

datavideo

12G **4K**
50/60 UHD

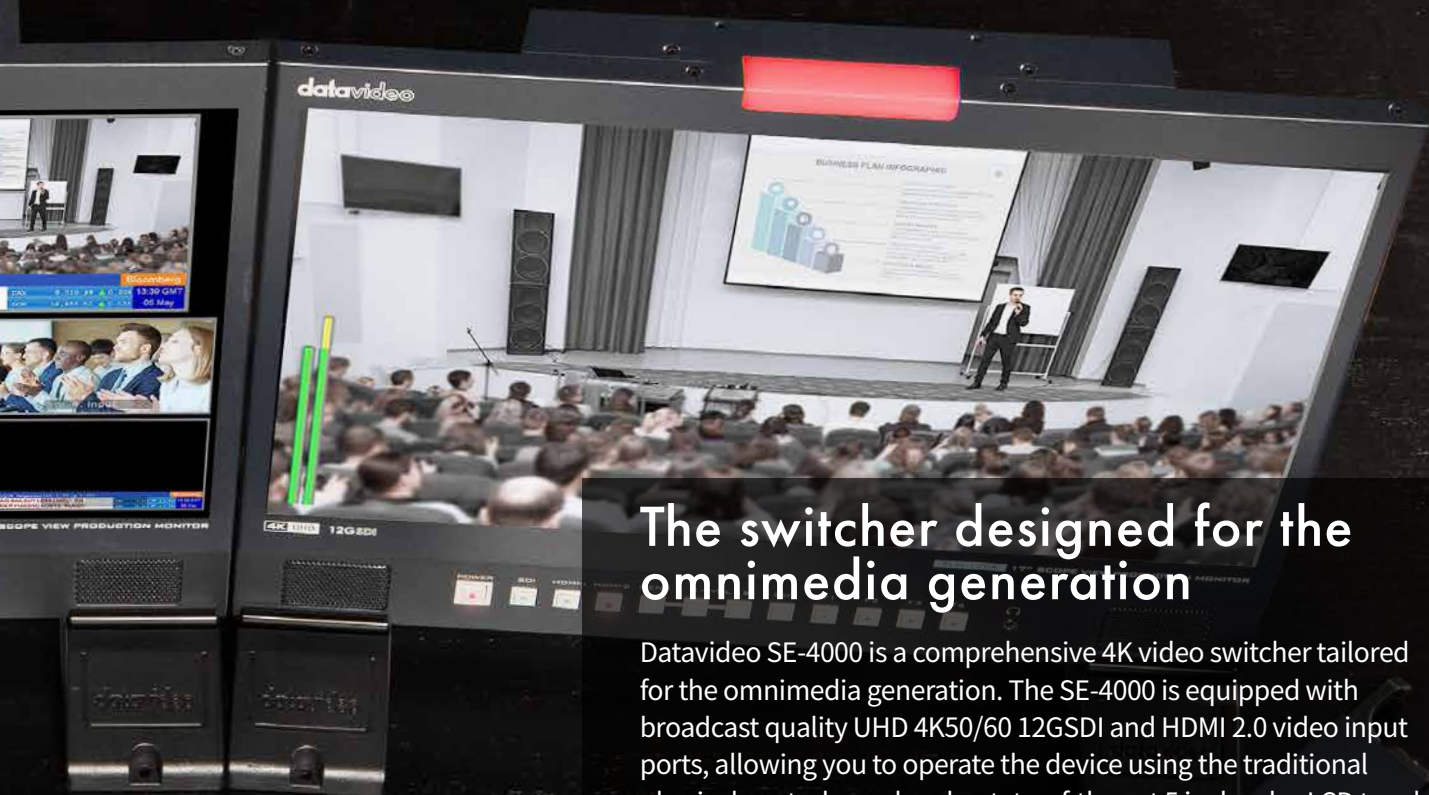
**4k 8-Channel
Digital Video Switcher
SE-4000**



www.datavideo.com

4k 8-Channel Digital Video Switcher SE-4000





The switcher designed for the omnimedia generation

Datavideo SE-4000 is a comprehensive 4K video switcher tailored for the omnimedia generation. The SE-4000 is equipped with broadcast quality UHD 4K50/60 12GSDI and HDMI 2.0 video input ports, allowing you to operate the device using the traditional physical control panel and a state-of-the-art 5 inch color LCD touch screen. The SE-4000's one-button-one-function feature simplifies your video production flow. With the auxiliary outputs, cross point, four chroma keys, PIP and DSK, you will be able to easily generate various professional effects for all scenarios and applications.



12G

4K
50/60 UHD

Control Panel



Rear of the Control Panel



Front of the Main Unit



Rear of the Main Unit





Major functions available on a 5 inch touch screen

Main menu



Auxiliary outputs



Fully customizable



Cross Point





Large Corporate Meeting

High quality video conferencing for business, and product launch events are growing rapidly. In addition to live video broadcast, the hybrid online and offline view mode must also be considered as it is becoming more widely used. There are different requirements for online and offline view modes. In offline mode, the PowerPoint presentation content and the presenter are more important to

attendees at the event. However, to online viewers, in addition to the presentation content, they might need a separate view of the stage. It is definitely a challenge to be able to handle these two view modes at the same time during the event. While viewing at a remote location, the viewers will sometimes need to see the presentation content and the stage, the downstream key and

the PIP feature are thus very important for appropriately integrating audience or the speaker into the presentation slides. By overlaying your product picture, trademarks, etc on the video, your presentation should stand out with important information on a simple-to-read visual layout, thus making your corporate meeting or product launch event professional.



Concerts or Entertainment Programs

Moving from small to mid scale video production, the first challenge to overcome is to be able to handle the increase in the number of image or video sources, especially with the adoption of the UHD 4K video standard (presently most widely used standard), it would mean a significant increase in the cost of each phase from video production setup to post editing. In addition, video switching between 8 to 10 cameras with the added eye-catching visual effects would require the professionals to have a high degree of familiarity in post-editing. Of course, the trick

is to use a multi-channel video switcher with a high number of I/O ports. However, most off-the-shelf powerful switchers are not only expensive but also difficult to use. For that reason, we have designed the SE-4000 4K Switcher. Its eight input channels not only provide seamless video switching, they also give you a new 12 input channel experience. In the past, most visual effects or video switching functions must be activated by executing a number of steps or using composite buttons, and now with the one-button-one-function feature you can

simply push one button to show the desired effect. This highly efficient video switching not only reduces the difficulty in operation, it also allows the user to focus the attention on video selection and decreases the probability of human errors. In addition, Audio-Video synchronization is particularly important to dance performance. The SE-4000 is further equipped with an audio delayer to synchronize audio with video. It eliminates the out of sync issue entirely and provides a more natural viewing experience as a result.



Interview Program in a Multi-Camera Virtual Studio

The interview program can now be easily handled. In the past, you usually need multiple advanced devices to equip your virtual studio. Now we have integrated most of these advanced functions into the SE-4000 to facilitate video production. You will be able to easily create a professional interview program with four cameras using one SE-4000, saving you time and energy. The built-in Chroma Keyer allows you to save the key settings

along with the corresponding virtualset in presets for each camera. Using the upgraded user memory function, you can save the camera video source, virtualset and chromakey settings in different memory slots, which allow you to switch the talent and virtualset simultaneously. As a result, you will be able to show every configured camera video with one button push in a multi-camera virtual studio for the interview program.

In order to better identify these presets of virtual camera settings and simplify operations, we have added the User Memory Icon so that you can assign specific icons to these memory presets of different properties on top of the user memory numbers. With the 5 inch LCD color touch screen, you can easily preview the properties saved in specific memory slots with the button icons, making your interview program production easy and intuitive.



