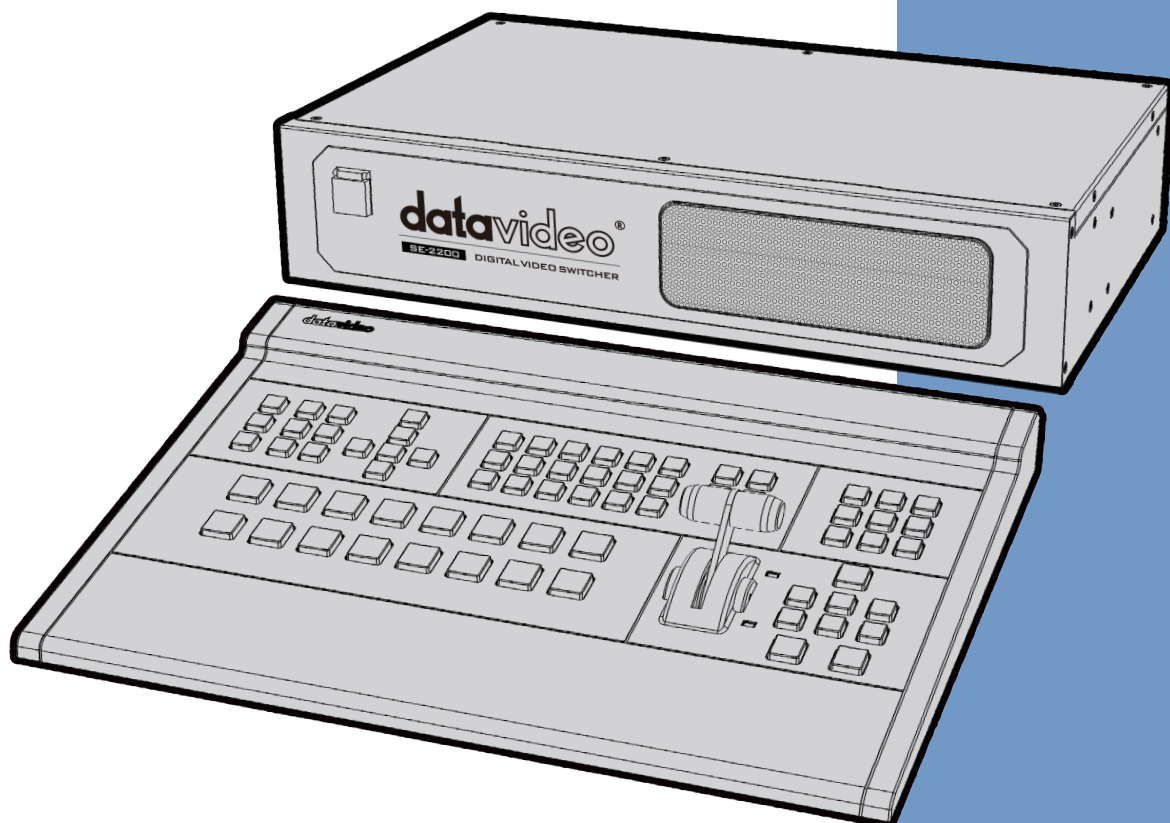


datavideo



**HD/SD 6-CHANNEL
DIGITAL VIDEO SWITCHER**

SE-2200

Instruction manual

www.datavideo.com

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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

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.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.
13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
 - a. When the power cord is damaged or frayed;
 - b. When liquid has spilled into the unit;
 - c. When the product has been exposed to rain or water;
 - d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
 - e. When the product has been dropped or the cabinet has been damaged;
 - f. When the product exhibits a distinct change in performance, indicating a need for service.



Warranty

Standard Warranty

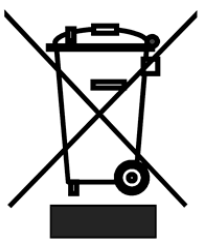
- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period begins on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.
- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.



Disposal



For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.



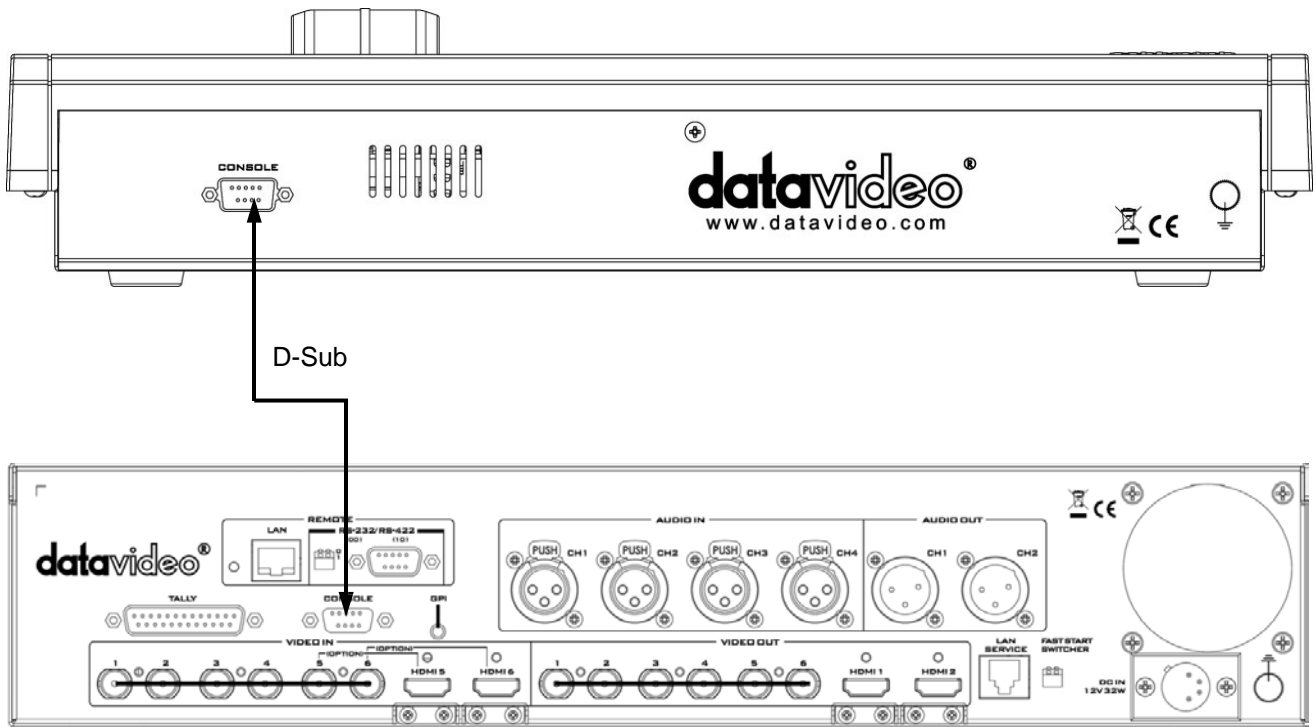
CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Connections and Controls

Connecting the SE-2200 Main Unit to the Control Panel

Use D-SUB Cable to connect SE-2200 main unit to SE-2200 control unit.

SE-2200 Control Panel



SE-2200 Main Unit

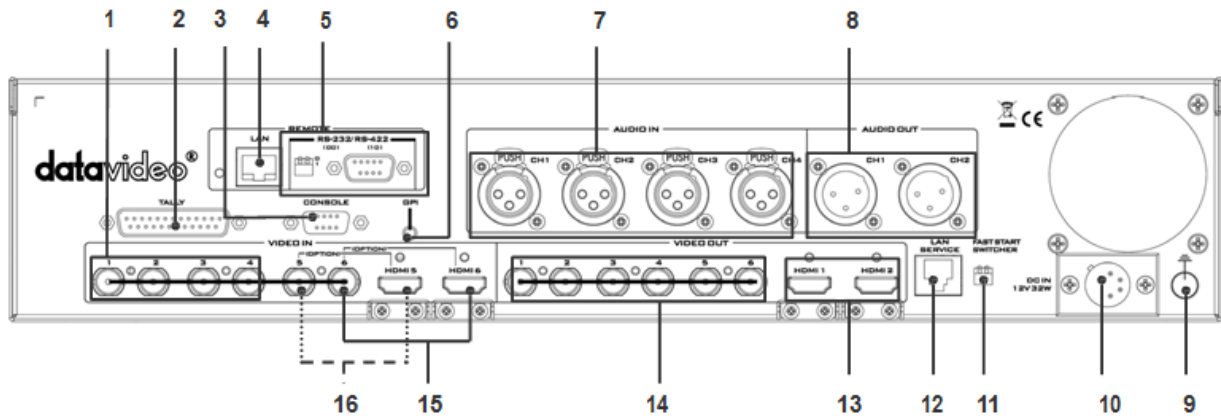
Main Unit – Front Panel



The front panel on the SE-2200 main unit has a grille for airflow cooling fans. Please do not block or cover this grille as the unit may overheat. This grille should also be kept free of dust. The front panel can be removed by using the four thumbscrews. A soft brush or cloth can then be used to clean the grille before attaching it back to the unit.

