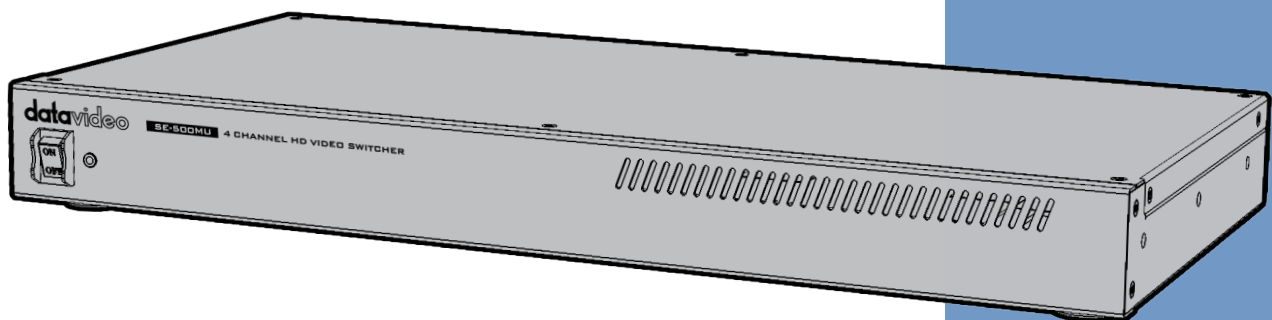


datavideo



**HD 4-CHANNEL
VIDEO SWITCHER**

SE-500MU

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 non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- 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.

Chapter 1 Introduction

The Datavideo SE-500MU is an HD/SD digital video switcher and can be flexibly controlled using a free downloadable APP on your laptop, MACBOOK, and Tablet via Ethernet or wireless network.

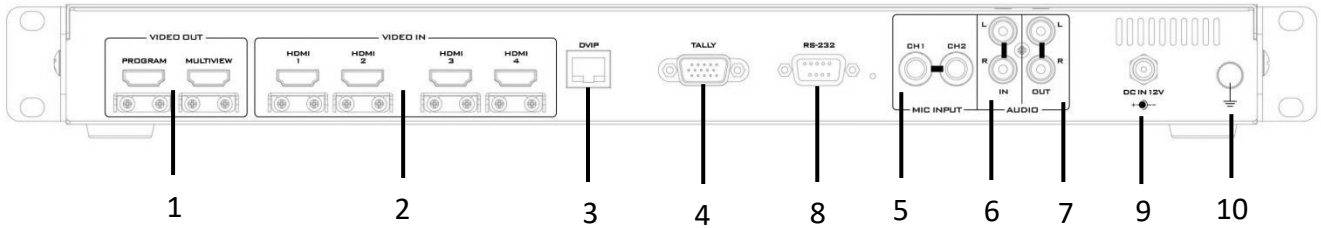
SE-500MU offers 4 HDMI inputs, a program output and a quad view output. The switcher supports video resolutions up to Full HD 1080p and provides functions such as Cut, Mix, Wipe Transitions, Fade to Black, PIP, Split, and Luma Keying.

1.1 Features

- Supports up to Full HD 1080p
- Remote Control over an Ethernet or wireless network
- Remote Control via RS-232 Interface
- Video everywhere with Remote control
- Versatile Operation using software APP for Windows, Mac, Android and iOS systems.
- 4 Video Inputs: HDMI x 4
- 2 Video Outputs: HDMI x 2
- Audio Input: Stereo RCA x 2 (L/R) + Microphone x 2
- Audio Output: Stereo RCA x 2 (L/R)
- Wipe, Mix & Cut Simple Transitions
- Supports Luma Keyer
- Picture-in-picture and split functions
- Tally Output

Chapter 2 Connections and Controls

2.1 Rear Panel



- | | | | |
|---|---|----|--|
| 1 | HDMI Video Output (Program / Multiview) | 6 | Audio Input – Stereo RCA (Left/Right) |
| 2 | HDMI Video Input 1-4 | 7 | Audio Output – Stereo RCA (Left/Right) |
| 3 | DVIP Port | 8 | RS-232 Port |
| 4 | TALLY Output Port | 9 | DC IN |
| 5 | MIC IN – CH1/CH2 | 10 | Grounding Terminal |



1. HDMI Video Output – Program / Multiview

The SE-500MU provides two HDMI video output channels which can be connected to HDMI video display. Program is user assignable program output and Multiview outputs quad view of the four HDMI inputs.