Mid-to-small scale sporting events

Sports games that cause a rush of adrenaline are also great applications where you can use the SE-4000. Broadcast of sports games is often characterized by stringent requirements. The cameramen not only must closely track athletes during the game, they must also make sure the broadcast video playback is smooth and of high clarity. Because every impressive moment must be captured and every frame must be carefully processed, therefore, UHD 4K

25/30p is undoubtedly insufficient for broadcast of sporting events. The SE-4000 supports UHD 4K 50/60p resolutions. The SE-4000 will automatically calibrate the frame rate of the video delivered from HDMI 2.0 PTZ cameras or 12G SDI ENG style cameras, ensuring consistent video resolutions. Video quality will not be degraded during frame rate conversion and videos are not compressed at I/O ports. With a good video processing

capacity then by adding the stinger or animated transition effect, your sports program will be enriched with special details. These broadcast quality transition effects can be pre-saved on the SE-4000. Each animated transition effect is made up of 60 Alpha picture frames. You can also add animated logos and images of various other formats to your program at any time during video production thereby stimulating crowd emotion at the game.

Intuitive One-Button-One-Function

The easy-to-use user interface is intuitive so you don't need complicated composite buttons to activate various switching effects including video effects that are usually activated in a number of steps. They can all be saved in one user memory slot and with the assigned icon, you can easily identify the settings saved therein. Simply tap the slot to activate all saved features.



1 User Memory



2 Wipes



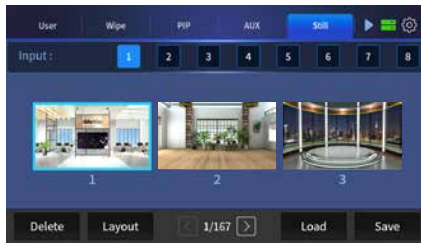
3 Picture-in-picture



4 Auxiliary outputs



5 Still frames



6 Keyers



7 Cross Point



8 Main Menu



Fully customizable (user memory)



Save camera and keyer settings in user memory presets. The SE-4000 offers up to 125 memory presets. Use icons to better identify settings saved therein.



User Image

Save the settings

Icon

User Image Swap

Load the settings

You may sometimes need to switch between different chromakey, lumakey and linear key settings because different video shooting environments have different camera angles and amount of light so the keyer settings may vary. You can save the camera's PTZ settings along with these keyer parameters in the user memory presets which can be accessed with one tap. Once loaded, the program view will be switched instantaneously to another camera image along with the keyer settings and the background image, mimicking video switching with multiple keyers. SE-4000, simply a video switcher to realize a multi-camera virtual studio.

User Image Swap

Use an icon to better identify settings saved in user memory slots. There are currently 380 icons available.



There are currently 380 icons available.

WIPE Transition Effects



WIPE Transition Effects

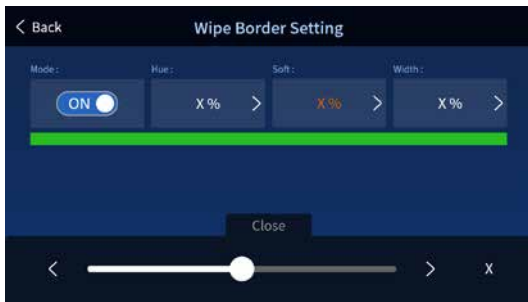
There is a total of 64 wipe transition effects designed for different TV programs. The WIPE transition is a very crucial element in program production. The SE-4000 provides 64 eye-catching WIPE effects with configurable border color and width. The border can be further softened to make the WIPE effect unique.

Border Settings

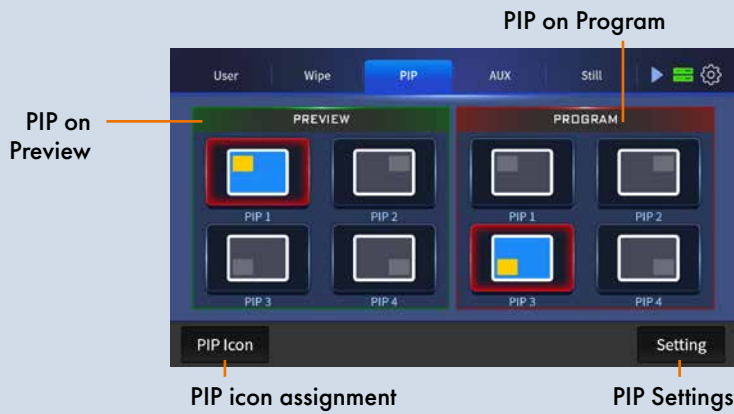
Reverse the WIPE direction

Border Settings

Activate to adjust the border color, softness and width.



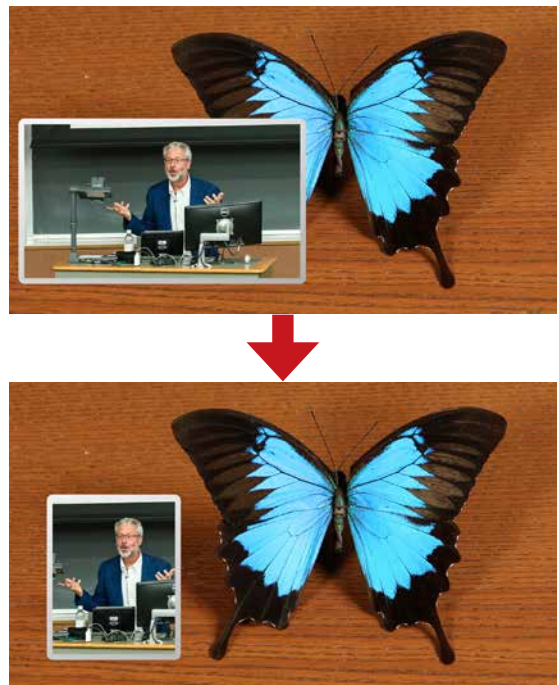
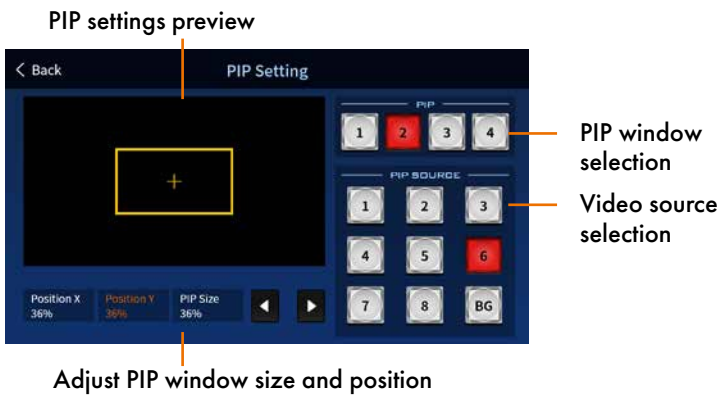
PIP Settings



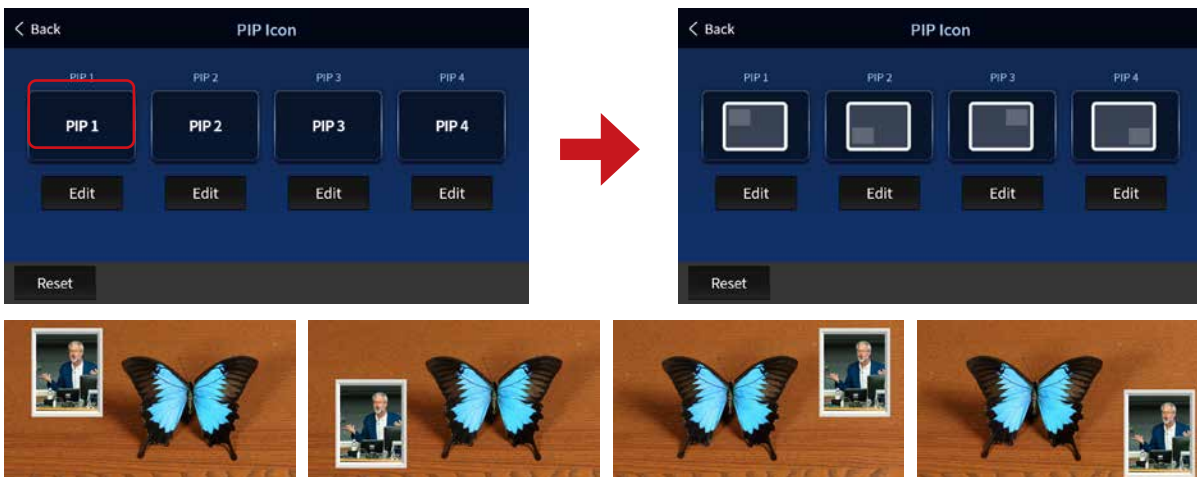
Varieties of 3D PIP Configurations

The two built-in PIP windows can be overlaid on one another. In addition to the default corner places, you can further change the window's size, position and display ratio. You can also crop the window to make it square. By adding a shaded border, you will then be able to fully generate an advanced 3D PIP window with a self-defined border color.

