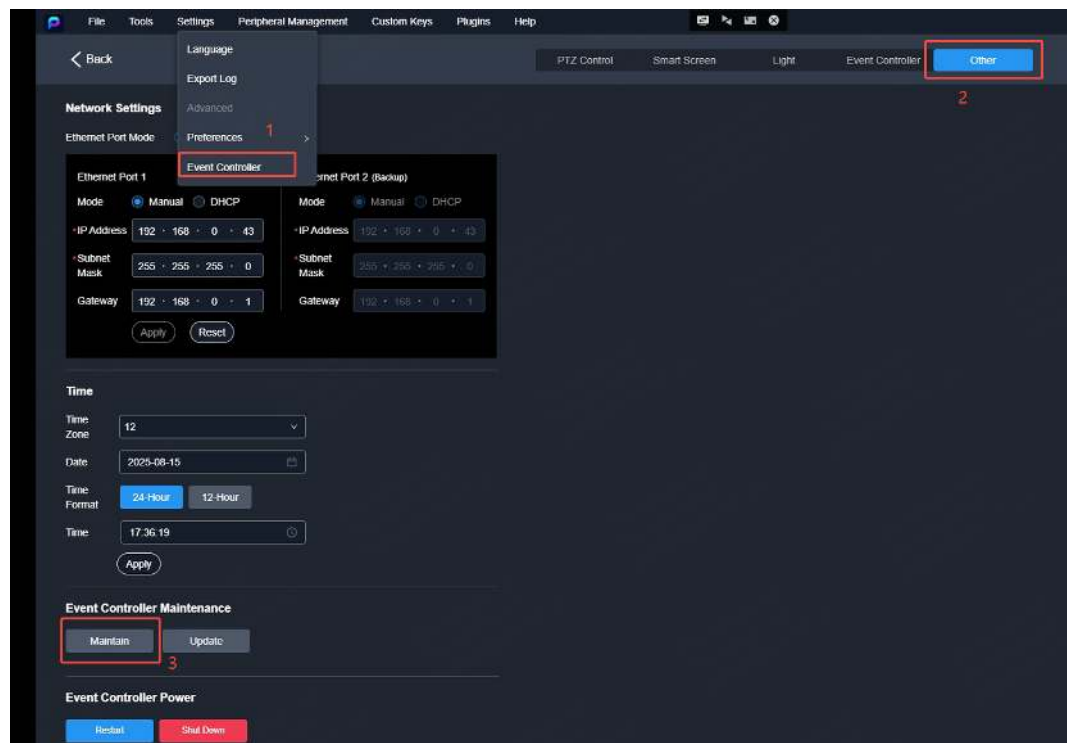
Click  on the far right of the top menu bar to choose between **Cosmic Gray** or **Midnight Black** skins.

## 8.3.20 Event Controller Diagnostics

The event controller diagnostics can assess the device's operational status, identify potential issues, enhance device reliability, and ensure operational accuracy. It includes button test, touchscreen calibration, and T-Bar correction.

- Step 1 In the top menu bar, select **Settings > Event Controller**.
- Step 2 Select the **Other** tab.
- Step 3 In the **Event Controller Maintenance** area, click **Maintain** to enter the event controller tool page.

Figure 8-41 Event controller maintenance



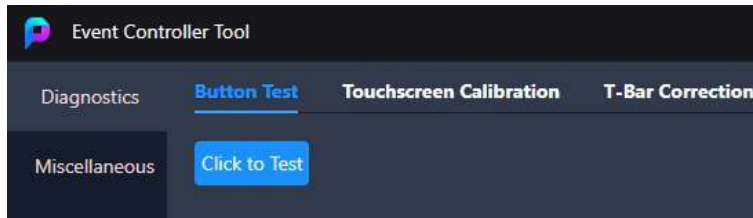
Alternatively, press the first and last buttons of the first row in the button area at the top left of the event controller simultaneously to enter the event controller tool page.

### 8.3.20.1 Button Test

The button test can verify if each button is making good contact, ensuring that all buttons function properly.

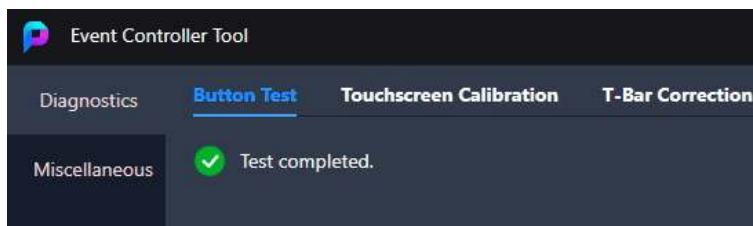
Step 1 Select **Diagnostics > Button Test** and click **Click to Test**.