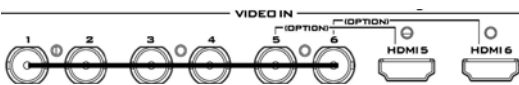
The power button starts and shuts down both the SE-2200 main unit and its attached keyboard.

Main Unit - Rear Panel



- | | |
|----------------------------------------------------|--------------------------------------------|
| 1. Video Input 1~4 – HD-SDI | 9. Grounding Terminal |
| 2. Tally Output Connector | 10. 4pin XLR Power Input Connector (12V) |
| 3. Connect the SE-2200 Keyboard | 11. Mini Switch 2 |
| 4. Ethernet Port for external Control (PC) Updates | 12. Service Port - Load FS file & Firmware |
| 5. RS-232/422 Connector & Mini Switch 1 (TBD) | 13. Multi View Outputs – HDMI |
| 6. GPI Output Connector | 14. Video Output 1~6 – HD-SDI |
| 7. 3pin XLR Audio Inputs 1~4 | 15. Input 6 – HD-SDI / HDMI (User Defined) |
| 8. 3pin XLR Audio Outputs 1 / 2 | 16. Input 5 – HD-SDI / HDMI (User Defined) |

Rear Panel Connections

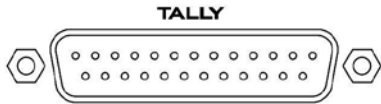


Video Inputs

The SE-2200 can be supplied with up to six video input channels.

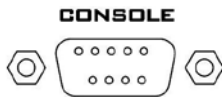
The SE-2200 has six BNC input connectors and two input HDMI ports. Input channels 5 and 6 are optionally set up either as BNC SDI or HDMI.

Note: Please enter the SE-2200 **MENU** system and select **INPUT 5 AND 6 MODE** to choose the required input connection.



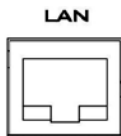
Tally Output

The SE-2200 Tally Output port provides bi-colour tally information to a number of other Datavideo products, such as the ITC-100 eight channel talkback system or the Datavideo TLM range of monitors.



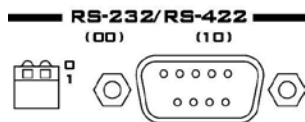
Console Port

This 9pin D-Sub connector is used to connect the Control Panel / Keyboard to the rear of the SE-2200 Main Processing unit.



Ethernet Port

For external PC control only



RS-232 / RS-422 Remote

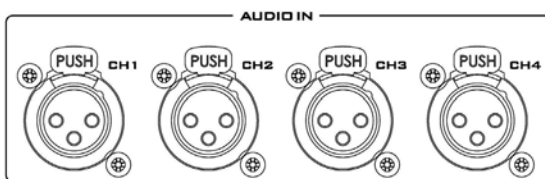
This port is not active under current firmware.



GPI

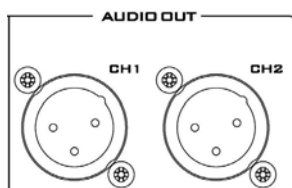
The GPI socket can be used for simple external control.

Note: Please enter the SE-2200 **MENU** system and select **GPI SETTINGS** to set up the required GPI connection.



AUDIO Inputs

Supports four channels XLR Balanced Audio Input for embedding.



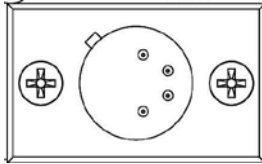
AUDIO Outputs

Supports two channels XLR Balanced Audio output. (de-embedded audio from any of the digital video sources)



Grounding Terminal

When connecting this unit to any other component, make sure that it is properly grounded by connecting this terminal to an appropriate point. When connecting, use the socket and be sure to use wire with a cross-sectional area of at least 1.0 mm².



DC Input

Connect the supplied 12V 3A PSU to this 4pin XLR socket.

Pin 1 = GND (-)

Pin 2 = NC

Pin 3 = NC

Pin 4 = VCC (+)

FAST START SWITCHER

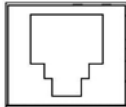


Mini Switch 2

For firmware upgrades, switch both switches to the upper position.

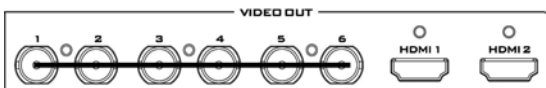
For Fast Start, please select lower position.

LAN SERVICE



Service Port

This RJ45 Ethernet port is used to update the SE-2200 firmware, or upload logos and images using the SEConfig software.

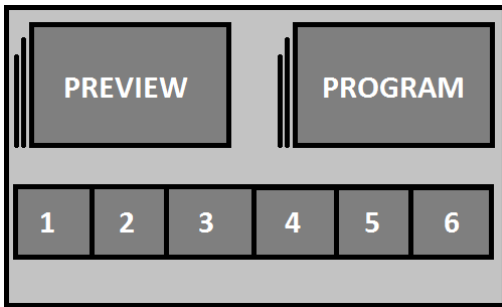


SDI Video Outputs

The six BNC output connectors are user defined SDI outputs. Each of these SDI outputs has the option to be:

1. Program
2. Program logo free
3. Program logo & titles free
4. Preview
5. Aux1, 2, 3 or 4
6. Multi screen

Note: Please enter the SE-2200 MENU and select **OUTPUT SOURCE** to set the output source.

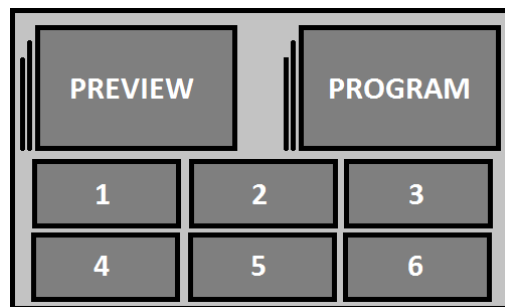
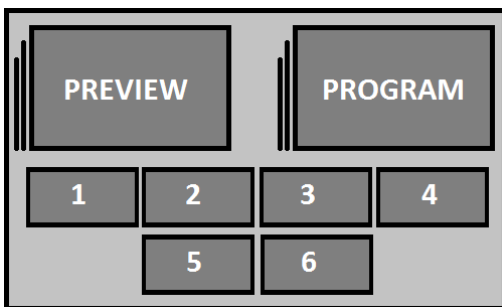


HDMI Multi-View Outputs

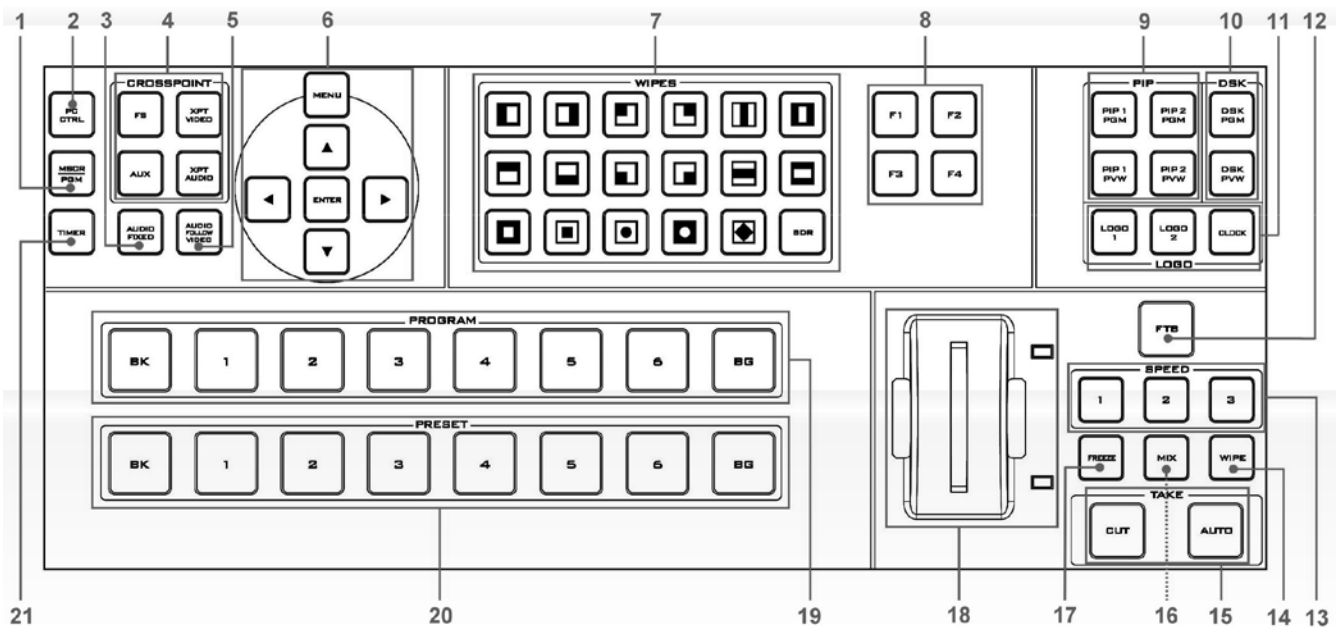
SE-2200 Multi-view monitoring is available across two HDMI monitors. These HDMI outputs can be used to monitor video and audio in a number of different configurations.