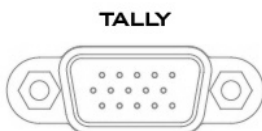
2. HDMI Video Input 1-4

The SE-500MU provides four HDMI video input channels for connecting HDMI video sources.



3. DVIP Port

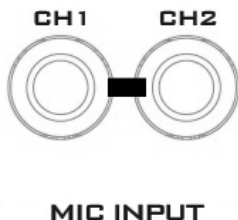
This port allows the SE-500MU to connect directly to the PC or an Ethernet switch or router.



4. TALLY Output Port

Sends **Red**, and **Green** tally signals to each channel.

Red indicates On-Air, and **Green** indicates next camera source. Tally output port can connect other Datavideo peripheral devices such as ITC-100, ITC-200, AM-100 or other monitor models, allowing the peripheral device to communicate with the SE-500MU or send tally signal to be displayed on the monitor.

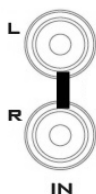


5. MIC IN – CH1/CH2

Two Channels of unbalanced MIC input.

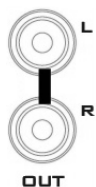
CH 1 (L)	CH 2 (R)	States
MIC1	MIC2	MIC 1(L) and MIC 2(R) are respectively connected to left (CH 1) and right (CH 2) channels.
MIC1	NC*	When MIC 1 is connected to the left channel (CH 1) and MIC 2 is not connected to the right channel (CH 2), the right channel (CH 2) switch will replicate MIC 1 signal onto the right channel (CH 2) thus both channels are MIC 1 input signals.
NC*	MIC2	When no MIC signal is connected to the left channel (CH 1) and only MIC 2 is connected to the right channel (CH 2), MIC 2 signal will not be replicated onto the left channel (CH 1) which will thus be grounded.
NC*	NC*	When no MIC is connected to the two channels, the left channel (CH 1) switch will ground the left channel (CH 1) to prevent noise from being generated.

***NC – Not Connected**



6. Audio Input – Stereo RCA (Left/Right)

Connects unbalanced analog audio source (stereo) for streaming and recording.



7. Audio Output – Stereo RCA (Left/Right)

Unbalanced analog audio output (stereo) for monitoring the selected audio input source.



8. RS-232 Port

A remote control interface allowing the user to connect the SE-500MU to a remote PC or remote controller.



9. DC IN

DC in socket connects the supplied 12V / 19W PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.



10. 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.

2.2 Front Panel



Power Switch

Turns the device ON/OFF

2.3 Software Control UI

The SE-500 MU's Software Control User Interface is designed for the user to operate, configure and control the switcher. The Software Control UI can be opened on any Windows system so as to allow the user to operate the SE-500 MU just like any other physical switcher keyboard.

2.3.1 Installation

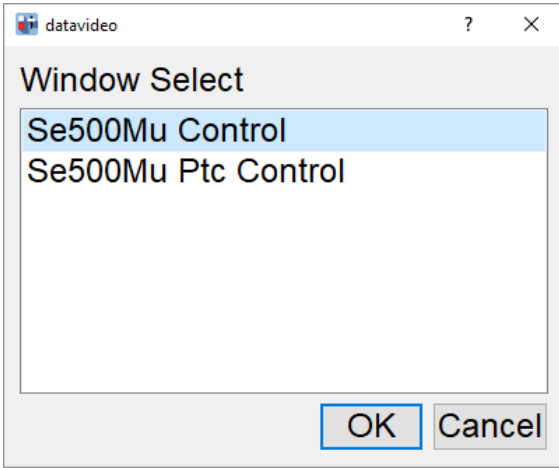
Before installing the User Interface, the user should first download the latest software from the Datavideo SE-500 MU product page by visiting www.datavideo.com.



se500MuC
control

Extract the zip file to an easily accessible location.

In the extracted folder, locate the executable file called **se500MuControl.exe**. Double click this .exe file to launch the **Software Control User Interface**. Since the SE-500MU offers the user two graphical interfaces, upon the start of the program, the user will be prompted to select the preferred interface on the Window Select window as shown below.