Figure 8-42 Button test



Step 2 Wait for the test to complete, and then view the results (avoid other operations during the process).

Figure 8-43 Test completed

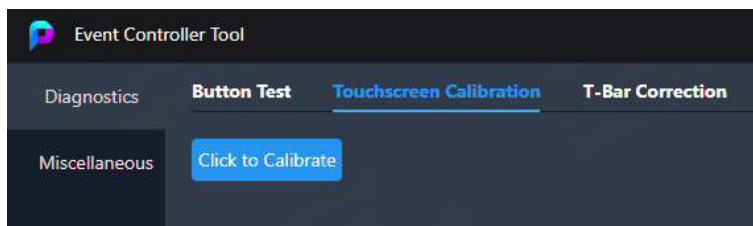


### 8.3.20.2 Touchscreen Calibration

The U5 and U5 Pro support touchscreen calibration. This aligns the touchpoints with the display content, enhancing the accuracy of touch operations and overall user experience.

Step 1 Select **Diagnostics > Touchscreen Calibration** and click **Click to Calibrate**.

Figure 8-44 Touchscreen calibration



Step 2 Following the prompts in the button area near the main touchscreen or smart touchscreen, use one finger to tap the indicated screen, and then press **Enter** to proceed to the next step.

Tap this screen with a single finger to identify it as the touchscreen.

If this is not the Tablet PC screen, press Enter to move to the next screen. To close the tool, press Esc.

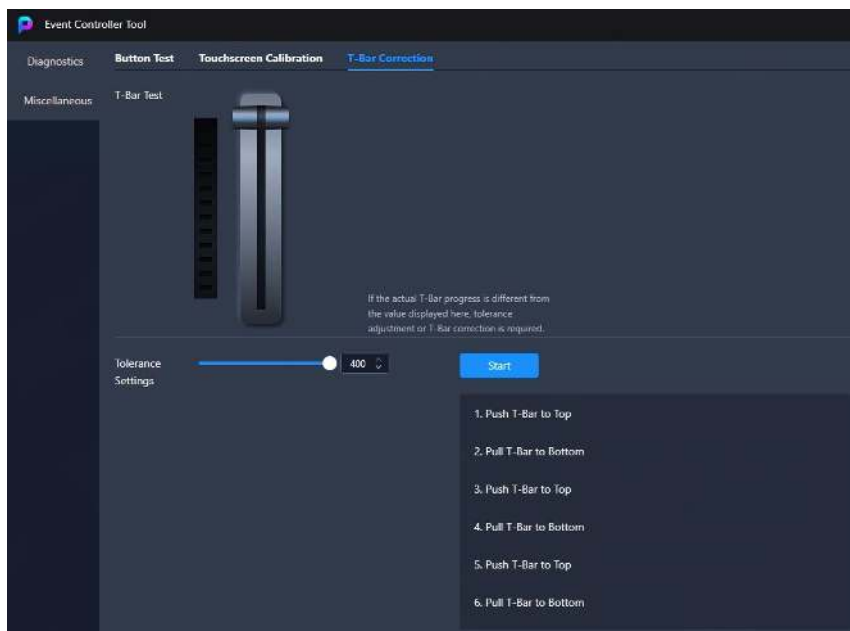
Step 3 Following the prompts in the button area near the main touchscreen or smart touchscreen, use one finger to tap the indicated screen, and the calibration is finished.

### 8.3.20.3 T-Bar Correction

When the T-Bar doesn't reach 100% at the top or 0% at the bottom, T-Bar correction is needed.