This Multi-view is supplied from the HDMI connection(s) on the rear panel. When connected to two compatible HDMI monitors a variety of multi-image layouts is possible.

Note: HDMI multi-view output is 1080i. Note that both HDMI outputs are Identical (cloned).



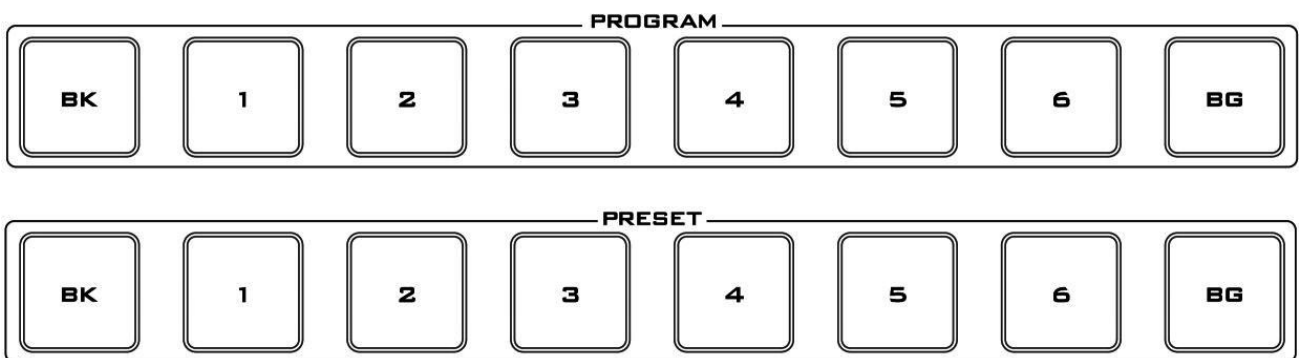
Control Panel Overview



- | | |
|----------------------------------------------|-----------------------------------------------------|
| 1. HDMI Multi Screen [MSCR] or Program [PGM] | 2. PC Control |
| 3. Audio Fixed | 4. Cross Point Video, Audio, Frame Store [FS] & Aux |
| 5. Audio Follows Video | 6. Menu access |

- | | |
|------------------------------------------------|-------------------------------------------------|
| 7. Wipe Transition Selection | 8. Function Keys F1~F4 |
| 9. PIP Selection Preview [PVW] & Program [PGM] | 10. DSK Selection Preview [PVW] & Program [PGM] |
| 11. Logos 1 & 2 and clock selection | 12. Fade to Black [FTB] |
| 13. Speed Selection [Auto Take Transitions] | 14. Wipe Function |
| 15. CUT & AUTO TAKE | 16. Mix / Dissolve Function |
| 17. Freeze Function | 18. T-Bar – Manual Transitions |
| 19. Program row – On Air | 20. Preset Row – Preview / Next source |
| 21. Timer Function – Multi view only | |

Keyboard Controls



Program and Preset rows

The Program row of buttons is the active channel, this is the live output. The active channel will appear as the Program Output. You can switch or CUT from one video source to another directly on the Program row. You will see the multi view Program output change as you press different keys along this top row of buttons.

The Preset row is the cued channel; this channel will appear in the Preview window. The Preset row selection decides which input will be transitioned next when using any of the transition controls.



BK

Black background – the black background, for use on the Program and Preset row.



BG

Background button – assigns a background colour or colour bars for use on the Program and Preset row.

Note: Please enter the SE-2200 MENU and select **CONSOLE SETTINGS** to set the background colour.



MSCR/PGM

Switch HDMI outputs between Multi Screen [MSCR] view and Program [PGM] view.



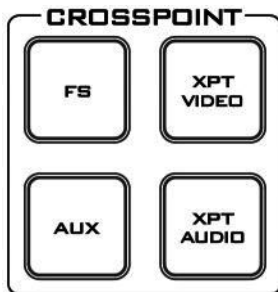
PC Control

Press this key, to allow a computer to remotely control the SE-2200, or when using the supplied SEConfig software to load Frame Store [FS] stills and Logos.



Audio Fixed

For more detail, please see the [AUDIO FIXED](#) section.



FS – Frame Store Button

The SE-2200 CH1~6 video channels, each of these channels has its own Frame Store. Each of these Frame Stores can hold one still image. This still image can be called into the production by using the FS button located at the top left corner of the SE-2200 Control Panel / Keyboard. The FS button allows the user to toggle between the still image of the Frame Store or the live video input also connected to that same video channel.

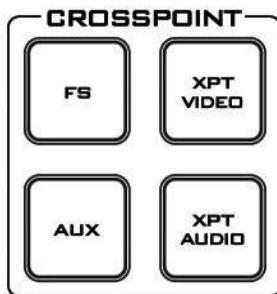
How to choose live video input or Frame Store

1. First press and hold down the **FS** button. The Preset row of input sources will light.
2. While still holding down the **FS** button, press the required input on the Preset row.
3. The input button will flash to confirm the Frame Store is selected.

The contents of each Frame Store are uploaded to the SE-2200 from a PC.

The supplied SEConfig software is used to do this.

This selection will also be confirmed on the HDMI Multi-view, with the selected channel showing the live input or frame store image.



AUX Source Selection

The SE-2200 has four user defined AUX SDI outputs; one or all of these outputs can be set up as an auxiliary (AUX) output via a menu option.

The AUX output source can be quickly selected in the following way.

1. First press and hold down the **AUX** button. The Program row of input sources will light.

2. While still holding down the **AUX** button, press the required input on the Program row*. The Preset row of input sources will light.
 3. While still holding down the **AUX** button, press the required input on the Preset row.
 4. The input button will flash to confirm the AUX source is selected.
- *Repeat this for the other aux output if required.

XPT Video

Assigning video source, channel setting depended on your selection.

The XPT Video source can be quickly selected in the following way.

1. First press and hold down the **XPT VIDEO** button. The Program row of input sources will light.
2. While still holding down this **XPT VIDEO** button, press the required input on the Program row. The Preset row of input sources will light.
3. While still holding down the **XPT VIDEO** button, press the required input on the Preset row.
4. The input button will flash to confirm the video source is selected.

XPT Audio

Assigning audio source, channel setting depended on your selection.

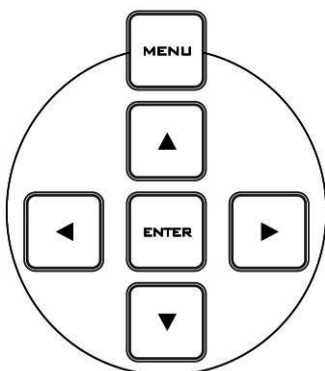
The XPT Audio source can be quickly selected in the following way.

1. First press and hold down the **XPT AUDIO** button. The Program row of input sources will light.
2. While still holding down this **XPT AUDIO** button, press the required input on the Program row. The Preset row of input sources will light.
3. While still holding down the **XPT AUDIO** button, press the required input on the Preset row.
4. The input button will flash to confirm the audio source is selected.



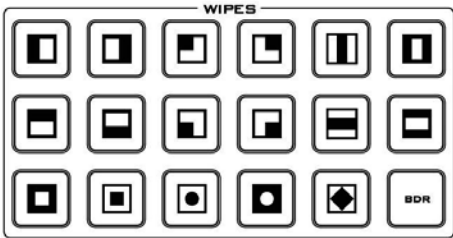
Audio Follow Video

For more detail, please see the [AUDIO FOLLOW VIDEO](#) section.



Menu Control

Press the **MENU** button in the SE-2200 function section to enter the System Configuration Menu. Press the **UP**, **DOWN**, **LEFT**, and **RIGHT** arrow buttons to navigate the menu options and to change values. Use the **ENTER** button to save and confirm any setting that has been amended.



WIPES

The SE-2200 has 17 user defined wipe buttons, and a **BDR** button.

All wipes can have an optional colour border applied. The wipe border width and colour are chosen within the menu system.

Transitions can be performed manually using the T-Bar or automatically by using the **SPEED** and **AUTO TAKE** buttons.



Vertical Wipe Left to Right.



Vertical Wipe Right to Left.



Horizontal Wipe Top to Bottom.



Horizontal Wipe Bottom to Top.



Box Wipe from outside edges to Centre.



Box Wipe from Centre to outside edges.



Upper Left corner Wipe to Lower Right corner



Upper Right corner Wipe to Lower Left corner



Lower Left corner Wipe to Upper Right corner



Lower Right corner Wipe to Upper Left corner



Circle Wipe from Centre to outside edges



Circle Wipe from outside edges to Centre



Vertical Wipes from Centre to Left and Right sides



Vertical Wipes from Left and Right sides to Centre



Horizontal Wipes from Centre to Top and Bottom



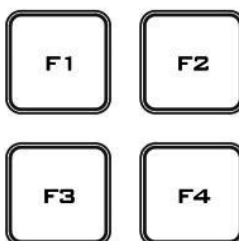
Horizontal Wipes from Top and Bottom to Centre



Diamond Wipe from Centre to outside edges

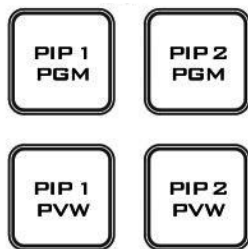


Border: Enable / Disable wipe border



FUNCTION buttons (F1~F4)

These function buttons are not yet active under the current firmware.