Change the PIP window size and position

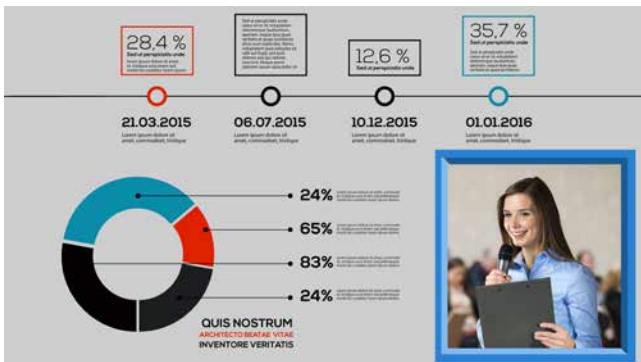


Icons showing the default PIP window positions



Overlaying different video sources

Overlaying different video sources is now easy and versatile. It is a good way to enrich your TV program. By including creative multimedia materials in your video, you will be able to add vibrance to the program, display more information and show brief introductions of people.



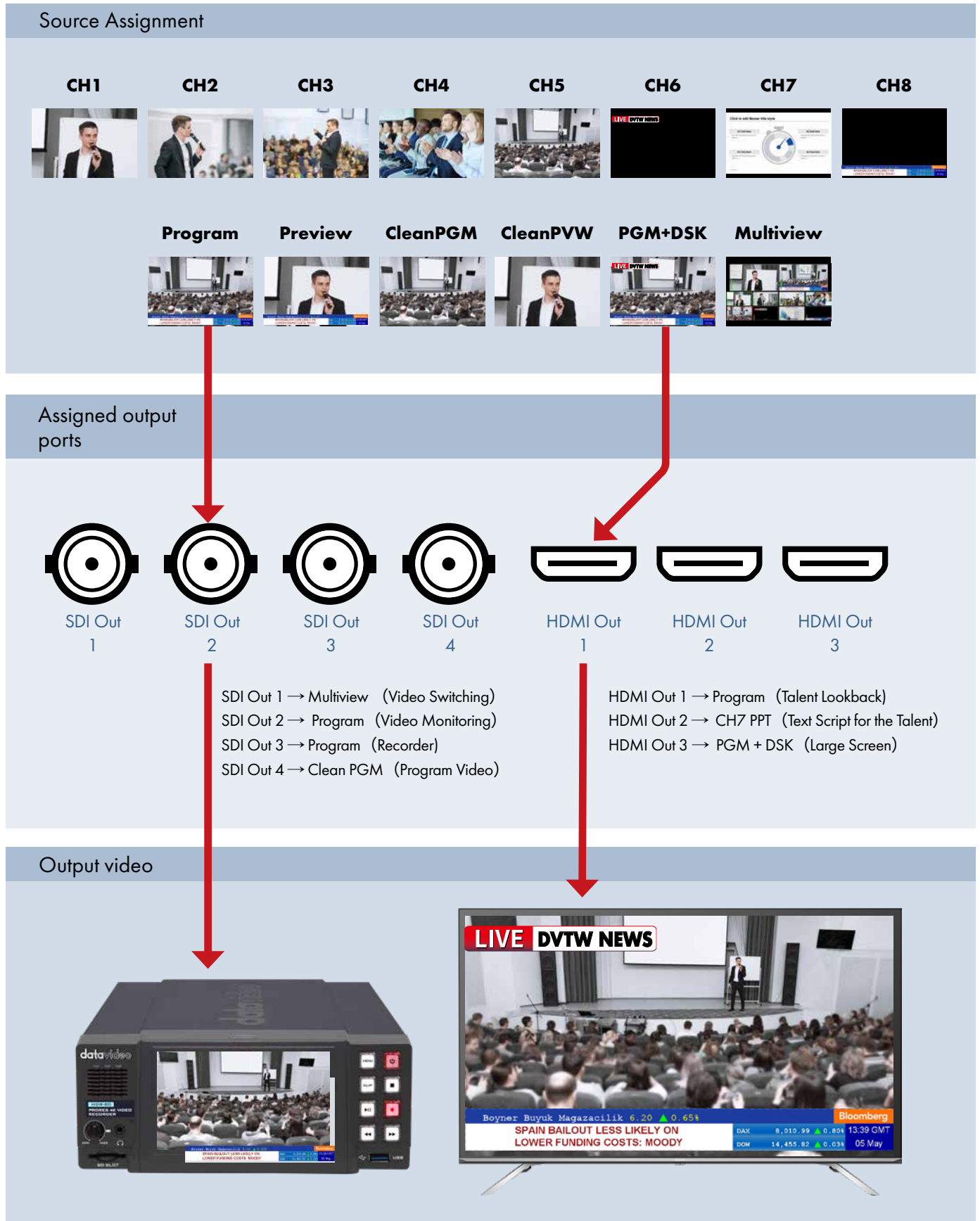
Auxiliary output settings



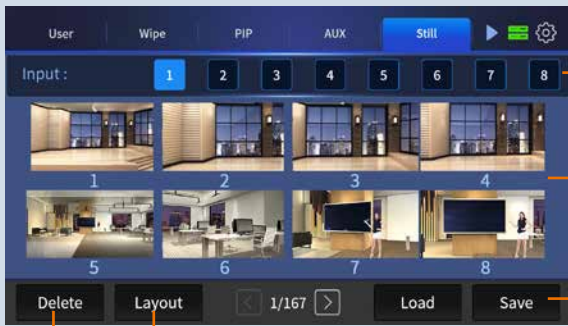
Versatile Auxiliary Outputs

The SE-4000 allows you to display different views on separate screens at the same event. For instance, you can display PowerPoint presentation content on the center screen, camera images on the left and right screens with overlaid logos, and the speaker in a PIP window overlaid on the presentation content along with a corporate logo on the program screen. With the auxiliary outputs, you can easily achieve all of these and include different effects in your output videos. The four 12G SDI and three HDMI 2.0 output channels form an assignment matrix with the available video sources, giving you the utmost versatility in video production.