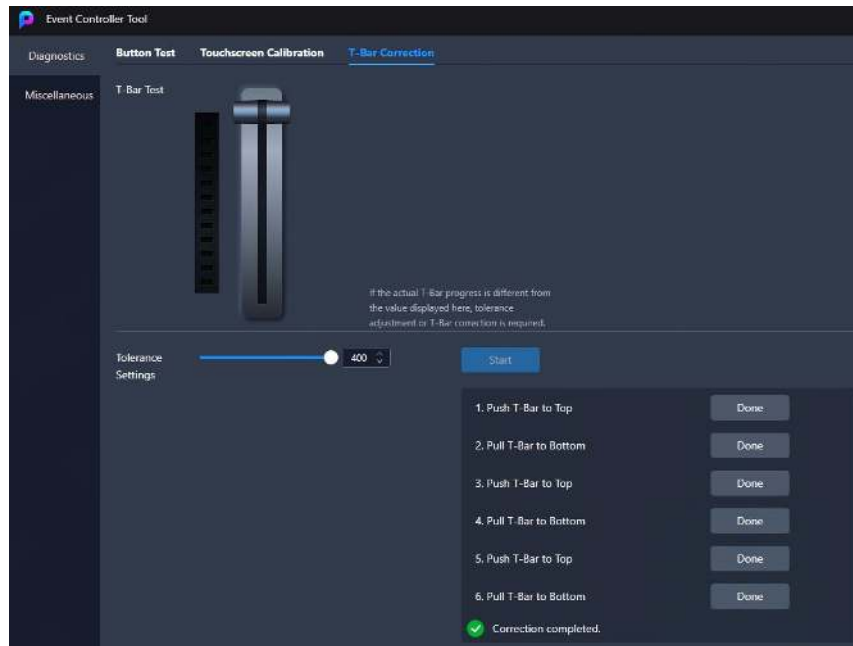
Step 1 Select **Diagnostics > T-Bar Correction**.

Figure 8-45 T-Bar correction



Step 2 Set the tolerance, click **Start**, and follow the prompts to complete the correction steps. After all steps, a "Correction completed" message will appear.

Figure 8-46 Correction completed



# A Specifications

## A.1 P80 Specifications

	Description	
Inputs	16x 4K concurrent inputs	
Main Outputs	4x 4K concurrent main outputs	
OPT Ports	8x 10G SFP	
Flex Outputs	4x HDMI 2.0	
Matrix Outputs	4x 12G-SDI	
Layers	8x 4K mixing main layers and 4x 4K mixing PIP layers	
Multiviewer Connectors	2x HDMI 2.0	
Presets	256	
BKG	1 GB of storage space	
Front Screen	7" touchscreen	
Gigabit Ethernet Ports	2	
Control	<ul style="list-style-type: none"> <li>• Front panel touchscreen</li> <li>• Event Management Software PixelFlow</li> <li>• Event Controller U5/U5 Pro</li> <li>• Third-party control system Stream Deck (Companion integrated into the P80)</li> </ul>	
Processing	FPGA-based high-performance image enhancement architecture	
Chassis	4 RU	
Dimensions	W 482.6 mm × D 536.0 mm × H 177.0 mm W 19.0 in × D 21.1 in × H 7.0 in	
Weight	Net Weight	23.0 kg / 50.7 lbs
	With Flight Case	59.6 kg / 131.4 lbs
Electric Parameters	Power connector: 100-240V~, 50/60Hz	

	Max power consumption: 450 W
Noise on Average (@1, 0.75m height)	45 dB
Operating Environment	Temperature: 0°C to 50°C (32°F to 122°F) Humidity: 5% RH to 85% RH, non-condensing
Storage Environment	Temperature: -20°C to +70°C (-4°F to 158°F) Humidity: 5% RH to 95% RH, non-condensing

## A.2 P10/P20/P20-DS Specifications

	P20	P20-DS	P10
Inputs	8x DP 1.2/HDMI 2.0 4x 12G-SDI (in & loop)	8x DP 1.2/HDMI 2.0 4x 12G-SDI	4x DP 1.2/HDMI 2.0 2x 12G-SDI
Outputs	8x HDMI 2.0	8x HDMI 2.0 4x 12G-SDI	2x HDMI 2.0 6x HDMI 1.3
OPT Ports	8		4
AUX Connectors	4x HDMI 1.3		2x HDMI 1.3
3.5 mm Audio Jacks	2x 3.5 mm line in 2x 3.5 mm line out	2x Dante connectors 2x 3.5 mm line in 2x 3.5 mm line out	2x 3.5 mm line in 2x 3.5 mm line out
	*The audio function of the P20 and P10 will be implemented in future updates.		
Layers	12 DL layers (2xMAIN+10xPIP) or 8 DL layers (4xMAIN+4xPIP)		6x DL layers or 3x 4K layers
Multiviewer Connectors	1x HDMI 1.3		
Presets	128		
BKG & LOGO	Up to 255 BKGs & LOGOs (Maximum storage space: 512 MB)		
Front Screen	5" LCD		
Gigabit Ethernet Ports	2		
Control	<ul style="list-style-type: none"> <li>• Front panel buttons and LCD</li> <li>• Event Controller U5/U5 Pro</li> <li>• Event Management Software PixelFlow</li> <li>• Third-party control system Stream Deck (Companion integrated into the P20/P20-DS/P10)</li> </ul>		
Processing	<ul style="list-style-type: none"> <li>• FPGA-based high-performance image enhancement architecture</li> <li>• Real 4K60p 4:4:4 10-bit internal video processing</li> </ul>		
Chassis	3 RU		2 RU
Dimensions	W 482.6 × D 501.0 × H 139.0 mm W 19.0 × D 19.7 × H 5.5 inches		W 482.6 × D 493.0 × H 94.6 mm