PIP Preview and PIP Program

When looking at the top right corner of the SE-2200 Control Panel / Keyboard there are four PIP keys. These are labelled Program and Preview. The upper PIP1 and PIP2 keys relate to activating Picture In Picture images on the Program outputs. The lower PIP1 and PIP2 keys relate to activating Picture In Picture images on the Multi-view and Preview outputs (as well as allowing the assigning of a PIP source)

For more detail, please see the **Picture in Picture Function**.



DSK Preview and DSK Program

When looking at the top right corner of the SE-2200 Control Panel / Keyboard there are two DSK keys. These are labelled Program and Preview. The upper DSK key relates to activating Down Stream Keying on the Program outputs. The lower DSK key relate to activating Down Stream Keying on the Multi-view or Preview outputs. (as well as allowing the assigning of the key source)

For more detail, please see the **DSK Function**.



LOGO 1

The LOGO 1 and LOGO 2 buttons are used to display pre-selected logos on the SE-2200 Preview and Program outputs. When the button is active the selected logo is shown. These logos are selected from the switcher's memory and positioned using a menu option.

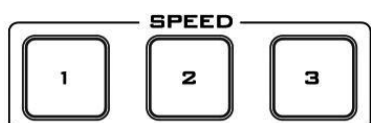
LOGO 2 or CLOCK

The user cannot display LOGO 2 and CLOCK at the same time. Instead use LOGO 1 and CLOCK together or use LOGO 1 and LOGO 2 together.



FTB

Fade To Black, this button fades the current video program source to black. When pressed again it acts in reverse from complete black to the currently selected program video source.



SPEED

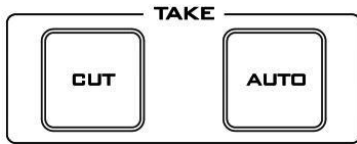
There are three speed buttons which can be defined by the user. By pressing a speed button the user is choosing the rate of transition or time taken when using the AUTO TAKE button.

Note: Please enter the SE-2200 MENU and select **CONSOLE SETTINGS** to set up **SPEED BUTTON SETTING**.



WIPE

The WIPE button is selected when a wipe effect transition between the selected Program and Preset sources is required. This WIPE effect is produced by then moving the T-Bar manually or by pressing the AUTO TRANS button.



CUT

This performs a simple immediate switch from the current main source to the selected sub source. The selected transition wipe or MIX is not used.

AUTO TAKE

This performs an automated switch from the current program source to the selected Preview source. The selected transition wipe or MIX will also be used. The timing of the transition is set by the chosen Speed button.



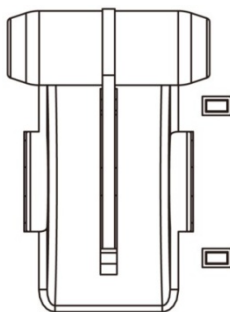
MIX

Pressing this button selects a basic A/B Dissolve for the next transition.



FREEZE

Freeze the program source image or return to live video of the selected program source. Press and hold down this button and the Preset bus will light. While pressing this button select the desired channel to grab a still or frozen image.



T-Bar

This performs a manually controlled transition from the current program source to the selected Preset source. The selected transition wipe or dissolve will be used. When the T-Bar has travelled as far as it can go the transition between sources is complete. The T-Bar has indicators next to it which light when the transition is complete.

The T-Bar can be operated in one of two modes which are chosen by a menu option.



TIMER

In some mixing or switching applications it is useful to have a countdown timer. It could be that the input is a pre-recorded video clip and you need to know when to be ready to switch away from it.

This countdown timer function is only seen in the status area of the HDMI multi-view output near the normal Clock function. The timer can be selected for one input channel, several channels or all channels.

When the TIMER button is active and the user switches to a selected input channel the countdown starts on the HDMI multi-view.

The value of the countdown is set in Minutes and Seconds (MM:SS). A maximum countdown of sixty minutes [60:00] is possible. However, the initial default is 15 seconds [00:15].

When the countdown reaches zero, the user must then switch or transition to another input channel.

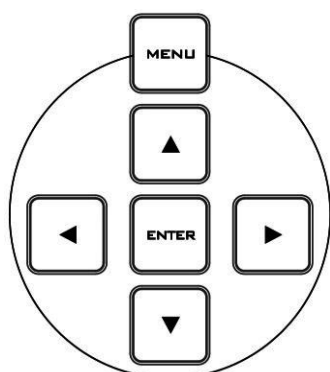
The switcher will not automatically change to the selected Preset source at the end of the countdown.

How to set up the TIMER Countdown Settings

1. On the switcher's keyboard, select the video source to be set up for TIMER on the **PRESET** row.
2. Press the **MENU** key and select the **ON PREVIEW SETTING** to find the **COUNT DOWN SETTING**.
3. **Count Down is on** can be switched ON or OFF.
4. **Count Down Value** can be set to the required length of time in Minutes and Seconds [MM:SS].
5. Press the **ENTER** key to save your chosen settings, and then exit the **MENU** Mode.
6. Press the **TIMER** key so it is on and then transition to the chosen PRESET channel. The countdown will start in the status area near the clock function.
7. Select the next source that needs to be set up for countdown timer on the PRESET row by following steps 2 to 6.

Note: The Count Down will only start if the selected Preset and Program sources are different. The Count Down will not start if Program and Preset sources are both set for the same input.

Menu Options



When the **ENTER** button is pressed the Main Menu list is displayed on the HDMI 1 Multi-view output.

This section covers the Menu options in the order that they appear on the SE-2200 HDMI 1 Multi-view. These settings may also appear in more detail elsewhere in this instruction manual. Options may vary depending on the firmware version in use.

Once the chosen setting has been confirmed with the **ENTER** button it is stored within the switchers non-volatile memory.

** The following menu table applies when the switcher is in HD 1080i mode.*

Version No		Where xx.xx is the version number		
1	Mode (Video Format)	1080i or 720P		
2	On Preview settings	Video input adjustment	Brightness	Range 072 to 184
			Contrast	Range 36 to 92
			Saturation	Range 36 to 92
			Aperture	0~3
			Y-C Delay	0~7
		Set to Nominal	Reset to default values	
		Audio input adjustment	Level	-60 ~ +60
Set to Nominal	Tick to reset			
	Count Down Settings	Count Down is on	See Timer section on page 15.	
		Count Down Value	Value is set in minutes and seconds [MM:SS] Default 15 sec or 00:15 Max 1 hour or 60:00	
3	Inputs 5 and 6 mode	Input 5	SDI	Tick and enter to select
			HDMI	Tick and enter to select
		Input 6	HDMI Color Mode	RGB YUV 422 Tick to select YUV 444 TC-200 mode
4	Output Sources	Output 1~6	User has a choice of: Program Program Logo Free Program Logo & DSK Free Preview Aux 1~4 Multi Screen	
5	Aux Selection	Aux 1~4	Inputs 1~6	
6	Audio Settings	Dynamic Range (dB)	18 or 24	
		Audio Crosspoints	Input 1~6	Value 1~6
		SDI de-embed Audio	Input 1~6	Group 1~4 & Pair 1 or 2
		HDMI de-embed Audio	Input 5 or Input 6	Pair 1, 2, 3 or 4
		Audio re-embed setup	Output 1~6	Pair 1, 2, 3 or 4
Audio Mixing Type	X type or Y Type	Tick to select		
7	PIP Settings	PIP 1	Horizontal Position	000~107

		PIP 2	Vertical Position	000~108
			Window size	01~33
			Border Width	00~35
			Border Color	01~08
8	Logo Settings	Logo 1 Logo 2	Logo Selection	1~8
			Horizontal Position	000~110
			Vertical Position	000~124
9	Clock Settings	Horizontal Position	000~110	
		Vertical Position	000~124	
		Set Hours	00~24	
		Set Minutes	00~59	
		Clear seconds		
10	DSK Settings	DSK Luma Key Mode Luma Key Level	See DSK section	
11	Wipe Border Settings	Wipe 1~17	Width	0~4
			Color	1~8
12	Multi Screen Setup	Multi Screen Mode	Variant A/ B/ C See Multi Screen mode section below	
		Multi Screen Audio setup	Preview/ Program Audio	
		Audio Level Indicator	ON/ OFF	
13	Console Settings	T-Bar Audio Mixing Type	Follow T-Bar / By the END	
		T-Bar Mode	One way mode / Two way mode	
		Speed Button Setting	Speed 1/ 2/ 3	4 ~ 64 Frames
		BG Button Color	1 ~ 9 where 9 = colour bars	
		Button Settings	Brightness	000 ~ 004
			Backlight is on	On/ Off
		1KHz to Bars	On/ Off	
14	GPI Settings	Input Select	0 ~ 6 Channel 1~6 0=GPI function disabled	
		Time Delay Mode	01 ~ 75 Delay time can be set between 1 ~ 75 frames Level Pulse	
15	Remote Control	Ethernet DVIP Board	Tick to select	
16	Factory Settings	Tick selection to enable – Reset all menu settings to factory default values		

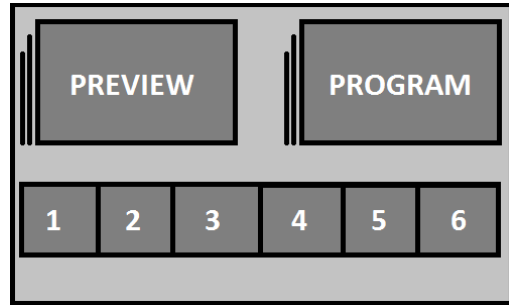
Multi Screen modes

The SE-2200 HDMI Multi view outputs can be configured using menu option **12. Multi Screen Setup**.