Assign different video sources to the 7 output ports



Still image thumbnails

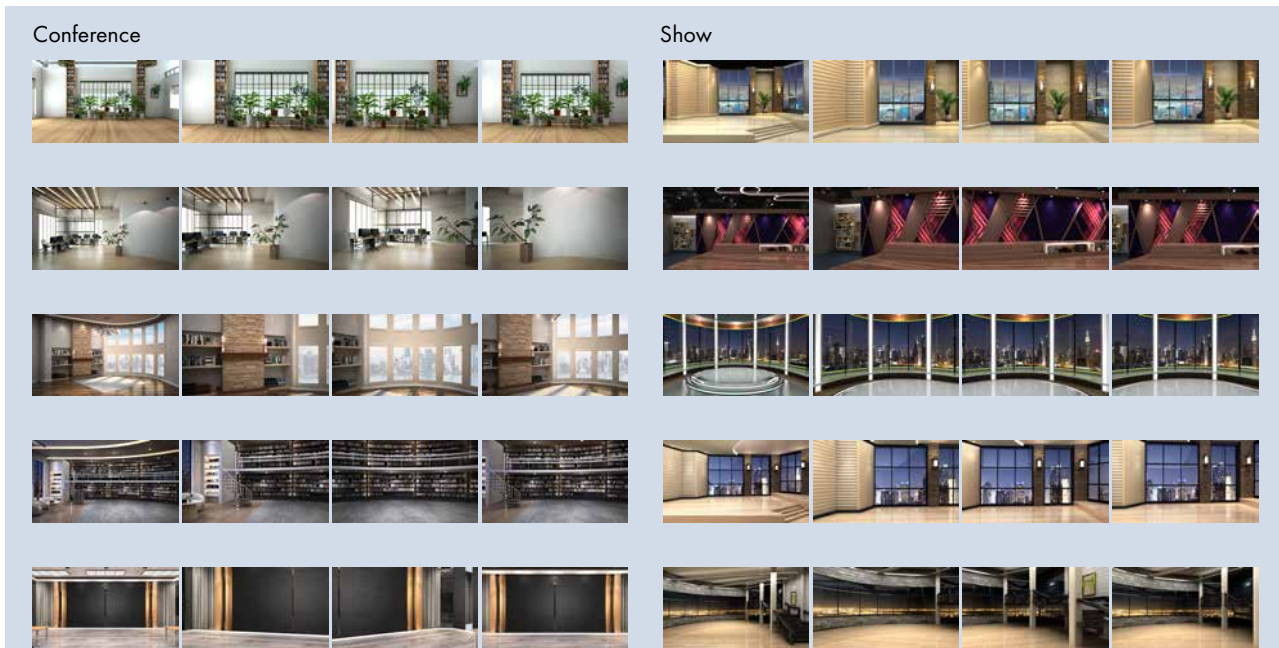


Input channels
Still image thumbnails
Load and Save

Save up to 250 4K still images such as sequential program images, images of various scenarios, full size logos, school or faculty badges, etc. You can also capture important moments of your program and save these images for post-edits. This library of images is a good tool for future video production.

Delete You can show three or eight images on the same page.

Pre-saved 10 virtualsets with each having 4 configurable camera angles; save up to 40 virtualsets.



In addition to user saved still images, the SE-4000 also provides up to 10 sets of or 40 high quality 4K virtualsets for left, front, right and long shot auxiliary cameras. They are designed for video conferences and interview programs. Not only that, the user can visit www.datavideovirtualset.com to download more virtualsets. Different themes for various scenarios are available on the website for download. In addition to the built-in virtualsets, you still have 200+ still image slots for saving extra virtualsets on the SE-4000 for video production.



Feel free to download various virtual scenes from Datavideo's proprietary virtualset website (www.datavideovirtualset.com) on which there are countless virtualset themes covering classrooms, TV news report, interview and finance programs, etc. The virtualsets are created for schools and small to large virtual studios, providing you with a close to real virtual backgrounds and a pleasant experience in virtual program production.

Video Production in an Upgraded Virtual Studio

Settings of four keys

Two sets of DSK settings

Adjustment of transparency, gain, etc.

Chroma key

Luma key

Linear key

Full key

Inversion of luma key color

Auto chroma key

In addition to user saved still images, the SE-4000 also provides up to 10 sets of or 40 high quality 4K virtualsets for left, front, right and long shot auxiliary cameras. They are designed for video conferences and interview programs. Simply set up the green backdrop, lights and cameras, then leave the rest to SE-4000.

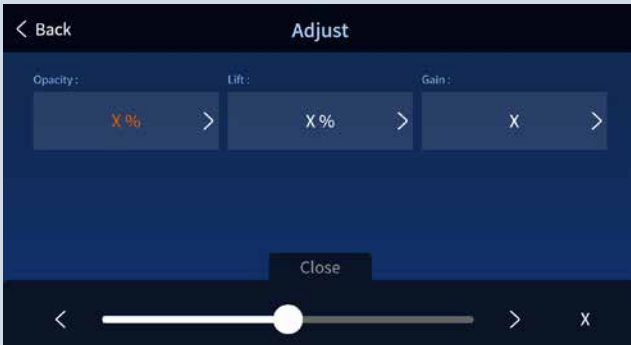
Chroma key

Four input channels on four separate virtualsets to create four virtual output channels

Four ultra high definition camera videos with pre-saved high resolution 3D virtualsets form four separate output channels against a virtual background. The unique versatility will give you a feast of unlimited visual possibilities.

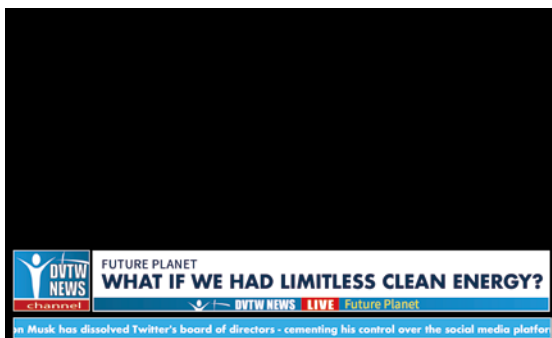
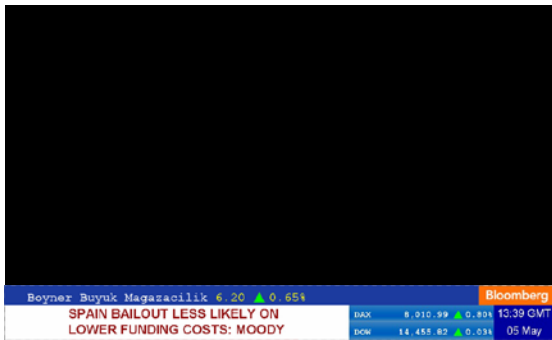


Luma-key, Chroma-key, Linear Key and Downstream Key



Commonly used luma-key and chroma-key, montage linear key and the topmost downstream key layer are crucial elements to upgrading the video program quality. They not only boost the professionalism of your video, they are also easy to use. With a customized combination of these four keyers, they add elegance to your program by generating advanced video effects.

Luma-key



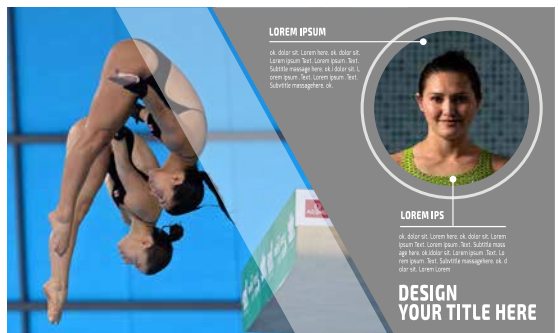
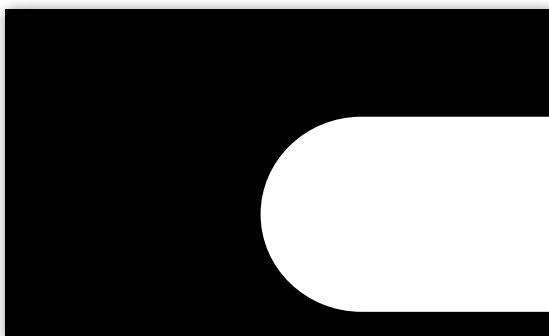
Logo

A Logo as the Program branding

There are two built-in logo channels allowing you to overlay still or animated logos for presentation sessions, product launch events, and training classes. They are a good tool for exposing your corporate to the public and improve team cohesiveness in the workplace.



Linearkey



Cross Point



Keyer Cross Point

Video

Crosspoint

Audio

Crosspoint Audio Settings

INPUT

1 2 3 4 5 6 7 8

VIDEO XPT

1 2 3 4 5 6 7 8 OFF

Select an input channel

Assign to an output channel



XPT - Multiple Assignments at will

The Cross Point function allows you to customize video and audio combinations, providing greater versatility for your Multiview screen.



Projection in a conference hall

TV wall outside a convention center

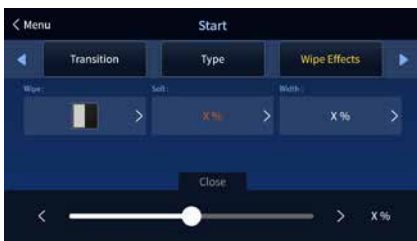
Main menu



The OSD menu is behind the one-button-one-function design

In order to set up the one-button-one-function feature, we've included a color HD 5 inch touch screen. Well-designed icons help you identify settings therein. All menu functions can be found here. You can group multiple functions into one button so you will be able to execute these functions with one tap. The touch panel screen and the physical control panel form the most convenient and efficient user interface.