		P20	P20-DS	P10
				W 19.0 × D 19.4 × H 3.7 inches
Weight	Net Weight	10.2 kg / 22.5 lbs	10.7 kg/23.6 lbs	7.9 kg / 17.4 lbs
	With Paper Box	14.3 kg / 31.5 lbs	14.8 kg/32.6 lbs	10.2 kg / 22.5 lbs
	With Flight Case	25.2 kg / 55.6 lbs	25.7 kg/56.7 lbs	20.6 kg / 45.4 lbs
Electric Parameters	Input Power	100-240V~, 50/60Hz		100-240V~, 3.0-1.5A, 50/60Hz
	Max power consumption	140 W	160 W	82 W
Noise on Average (@1, 0.75m height)		45.6 dB		41.9 dB
Operating Environment		Temperature: 0°C to 50°C (32°F to 122°F) Humidity: 0% RH to 80% RH, non-condensing		
Storage Environment		Temperature: -20°C to +60°C (-4°F to 140°F) Humidity: 0% RH to 95% RH, non-condensing		

## A.3 Q8 Specifications

	Description
Inputs	Up to 48x 4K concurrent inputs through 6 input cards
Outputs	Up to 16x 4K concurrent outputs through 4 output cards
OPT Ports	8
Layers	32x 4K mixing layers in switcher mode
Multiviewer Connectors	2x HDMI 2.0
Presets	1024
BKG & LOGO	Unlimited picture quantity in 1G storage space
Front Screen	7" touchscreen
Gigabit Ethernet Ports	2
Control	<ul style="list-style-type: none"> <li>• Front screen</li> <li>• Event Management Software PixelFlow</li> <li>• Event Controller U5/U5 Pro</li> <li>• Third-party control system Stream Deck (Companion integrated into the Q8)</li> </ul>
Processing	FPGA based high performance image processing architecture with SuperView scaling engine inside
Chassis	7 RU

Dimensions		W 482.6 mm × D 694.7 mm × H 335.3 mm W 19 × D 27.4 × H 13.2 inches
Weight	Net Weight	42.6 kg / 93.9 lbs
	Gross Weight	Packed with a Flight Case 99.7 kg / 219.8 lbs Note: It is the total weight of the product, accessories, and packing materials packed with a flight case.
		Packed with a Flight Case, a Paper box and a Wooden Pallet 123 kg / 271.2 lbs Note: It is the total weight of the product, accessories, and packing materials packed with a flight case, a paper box and a wooden pallet.
Electric Parameters		Power connector: 100–240V~, 10A-5A, 50/60Hz Max power consumption: 1400 W
Noise on Average (@1, 0.75m height)		45 dB
Operating Environment		Temperature: 0°C to 50°C (32°F to 122°F) Humidity: 0% RH to 80% RH, non-condensing
Storage Environment		Temperature: –20°C to +60°C (–4°F to 140°F) Humidity: 0% RH to 95% RH, non-condensing

## A.4 U5/U5 Pro Specifications

		U5	U5 Pro
Front Screen		Main touchscreen: 21.5" Smart touchscreen: 8"	Main touchscreen: 43.8" Smart touchscreen: 8"
Dimensions		W 740 × D 651.4 × H 431.6 mm W 29.13 × D 25.65 × H 16.99 inches	W 1129.6 × D 695.4 × H 422.7 mm W 44.47 × D 27.38 × H 16.64 inches
Weight	Net weight	24 kg	46 kg
	With a Flight Case and a Paper Box	56.9 kg	110.8 kg
Electric Parameters		Power connector: AC100-240V~, 6A, 50/60Hz Max power consumption: 240 W	Power connector: AC100-240V~, 6A, 50/60Hz Max power consumption: 330 W
Noise on Average (@1, 0.75m height)		40 dB	40 dB
Operating Environment		Temperature: 0°C to 50°C (32°F to 122°F) Humidity: 0% RH to 80% RH, non-condensing	
Storage Environment		Temperature: –20°C to +60°C (–4°F to 140°F) Humidity: 0% RH to 95% RH, non-condensing	