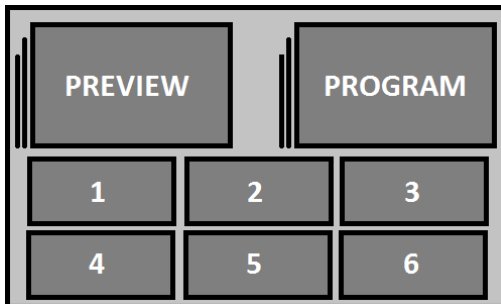
Three Multi Screen layouts are available, variant A, B or C.

This Multi Screen output can also be assigned to any of the six SDI outputs using menu option **4. Output Sources**.

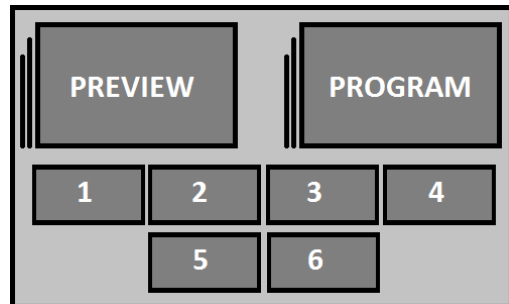
Multi Screen - Variant A



Multi Screen - Variant B



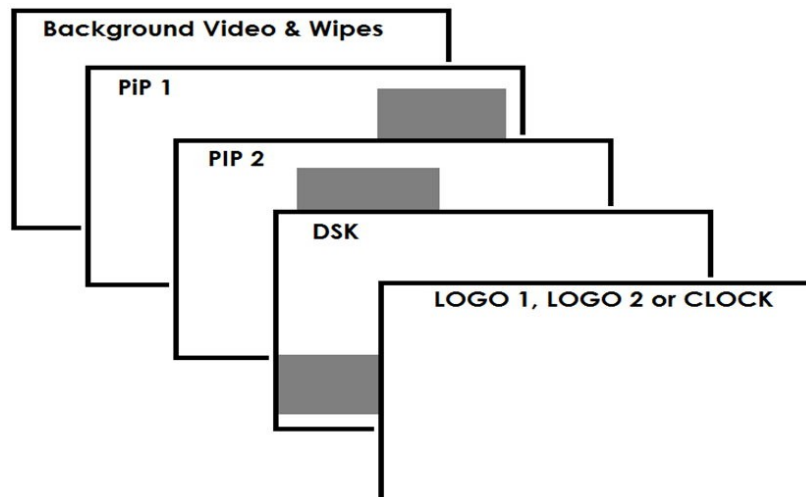
Multi Screen - Variant C



SE-2200 Video Layers

The SE-2200 is a Standard Definition or High Definition Digital Video Switcher and as well as mixing video and audio sources it has additional functions such as Picture in Picture (PIP), DSK LUMA KEY and LOGOs.

Before attempting to use the SE-2200's PIP, DSK LUMA KEY and LOGO functions it may help to first understand the order of the video layers at the SE-2200 Program (PGM) outputs.



The **Background video layer** is the normal video layer when mixing and switching with the SE-2200. It occupies the whole screen area of the Program output. This layer can be hidden or part hidden by the PIP, DSK and LOGO layers in front of it.

The **PIP 1 layer** does not occupy the whole screen and is shown in front of the Background video layer when enabled. In some setups the PIP 1 image can be hidden behind the PIP 2 image. This is not a fault. Change the position or size of the PIP 1 or PIP 2 image if required.

The **PIP 2 layer** does not occupy the whole screen and is shown in front of the Background video and PIP 1 layers when enabled. In some setups the PIP 1 image can hide the PIP 2 image. Change the position or size of the PIP 2 or PIP 1 image if required.

The **DSK layer** can occupy the whole screen. If set up incorrectly this layer can stop the video layers behind it from being seen properly. Re-adjust your DSK 1 settings or switch off the DSK1 function on the SE-2200 to restore the video behind it.

The **LOGO and Clock layer** does not occupy the whole screen and all other layers are visible through it. A logo if positioned incorrectly can partially hide an important part of the video, PIP or CG LUMA KEY layers. Typically logos or station ID bugs are placed in a corner of the screen.

NB: Where possible prepare and position the upper video layer elements in advance of the live production starting to avoid them appearing on the program output incorrectly.

Most broadcast networks have guidelines and advice on the use of video, images, music, logos and on screen text so it is best to check beforehand when planning a production. Do not use copyright protected content until you have the relevant permissions. Information on royalty free video, images and music is widely available, speak to your local dealer or search for advice on the internet.

Picture in Picture Function

The SE-2200 Picture in Picture function allows you to place one or two smaller PIP images over a chosen full size background image. The smaller PIP images can be set to pre-defined sizes and positioned almost anywhere within the Preset/Program screen area. These PIP windows can also have a coloured border applied, and can be brought into the production with a default PIP dissolve transition.

PIP Settings

Before trying to activate the PIP function it is best to understand how to set up or choose the right options for your production. Press the **ENTER Key** in the **MENU** area of the SE-2200 keyboard. Navigate to the **PIP Settings** option using the down arrow key. The PIP menu options provided here are:

PIP Settings	PIP1	Horizontal Position	= 000 to 107 (Left to right)
	PIP2	Vertical Position	= 000 to 108 (Lower to Upper)
Window Size		= 1 (small) to 33 (large)	
Border Width		= 0 (OFF), 1 (Thin) to 5 (Thick)	
		Border Color	1 = White, 2 = Yellow, 3 = Light Blue, 4 = Green, 5 = Purple, 6 = Red, 7 = Dark Blue, 8 = Black.

PIP Preset and PIP Program

When looking at the top right corner of the SE-2200 Control Panel / Keyboard there are four PIP keys. These are labelled Program and Preset.

The upper PIP1 and PIP2 keys relate to activating Picture In Picture images on the Program outputs.

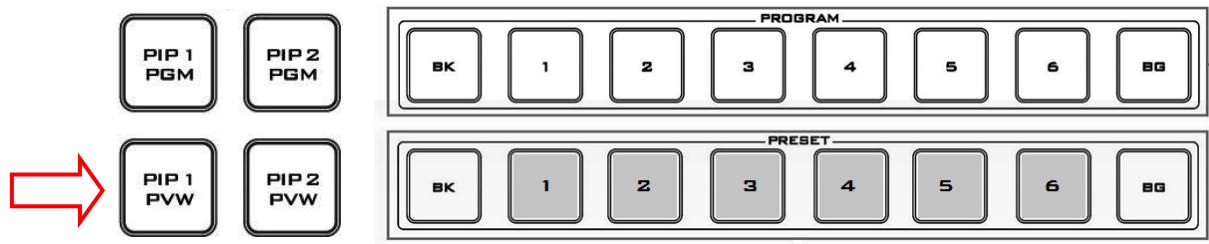
The lower PIP1 and PIP2 keys relate to activating Picture In Picture images on the Multi-view or Preview outputs.

Assigning a video source input to a PIP

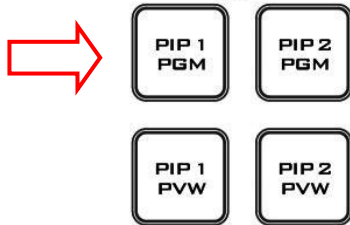
Using the lower PIP1 or PIP2 PVW buttons you can assign a selected video input to the chosen PIP video layer.

1. First press and hold down the required PIP PVW button on the lower row. The Preset row of input sources will light.
2. While still holding down the PIP PVW button, press to select the required video input from the Preset row.
3. The input button will flash to confirm it is selected.

This selection will also be confirmed on the HDMI Multi-view, with a PIP1 or PIP2 label shown next to the selected input image.



4. Pressing PIP PGM will take the chosen PIP1 or PIP2 to air with a fade in transition.



DSK Function

The SE-2200 has two Down Stream buttons (**DSK PGM**, **DSK PVW**). This means it is able to take a key source video input and replace the white or black parts of this image with the video from another source. If the input video carries an alpha channel it is also possible to key in this way too.

DSK Settings

Before trying to activate the DSK function it is best to understand how to set up or choose the right options for your production well in advance of the production.

Press the **ENTER Key** in the **MENU** area of the SE-2200 keyboard. Navigate to the **DSK Settings** option using the down arrow key. The DSK menu options provided here are:

DSK Settings	Titles + α Channel [DSK] Luma Key Mode Luma Key Level	Luma Key Level 0 (black) to 255 (white)
--------------	--------------------------------------------------------------	-----------------------------------------

DSK PVW and DSK PGM

When looking at the top right corner of the SE-2200 Control Panel / Keyboard there are two DSK buttons. These are labelled Program and Preset.