General Settings



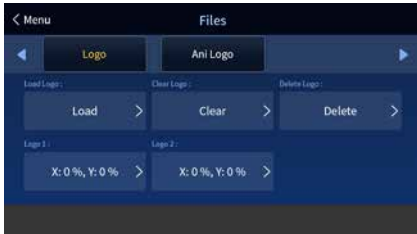
Input Settings



Output Settings



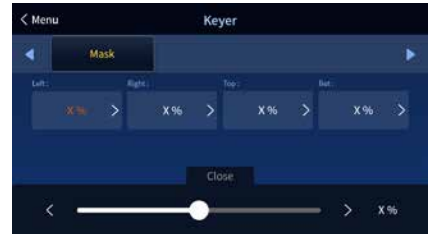
Still and Animated Images



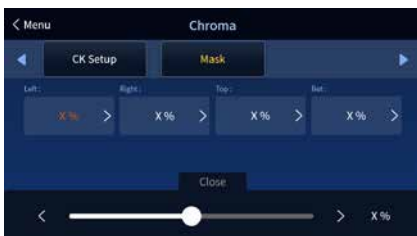
System Setup



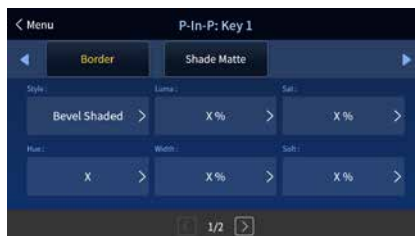
Keys



Chroma



Picture-in-Picture

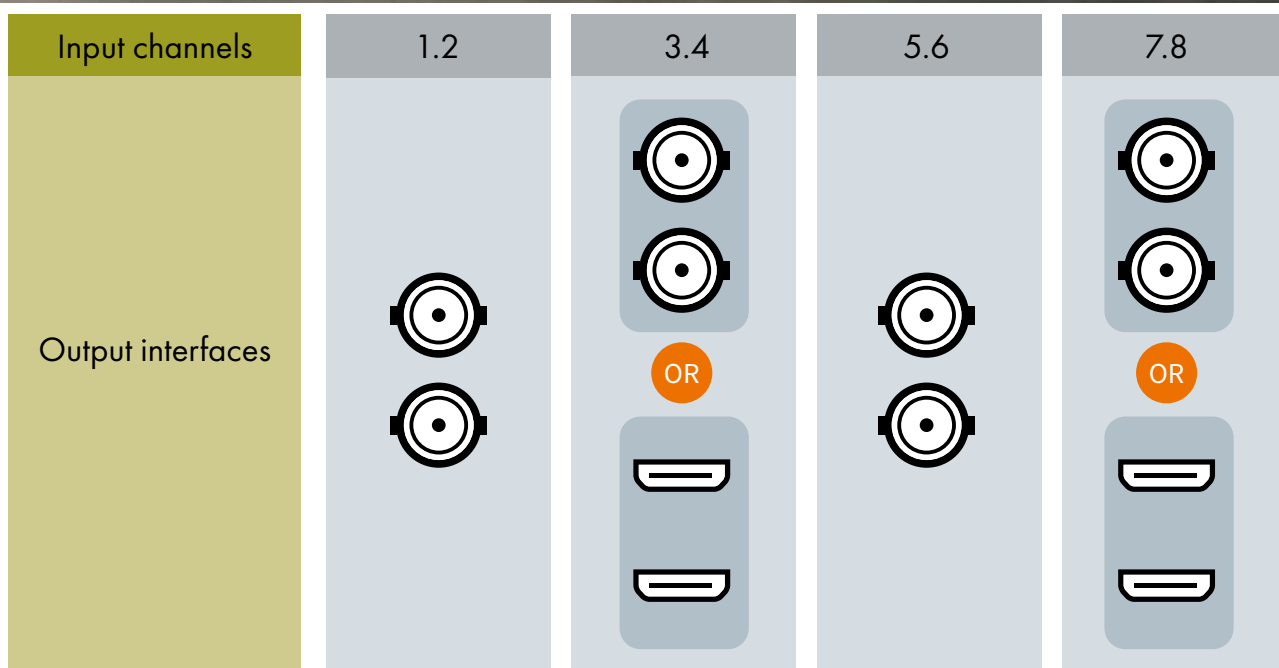


Audio Settings



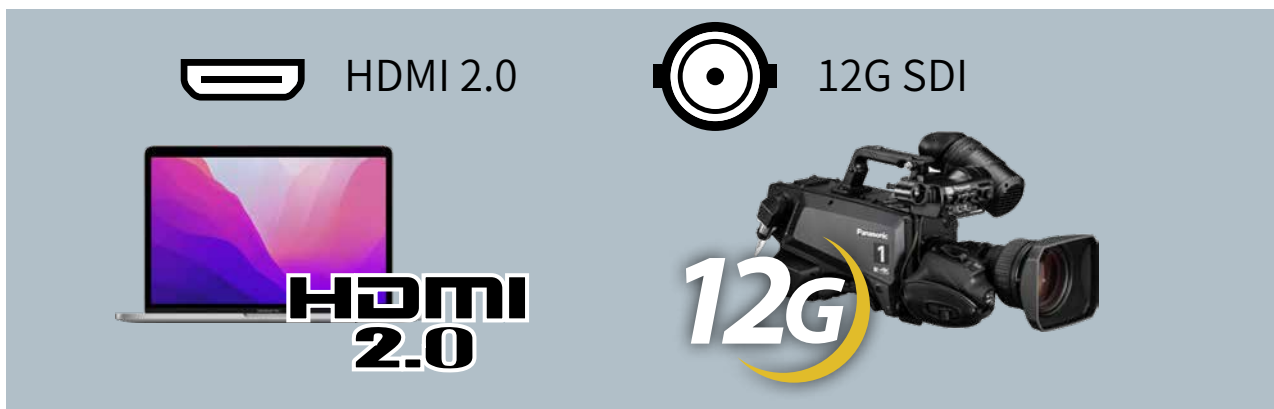
A 12 Channel Application Built upon an 8 Video Switching Design

Responsive and seamless interface switching between 12G SDI and HDMI 2.0 on four shared channels. By upgrading from 8 channels to a 12 channel machine, it adds greater versatility to your hardware connections and more possibilities to live program production.