# B Supported Resolutions

## B.1 P80

Input	Bit Depth	Sampling Format	Supported Resolutions	Connector Bandwidth
DP 1.2	8bit	RGB 4:4:4	8192×1080@60Hz	21.6 Gbps
		YCbCr 4:4:4	4096×2160@30Hz	
		YCbCr 4:2:2	3840×2160@60Hz	
	10bit	RGB 4:4:4	8192×1080@60Hz	
		YCbCr 4:4:4	4096×2160@60Hz	
		YCbCr 4:2:2	3840×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4		
		YCbCr 4:2:2	8192×1080@60Hz 3840×2160@60Hz	
HDMI 2.0	8bit	RGB 4:4:4	4096×2160@60Hz	18 Gbps
		YCbCr 4:4:4	8192×1080@60Hz	
		YCbCr 4:2:2		
	10bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
12G-SDI	10bit	YCbCr 4:2:2	4096×2160@60Hz	11.88 Gbps

## B.2 P20/P20-DS/P10

Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth
DP 1.2	8bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz	18 Gbps
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
HDMI 2.0	8bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz	18 Gbps
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
12G-SDI	10bit	YCbCr 4:2:2	4096×2160@60Hz	11.88 Gbps

## B.3 Q8

Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth
HDMI 2.0	8bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz	18 Gbps
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz	
		YCbCr 4:4:4	4096×1080@60Hz	
		YCbCr 4:2:2	4096×2160@60Hz	

Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth	
HDMI 2.1	8bit	RGB 4:4:4	4096×2160@60Hz	18 Gbps	
		YCbCr 4:4:4	8192×1080@60Hz		
		YCbCr 4:2:2			
	10bit	RGB 4:4:4	4096×2160@30Hz		
		YCbCr 4:4:4	4096×1080@60Hz		
		YCbCr 4:2:2	4096×2160@60Hz		
	12bit	RGB 4:4:4	4096×2160@30Hz		
		YCbCr 4:4:4	4096×1080@60Hz		
		YCbCr 4:2:2	4096×2160@60Hz		
DP 1.2	8bit	RGB 4:4:4	8192×1080@60Hz	21.6 Gbps	
		YCbCr 4:4:4	4096×2160@30Hz		
		YCbCr 4:2:2	3840×2160@60Hz		
	10bit	RGB 4:4:4			
		YCbCr 4:4:4			
		YCbCr 4:2:2			
	12bit	RGB 4:4:4			
		YCbCr 4:4:4			
		YCbCr 4:2:2			
DP 1.4	8bit	RGB 4:4:4	8192×1080@60Hz	21.6 Gbps	
		YCbCr 4:4:4	4096×2160@30Hz		
		YCbCr 4:2:2	3840×2160@60Hz		
	10bit	RGB 4:4:4			
		YCbCr 4:4:4			
		YCbCr 4:2:2			
	12bit	RGB 4:4:4			
		YCbCr 4:4:4			
		YCbCr 4:2:2			
12G-SDI	8bit	YCbCr 4:2:2	4096×2160@60Hz	11.88 Gbps	
	10bit	YCbCr 4:2:2			
	12bit	YCbCr 4:2:2			
25G OPT	8bit	RGB 4:4:4	4096×2160@60Hz	25 Gbps	
		YCbCr 4:4:4			
		YCbCr 4:2:2			

Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth
100G OPT	10bit	RGB 4:4:4	4x 4096×2160@60Hz	100 Gbps (4x 25 Gbps)
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	8bit	RGB 4:4:4		
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4		
		YCbCr 4:4:4		
		YCbCr 4:2:2		

 **Note**

In the current version, the DP 1.4 and HDMI 2.1 connector specifications are limited to 4K×2K@60Hz. Once the device supports 8K layers in the future, the specifications will be expanded to 8K×4K@30Hz.

## B.4 U5/U5 Pro

Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth
HDMI 2.0	8bit	RGB 4:4:4	4096×2160@60Hz 8192×1080@60Hz	18 Gbps
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz	
		YCbCr 4:4:4		
		YCbCr 4:2:2	4096×2160@60Hz	
	12bit	RGB 4:4:4	4096×2160@30Hz 4096×1080@60Hz	
		YCbCr 4:4:4		
		YCbCr 4:2:2	4096×2160@60Hz	
HDMI 1.3	8bit	RGB 4:4:4	2048×1152@60Hz	4.95 Gbps
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	10bit	RGB 4:4:4		
		YCbCr 4:4:4		
		YCbCr 4:2:2		
	12bit	RGB 4:4:4		
		YCbCr 4:4:4		

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Input	Bit Depth	Sampling	Supported Resolutions	Connector Bandwidth
		YCbCr 4:2:2		