The upper DSK PGM key relate to activating Down Stream Keying on the Program outputs.

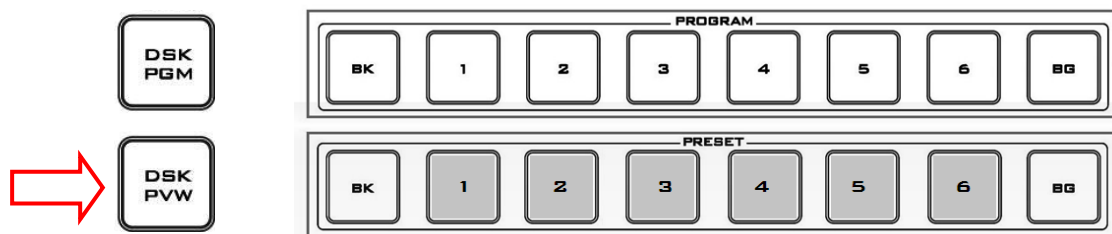
The lower DSK PVW key relate to activating Down Stream Keying on the Multi-view or Preview outputs.

Assigning an input to the DSK PVW channel for keying

Using the lower DSK PVW button you can assign a selected video input to the chosen DSK video layer.

1. First press and hold down the DSK PVW button on the lower row. The Preset row of input sources will light.
2. While still holding down the DSK PVW button, press to select the required input from the Preset row.
3. The input will flash to confirm it is selected.

This selection will also be confirmed on the HDMI Multi-view, with a DSK label shown next to the selected input image.



4. Pressing DSK PGM will take the DSK overlay to air with a fade in transition.



TC-200 Mode & CG-200 overlay input from a laptop

Use the SE-2200 menu option **Inputs 5 and 6 mode** to change input 6 from SDI input to HDMI.

Use the **up arrow key** to select HDMI. A tick will appear. Press **ENTER** to save this setting.

Within the menu option **Inputs 5 and 6 mode** there is a third option for **HDMI colour mode**.

This should be set to **TC-200 Mode**.

Now use the SE-2200 menu option **DSK Settings** and select **DSK**

Connect the laptop **running the CG-200 Windows software** to HDMI input 6 via HDMI.

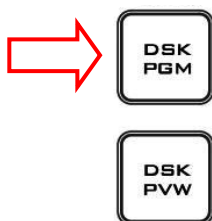
Once the software is launched the switcher may not automatically show the extended Windows desktop. This is normal.

Use the CG-200 **HDMI On / Off button** to toggle the CG overlay output On and Off.



Load your prepared CG-200 project and click the **playback button** on the same toolbar.

Pressing DSK PGM will take the DSK CG-200 overlay to air with a fade in transition.



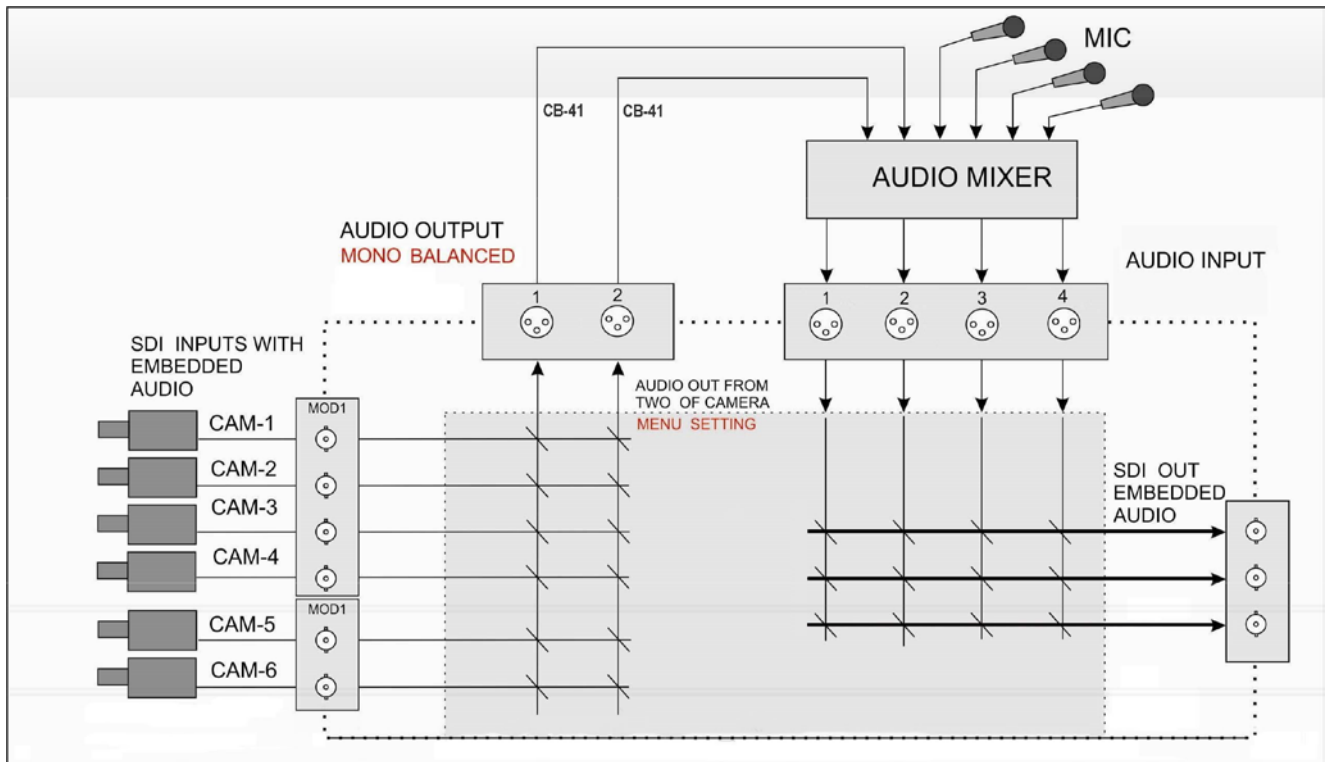
A separate manual is also provided for help with preparing CG-200 projects.

AUDIO Function

Overview

The SE-2200 has a simple, cost effective, audio switcher built in. The SE-2200 has the ability to take audio from several sources either XLR analogue, SDI and/or HDMI inputs. The audio can be embedded onto the HDMI and SDI outputs and/or fed into the analogue XLR audio connections.

When using the audio functions of the SE-2200 switcher you may de-embed audio from selected SDI or HDMI inputs and then output this audio from the XLR outputs of the switcher to a separate audio mixer like the Datavideo AM-100 audio mixer.



Once the audio is mixed externally with any microphones or audio sources it can then be fed back into the SE-2200 on the analogue XLR inputs. The SE-2200 can then embed this externally mixed audio on to the Program SDI outputs.

Note: For a very basic audio set up , just loop the Audio outputs 1 & 2 to Audio inputs 1 & 2, using the supplied CB-41 cable. For a more sophisticated audio processing set up, an audio mixer can be added in the signal path as shown above. Due to its versatility many other system configurations are possible as well.

AUDIO FOLLOW VIDEO



AUDIO FOLLOW VIDEO function, this means that the audio source will switch with the chosen video input, and follow the T-bar function. The active audio is de-embedded and sent to the audio output terminals for processing and/or audio levelling/ and or adding more audio sources. The

resulting audio will return and be connected to the audio inputs for the purpose of (re)-embedding the audio to the SDI output. The selection of the audio groups determines the SDI channel that the audio will be embedded to exactly.

AUDIO FOLLOW VIDEO function is primarily used in talk show or live news broadcasting. Voices of different guests are directly collected by the corresponding cameras, thus, when the program director switches between different guests, the video is switched at the same time with voice of the guest during program broadcasting. This function is definitely an indispensable function during live broadcasting.

AUDIO FIXED



The **AUDIO FIXED** method, allows a user to manually select which audio input can be matched to the SDI video input and assigned to the audio output terminals, which is shown in the example below:

The table below illustrates that the sound of video input 1 is used for all individual video inputs.

	SE-2200 Audio INPUT Channel	SE-2200 Assigned Audio Output Channel
AUDIO CROSSPOINTS	INPUT 1 (BUTTON 1)	1
	INPUT 2 (BUTTON 2)	1
	INPUT 3 (BUTTON 3)	1
	INPUT 4 (BUTTON 4)	1
	INPUT 5 (BUTTON 5)	1
	INPUT 6 (BUTTON 6)	1

The **AUDIO FIXED** function is primarily used during big (concert) events and (wedding) parties. One camera picks up the audio of the audience and/or ambience of that video input 1, which is assigned to be sent to the audio output. The other cameras are assigned to this same audio of video input 1. When the operator switches between the video sources, the sound of video input 1 remains on all the time.

Audio Menu Options – De-embedding SDI or HDMI audio

Using the following SE-2200 menu options, audio can be selected from the SDI or HDMI video inputs.