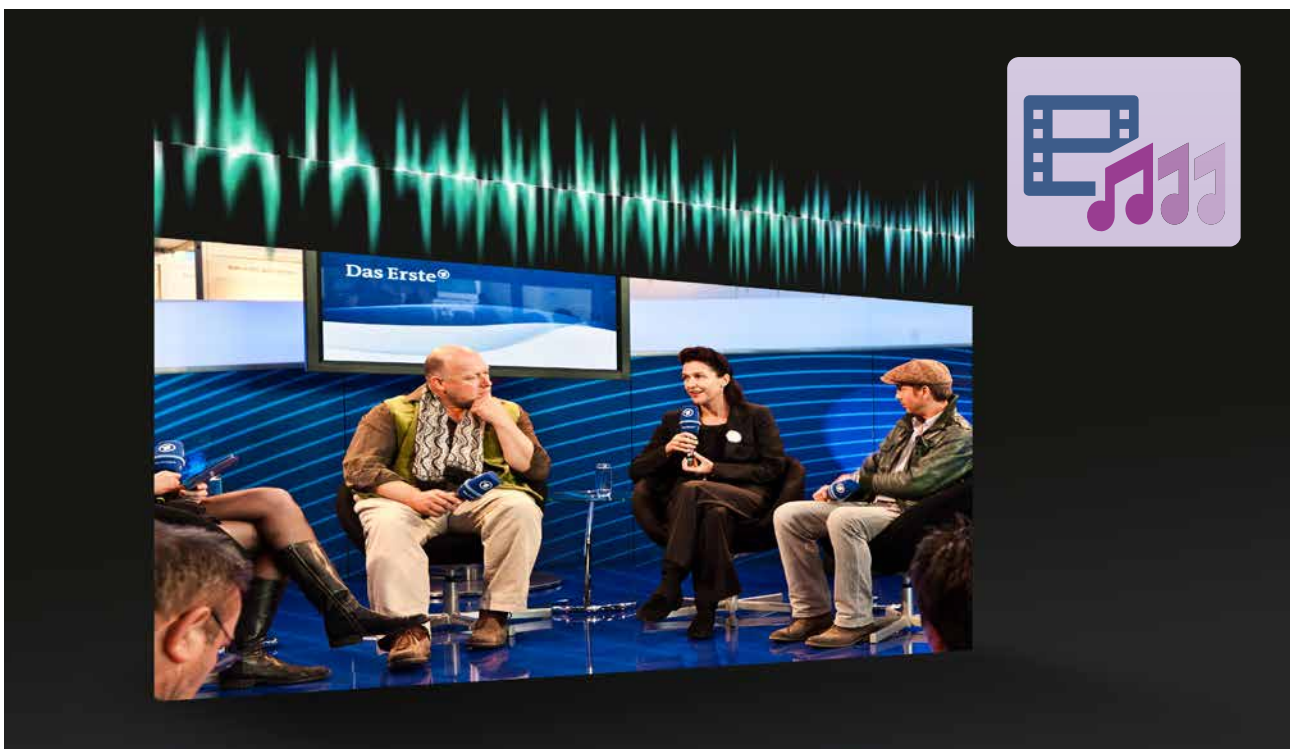
Multiple Interfaces for All Video Types

Fully equipped with various I/O's that accept UHD 4K 50/60p videos from sources such as PCs with an HDMI 2.0 output port, multimedia players, and 12G-SDI ENG style cameras. Upon connection, the 10-bit broadcast quality video will be displayed instantaneously at no expense of resolution, speed and frame rate.



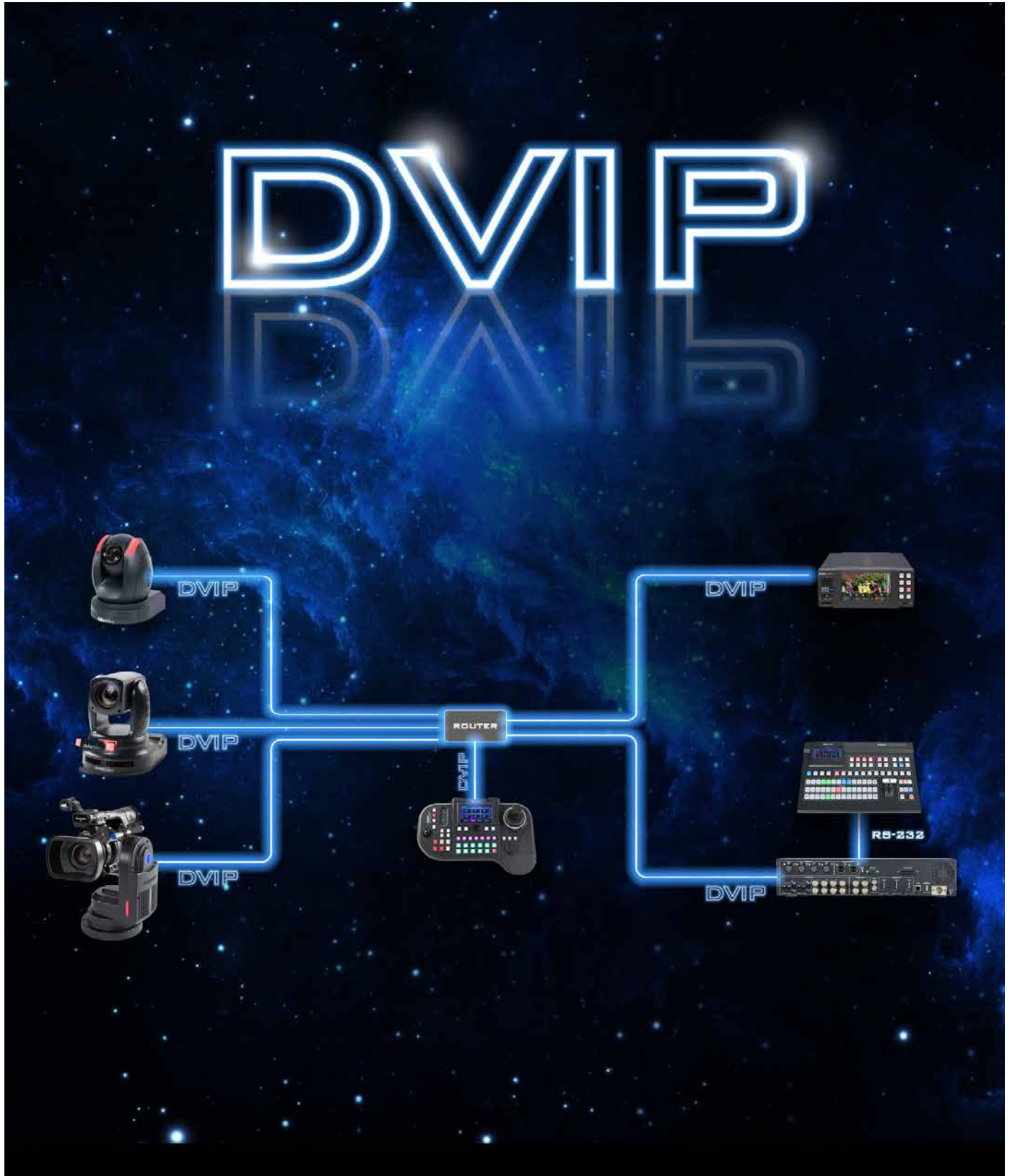
Professional Audio-to-Video Synchronization

There are times when video and audio become out of sync during video production or live video streaming. Most users would feel annoyed when such an issue arises. Videos are usually processed at 25 or 50 frames per second and the audio is delivered in milliseconds. Due to different processing times and network latencies, you will thus receive out of sync video and audio. The SE-4000's professional built-in audio delayer is designed to ensure precise audio-to-video synchronization by delaying and calibrating the audio received. Ultimately, the sound reproduced by stereo speakers should match the video played on the big screen, providing audience with a pleasant viewing experience.



DVIP - The Key to System Integration

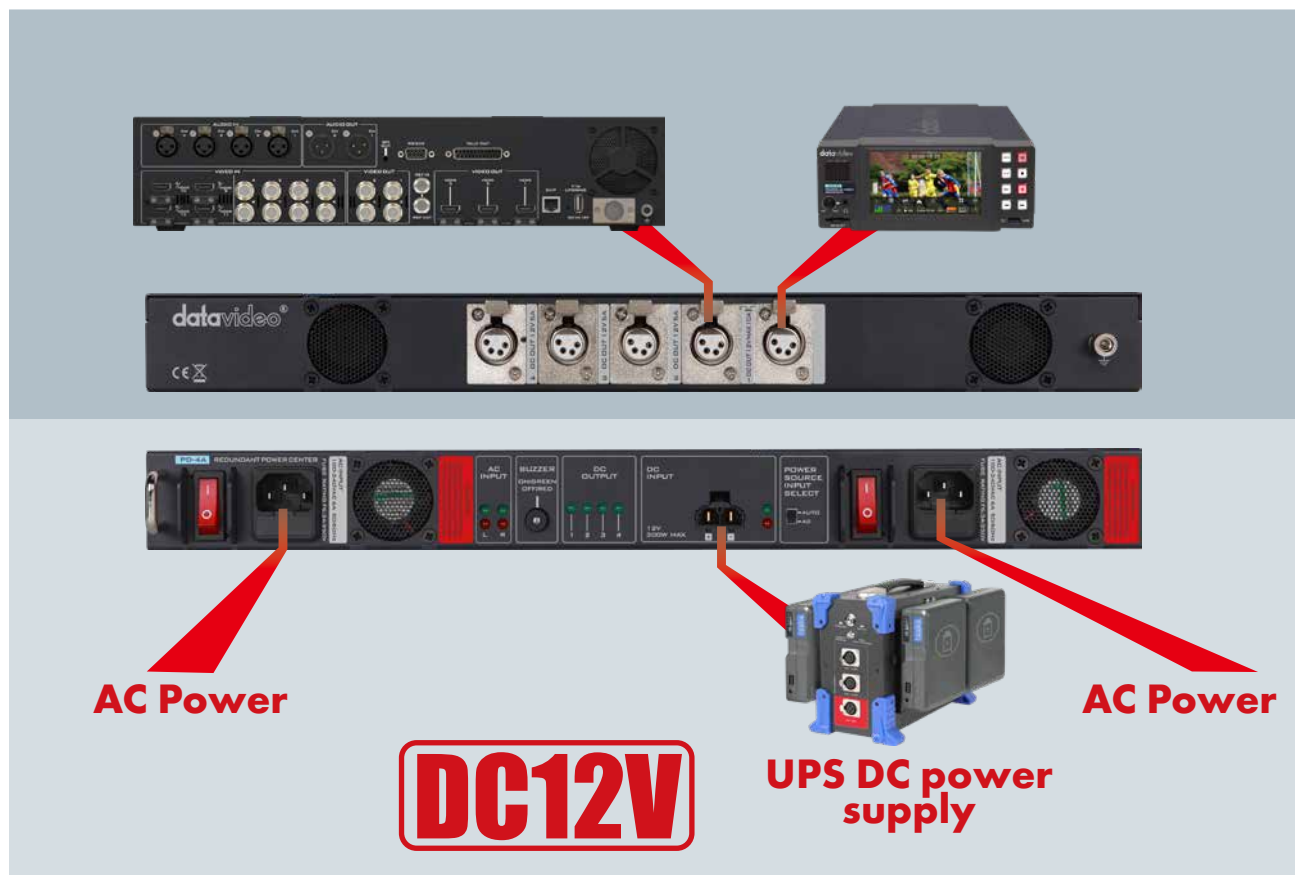
Having a single professional switcher is still not enough for your video production, you still need a standard port that connects a network of external devices such as cameras, recorders, encoders, etc. DVIP is a communication protocol designed for such a purpose. The DVIP port also allows you to connect devices of other manufacturers, thus forming a more comprehensive and easy-to-use system solution.



PD-4A Redundant Power Center

In mid-range and high-end products, the power system is the most critical but easily neglected part of the device. The DC power system is stable and highly efficient with low power consumption. It is also easy to use and safe. Simply connect the SE-4000's power adapter that has a locking mechanism to the 4 pin XLR socket at the rear of the main unit to start supplying sufficient and stable power to the switcher with an ease of mind.

In addition to the supplied power adapter, the latest PD-4A Redundant Power Center designed for applications with a high safety requirement is your another option. It has switchable AC and DC input sources. The dual AC inputs provide extra security to ensure a stable power supply. The PD-4A is thus a great device for various types of system integration in different video production environments. There are also other PD-series power centers. All you need is a power cable to be able to connect all other Datavideo peripheral devices such as MS switchers, OBVs, standalone switchers, monitors, recorders, intercoms, audio mixers, streaming encoders, etc. The power centers simplifies the workflow and are designed to be eco-friendly.

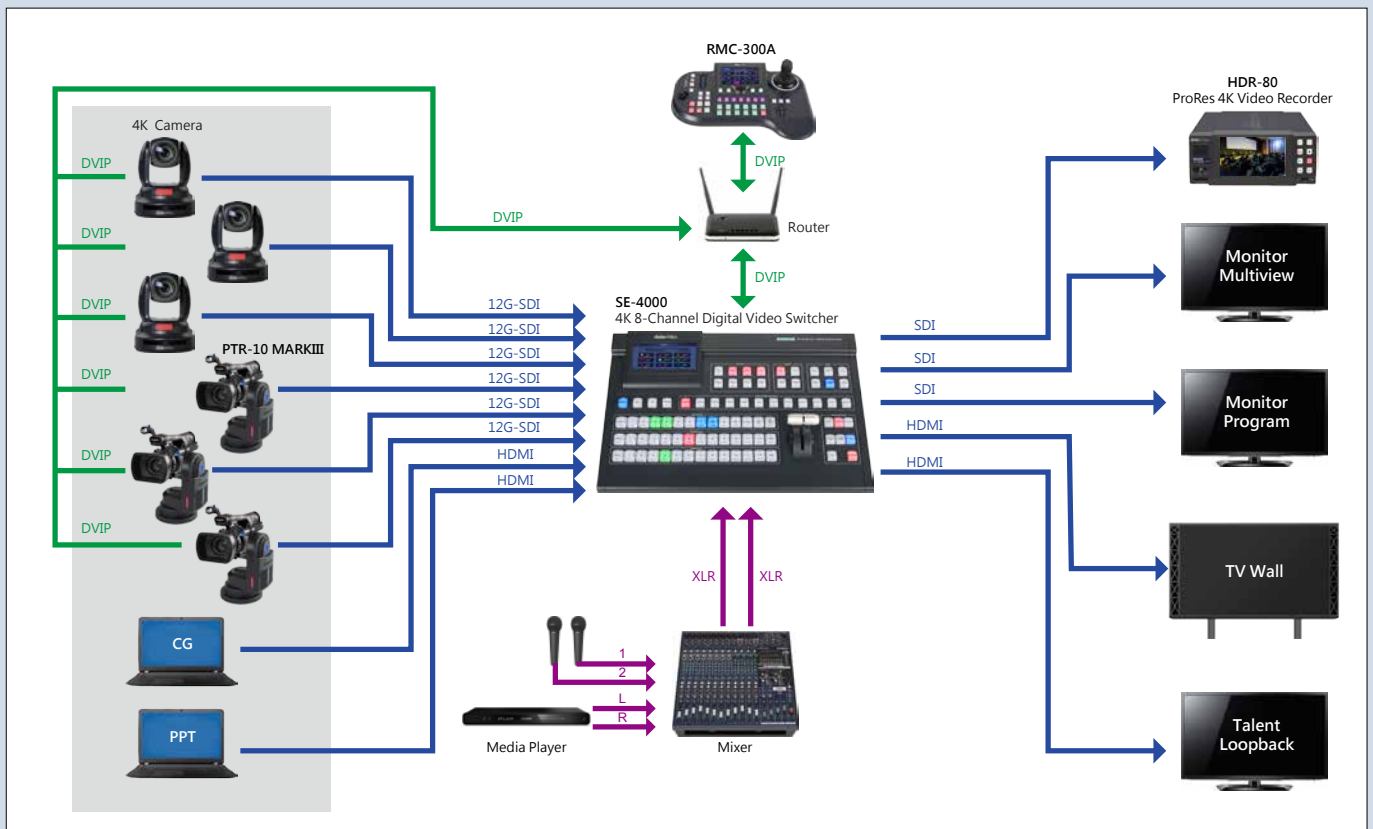
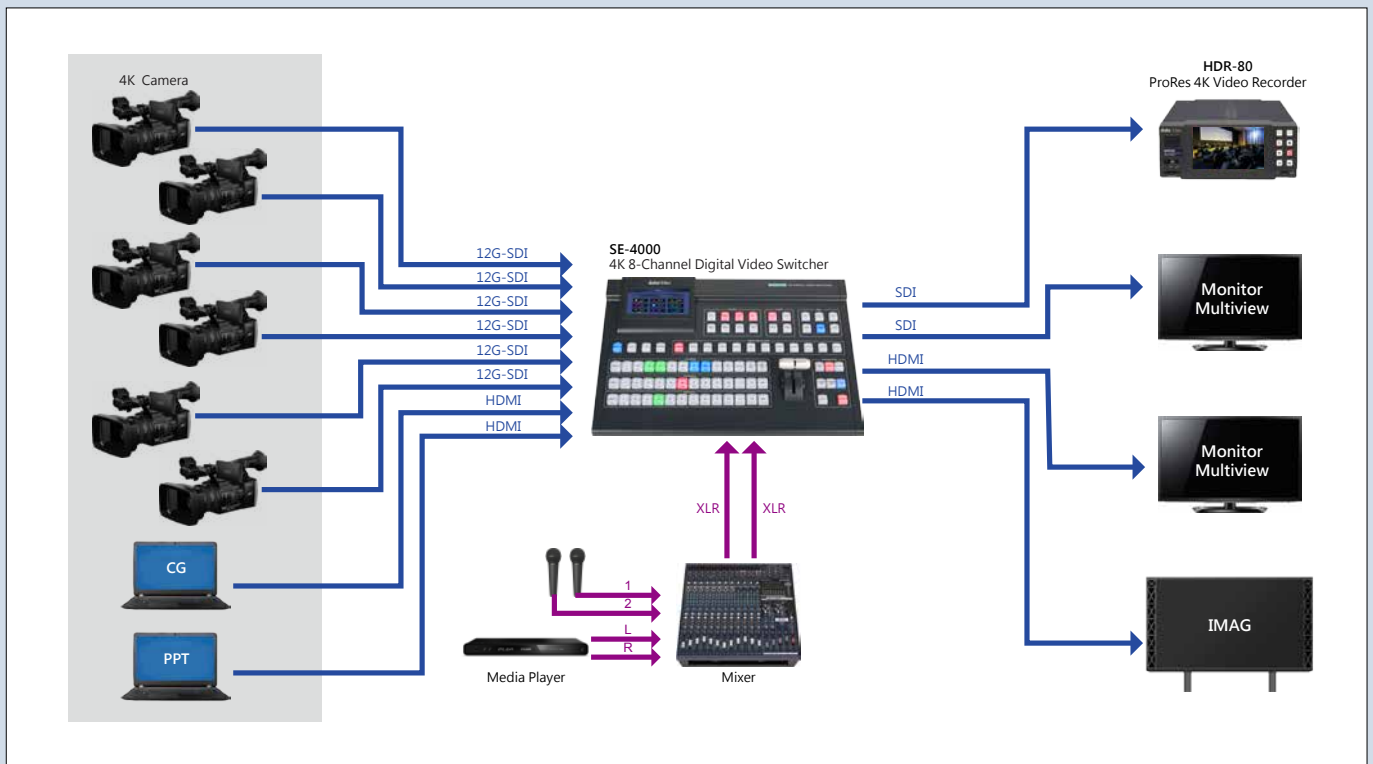