SDI INPUTS Embedded Audio	Inputs 1 to 6	User choice of	Group 1,2,3 or 4 Pair 1 or 2
HDMI in Embedded Audio Pair	Input 5 or 6	User choice of	Pair 1,2,3 or 4

As each HD-SDI source can have up to sixteen channels of embedded audio, and HDMI eight channels, we need to choose the audio channels with the options above and by the following reference tables. Normal Stereo resides at channels 1 and 2.

SDI Embedded Audio Table		
Group	Stereo Pair	Channel
Group 1	Pair 1	1
		2
	Pair 2	3
		4
Group 2	Pair 3	5
		6
	Pair 4	7
		8
Group 3	Pair 5	9
		10
	Pair 6	11
		12
Group 4	Pair 7	13
		14
	Pair 8	15
		16

HDMI Embedded Audio Table	
Pair	Channel
Pair 1	1
	2
Pair 2	3
	4
Pair 3	5
	6
Pair 4	7
	8

In some cases, there may only be two channels of audio associated with the video: Pair 1.

Working with a fixed or single audio source

Example 1:

We have two mono mics (channels 1 & 2) connected to an HD camera. These embedded audio channels are then sent from this camera along with the HD-SDI video to the SE-2200 switcher. If we want to only hear these two audio channels regardless of the video channel used then we would set up the switcher in the following way.

Press the **ENTER** key in the **MENU** area of the SE-2200 keyboard to display the on screen menu and then enter **AUDIO CROSSPOINTS** of the **AUDIO SETTINGS** option.

Change the de-embedded audio setup in the menu system to show a value of 1 for each video input channel. Press the **ENTER** key to store the audio values chosen for each video input.

Change the audio (re-)embedding setup in the switcher’s menu system to show a value of Group 1. Press the **ENTER** key to store the audio values chosen for each video input.

Now exit the menu by pressing any wipe key.

Locate the **AUDIO FIXED** button at the top left corner of the keyboard. Enable the **AUDIO FIXED** status by pressing the **AUDIO FIXED** button. Confirm that the **AUDIO FIXED** has been enabled by checking the status area of the HDMI multi-view. The button will be backlit red.

Switching between different embedded audio sources

Example 2:

We have two mono mics with each connected to a different HD camera. These embedded audio channels are then sent from this camera along with the HD-SDI video to the SE-2200 switcher. If we want to hear the audio from each camera as the video channels are switched, **audio follows video**, then we would set up in the following way.

Press the **ENTER** key in the **MENU** area of the SE-2200 keyboard to display the on screen menu and then enter **AUDIO CROSSPOINTS** of the **AUDIO SETTINGS** option.

Change the **Audio Association** settings in the menu system to set input 1 audio source to 1, input 2 audio source to 2, input 3 audio source to 3 and etc. Press the **ENTER** key to store the audio values chosen for each video input.

Change the **SDI Embedded Audio** setting in the switcher’s menu system to show a value of Group 1 and Pair 1. Press the **ENTER** key to store the audio values chosen for each video input.

Now exit the menu by pressing the menu key and locate the **AUDIO FIXED** button in the crosspoint area of the keyboard.

Select the **AUDIO FOLLOW VIDEO** status with this button when looking at the status area of the HDMI multi-view. The button will be off. The status area is located just below or near the Preview image on the HDMI multi-view monitor.

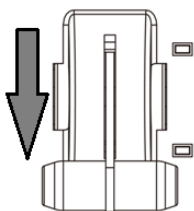
When switching between the video sources the audio sources will also change. We can choose how the audio will change sources, whether it is a clean cut (immediate switch) or some sort of transitioned change (cross fade or fade out & in). To do this we would need to set up with the following menu options.

Auto Audio Mixing Type	User choice of	X type or V type Tick selection	X type = A/B cross fade V type = Fade out A then fade in B
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T-Bar Audio Mixing Type	Tick selection of	Follow auto audio mixing type (use above option) By the end (clean cut or immediate audio switch)
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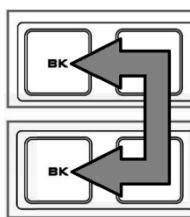
How to Re-calibrate the SE-2200 T-Bar

After a firmware update of the switcher it will be necessary to re-calibrate the T-Bar to get it working correctly.



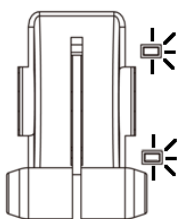
1. Move the **T-Bar** to its **lowest position**.

2. **Power OFF** the SE-2200 switcher.

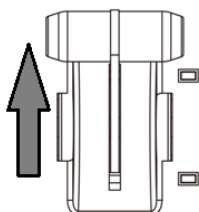


3. Press and hold down BK button on both the Program and Preset rows of the switcher's keyboard.

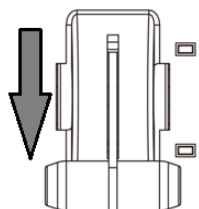
4. **Power ON** the SE-2200 switcher while **still holding down the buttons** in step 3.



5. The switcher will start but the keyboard lights will remain dead except progress LEDs. When these **LEDs flash ON and OFF** release the buttons from step 3.



6. Move the **T-Bar** to its **top position** and then press the **CUT**



7. Move the **T-Bar** **back to its lowest position** and then press the **AUTO TAKE** button.



8. To exit the calibration procedure, press the **CLOCK** button.

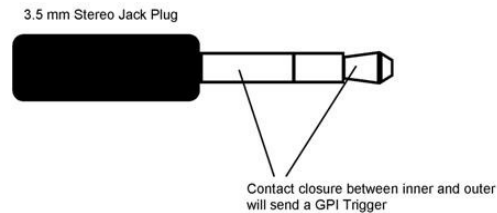
9. Test the T-Bar.

If necessary change the **T-Bar Mode** in the **OSD MENU** options.

GPI Connections

The SE-2200 can control external recorder/playback devices like the HDR-60/70 via simple contact closure GPI switch. The interface supports both “trigger pulse” and level “Hi/ low” system.

The GPI interface is a 3.5mm Jack Socket which is situated on the rear panel of the SE-2200. Contact closure between the Outer and Inner contacts on the jack plug will trigger a user selected event. Power is supplied by the SE- 2200 and is less than 5V DC.



This GPI socket can also be used as a socket to trigger record or playback events with other equipment such as the Datavideo HDR-70 recorder.

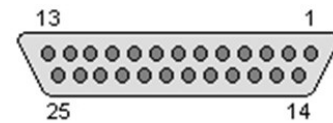
SAFETY FIRST The cabling required needs to be designed specifically to connect the SE-2200 to the chosen record or playback device as they are not all the same. The cabling required can be made by yourself or a competent technician. Please speak with your Dealer or local Datavideo office to get further help and advice.

SE-2200 Tally Outputs

The SE-2200 has a D-sub 25 pin female tally output port. These connections provide bi-colour tally information to a number of other Datavideo products, such as the ITC-100 eight channel talkback system and the TLM range of LCD Monitors.

These ports are open collector ports and as such do not provide power to tally light circuits.

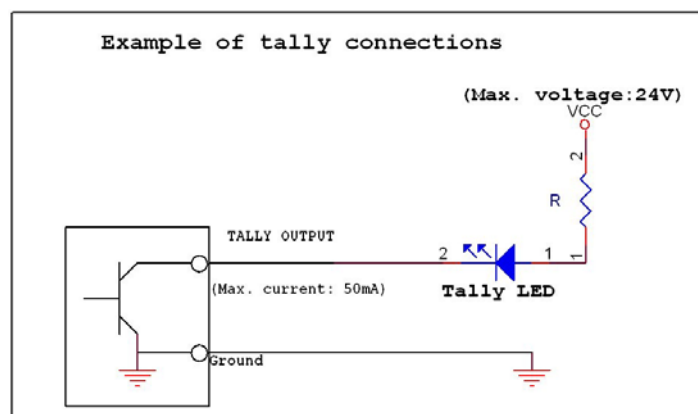
Dielectric strength: Max. DC
24V Current: Max. 50mA



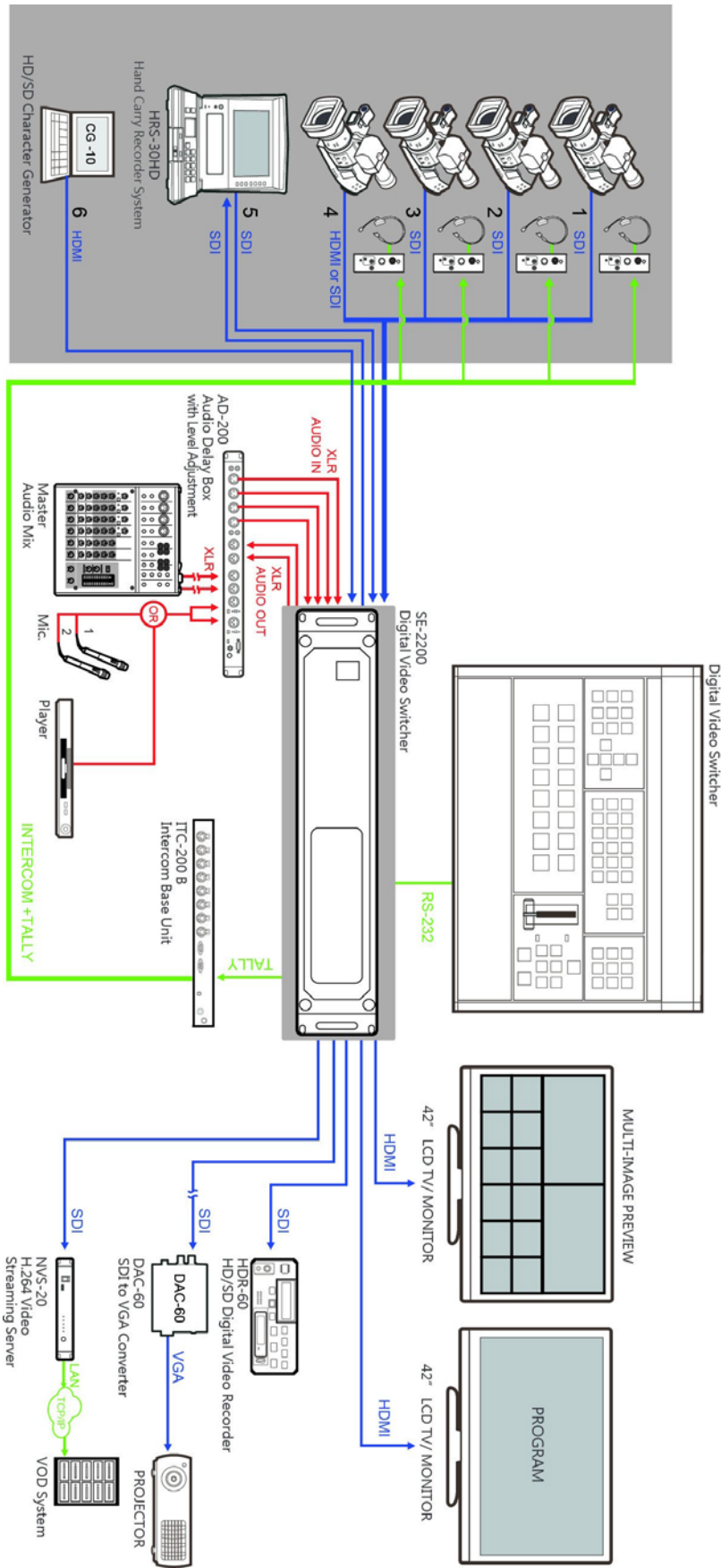
(D-sub 25-Pin Female)

The pin outputs are defined as follows:

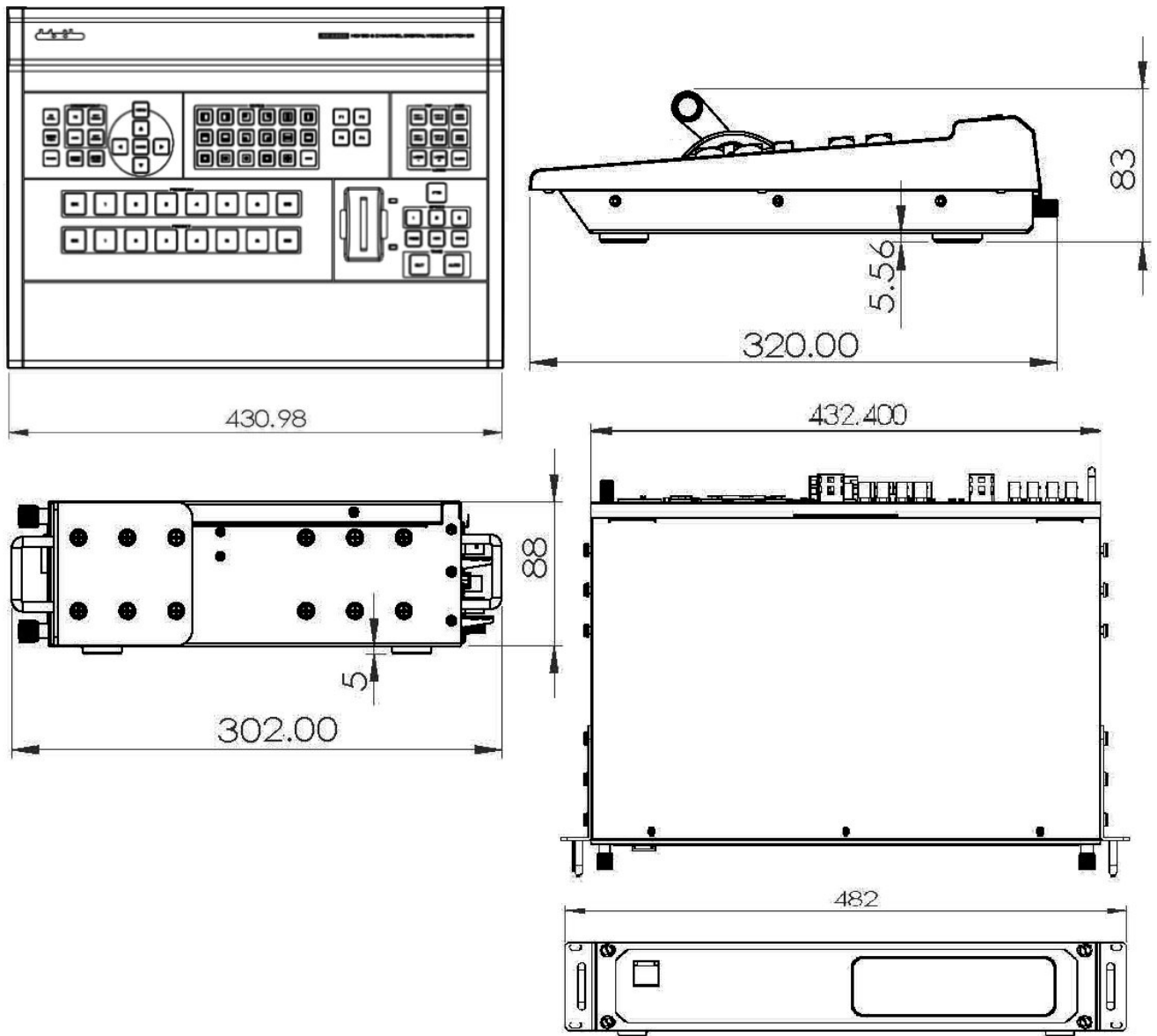
Pin No.	Signal name	Input/Output	Description of signal
1	Program 1	Open collector output	Tally output of input video Program 1
2	Program 2	Open collector output	Tally output of input video Program 2
3	Program 3	Open collector output	Tally output of input video Program 3
4	Program 4	Open collector output	Tally output of input video Program 4
5	Program 5	Open collector output	Tally output of input video Program 5
6	Program 6	Open collector output	Tally output of input video Program 6
13	GND	Ground	Ground
14	Preview 1	Open collector output	Tally output of input video Preview 1
15	Preview 2	Open collector output	Tally output of input video Preview 2
16	Preview 3	Open collector output	Tally output of input video Preview 3
17	Preview 4	Open collector output	Tally output of input video Preview 4
18	Preview 5	Open collector output	Tally output of input video Preview 5
19	Preview 6	Open collector output	Tally output of input video Preview 6



Example SE-2200 Set Up



Dimensions



Specification

Connections	
Total Video Inputs	Total 6 video inputs (6 SDI or 4 SDI + 2 HDMI)
Total Outputs	Total 6 SDI video outputs + 2 HDMI Multi view output
Multi view Out	HDMI
SDI Video Input	Max 6
HDMI Video Input	Max 2
Analog Audio Output	2 mono (1 stereo)
SDI Audio Output	SDI Embedded Audio
Analog Audio Input	4 mono (2 stereo)
Internal Frame Synchronizers	6 Frame Synchronizers
PGM Out	Up to 6
Multi view Out	HDMI x 2 (HDMI multi-view outputs format is 1080i.)
AUX output	up to 4 outputs
Control Panel Connection	RS-232
Tally Out	YES
GPI	YES
Software Updates	via Ethernet

Standards	
HD Format Support	1080i50, 1080i59.94, 1080i60, 720p50, 720p59.94, 720p60
Video Sampling	4:2:2 10 bit
Color Precision	4:2:2 10 bit
Color Space	SDI - YUV, HDMI - YUV / RGB
HDMI Input Resolutions for Computers	HDMI 1920x1080i/50Hz HDMI 1920x1080i/60Hz HDMI 1920x1080i/59.94Hz HDMI 1280x720p/50Hz
SDI Input Resolutions for Computers	1920x1080i/50Hz, 1920x1080i/60Hz, 1920x1080i/59.94Hz

Extras	
Downstream Key	1
Luma Key	1
Color Generators	BARS, COLOR BG
PIP	2

XPT	YES
Frame store	YES
Control Panel Compatibility	Use PC via Ethernet Control panel by RS-232
Input Voltage	DC12V
DE-embedded audio sampling	48KHz
S/N : analog, digital to analog	> -72dB

Multi View Monitoring	
Number of Windows	2+6 (3 layout)
Tally	YES
Windows Source Labels	YES

Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit www.datavideo.com to access our FAQ section.

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