VMC-01 UPS for mounting
backup batteries



If you are experiencing power instability in your video production environment and would like to consider other alternatives, the VMC-01 UPS backup battery could be the option that you are looking for. Simply install four standard V-mount batteries and you can proceed with video production without having to worry about power cut and voltage instability. Leave your power issues to the VMC-01 Uninterruptible Power System and enjoy a worry-free power protection.

System Diagram



Related Products



PTC-280/300

4K 50/60p PTZ Camera

- CMOS Sensor
1/2.5 Inch (PTC-280)
1/1.8 Inch (PTC-300)
- 4K (3840 x 2160, UHD) Resolution
- 12x Optical Zoom (PTC-280)
20x Optical Zoom (PTC-300)
- 1x3G-SDI and 1xHDMI outputs
- Dynamic Noise Reduction
- H.264/H.265 Video Compression for Live Streaming
- DVIP or VISCA Protocol for remote control of cameras
- Use the supplied remote control, Datavideo's RMC-300A and RMC-180 MARK II and APP UI to perform real time control of cameras.
- Supports camera presets



PTC-305

4K AI PTZ Camera

- 4K 50/60 YUV 422 Output
- PTZ camera is equipped with Line IN and 3.5 mm phone jack.
- One push to activate AI tracking which pans, tilts and zooms without human operations.
- Stream to two streaming platforms at the same time.
- 1/1.8" CMOS 20x optical zoom and 16x digital zoom
- 3G-SDI supports LEVEL A/B to provide better device compatibility



RMC-300A

Multi-purpose remote control

- Multi-purpose remote control
- OSD menu on a 5 inch LCD touch screen
- Remote Control via Ethernet and RS-422 ports.
- Connects up to 24 Datavideo PTZ cameras, PTR robotic pan tilt heads and block cameras via DVIP.
- DVIP port to control connected devices and adjust parameters.
- Configurable auto white balance, focus, iris, exposure, one-push white balance, etc.
- Supports tally output
- Use the knob to change the focus and the joystick to set the xy coordinates.



BC-15C/CN

4K POV Camera

- 1/2.3" CMOS Sensor for low light environments
- Standard CS mount for lens replacements
- Supports 4K 50/60p and provides highly efficient H.265/H.264 video recording and streaming.
- Supports DC-IRIS
- Low latency SRT video streaming, supports ultra-low latency cloud switching on dvCloud.
- Supports NDI | HX3 output which seamless connects your camera to an NDI network (BC-15CN)
- Operable using physical buttons, web UI an APP.



BC-15P/PN

4K POV Camera

- 1/2.3" CMOS Sensor with 4K 50/60p video outputs
- BC-15P includes two replaceable lenses
- Specific lens for online games and the supplied standard lens can also be widely used for other applications.
- PoE technology supplies power over Ethernet cables.
- Built-in tally
- Supports SRT streaming protocol so no fear for unstable network environment.
- Light and small to allow flexible installation.
- Supports NDI | HX3 output which seamless connects your camera to an NDI network (BC-15PN)



HDR-80/90

ProRes 4K Recorder

- Large 5" LCD Touch screen for operating and monitoring
- Support ISO recording of four HD videos and playback
- 12G/3G/HD-SDI and 4K/HD-HDMI input, output with embedded audio
- A recorder that can be operated like a 4-channel video switcher
- Records on two 2.5" SSDs
- Supports close caption

Specification

| | |
|------------------------------------|---|
| | 4K 8-Channel Digital Video Switcher |
| Video Standard | 4K |
| Video Format | Input: 3840x2160p: 60/59.94/50/30/29.97/25 1080p: 60/59.94/50/30/29.97/25 Output: 3840x2160p: 60/59.94/50/30/29.97/25 1080p: 60/59.94/50/30/29.97/25 |
| Video Processing | SDI: 4:2:2 10-bit HDMI: YUV 4:2:2 10-bit, RGB: 4:4:4 8/10-bit |
| Input Routable / Crosspoint | YES |
| Video Input | Total 8 live inputs (select 8 from 12) 8 x 12G-SDI 4 x HDMI |
| Mix HD & SD Source | ---- |
| Computer Graphic Interface | 4 via HDMI |
| Video Output | 4 x 12G-SDI / 3 x HDMI all assignable : Multiview, PGM, PVW, PGM+DSK, Clean PGM, Clean PVW, Input 1-12 |
| Down-converted Output | ---- |
| Built-in Multi-view Monitoring Out | HDMI & SDI assignable |
| Analogue Audio Input | 4 x Analogue XLR |
| Analogue Audio Output | 2 x Analogue XLR |
| Digital Embedded Audio Support | Input 4 channels, Output 4 channels |
| Audio Delay Calibration | Up to 16 fields or 8 frames per channel |
| A+V Switching | Yes |
| Chromakey | 4 |
| Title Creator | Yes |
| USK | 4x Keyer support Chromakey/ Linear/ Luma Key |
| DSK | 2x DSK support Lumakey & Linear key (Key / Fill) |
| Picture in Picture | 2 |
| Logo Insertion | 2 |
| Still Store | 250 |
| Effects | FTB, Cut, 32 Wipe with border |
| Transition Preview | Full transitions preview |
| Tally Output | 1 x D-Sub 25pin, dual color |
| PC Remote Control | DVIP (Ethernet) |
| Firmware Update | Ethernet |
| Special Features | 5" Touchscreen Display |
| Chassis | 2 units, 2RU rack-mount mainframe |
| Dimension (LxWxH) | 433 x 314 x 79 mm (switcher) 432 x 250 x 88 mm (main unit) |
| Weight | 7.1 kg |
| Power | Main unit: DC 12V, 126W Control unit: DC 12V 17.3W |
| Operating Temp. Range | 0~40 °C |
| What's in the Box | 1 x SE-4000 Main Unit 1 x SE-4000 Control Board 2 x AD Switch DC 12V 2 x AC Cord 1 x Ethernet Cable 12 x Screw 2 x 2U Ear Rack |



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