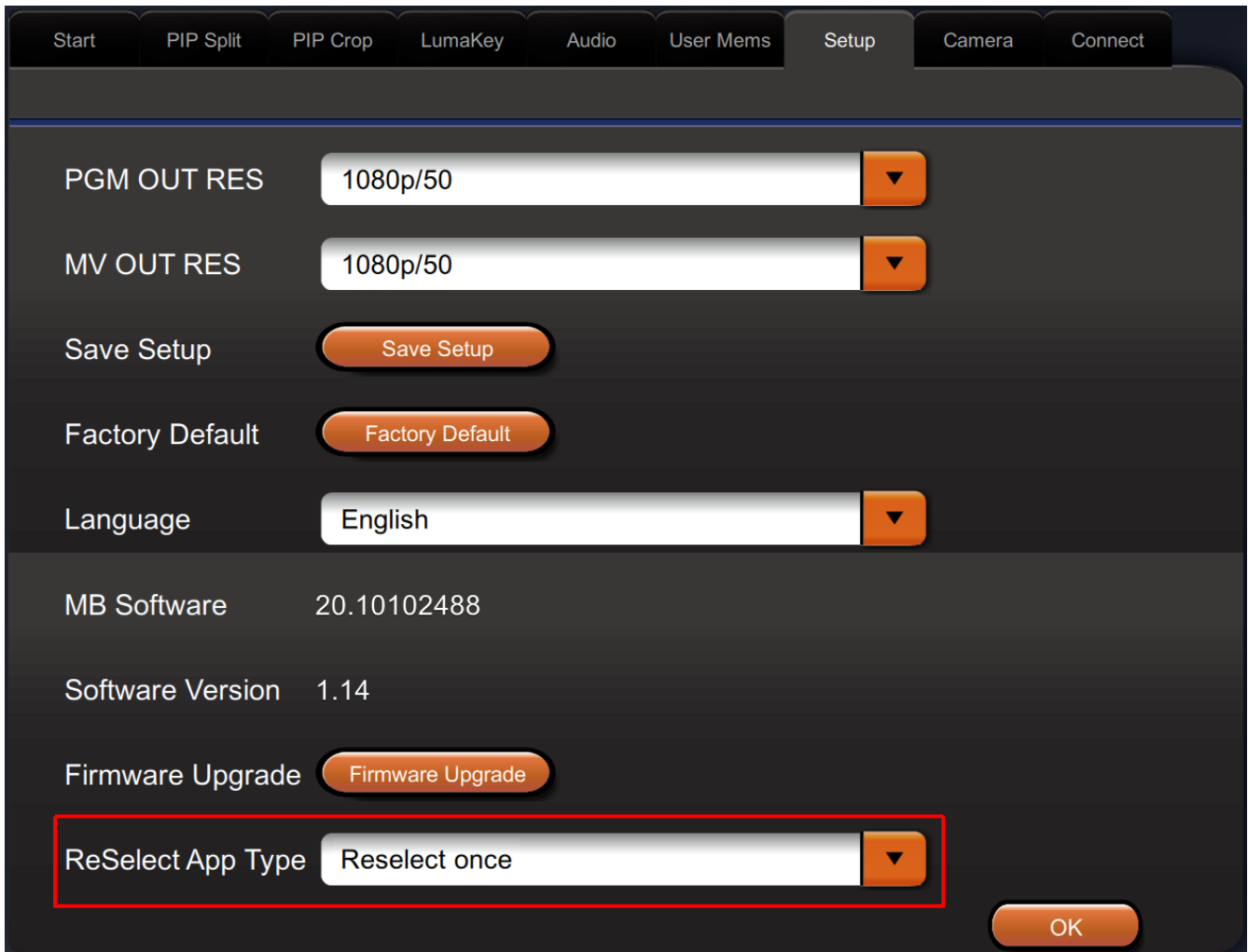


Selection of the **SE500MU Control** option opens the **Control User Interface that gives you control of the switcher ONLY**. If you have purchased the PTC cameras along with the SE-500MU, then you should choose the **SE500MU PTC Control** option which allows you to operate the switcher as well as the connected cameras at the same time.

Another thing that the user should note is that, after you have selected the desired interface option upon the first launch of the program, the system will **NOT** prompt you

to re-select the interface option at the next launch of the program. Instead, you will be taken directly to the interface option selected at the start of the program.

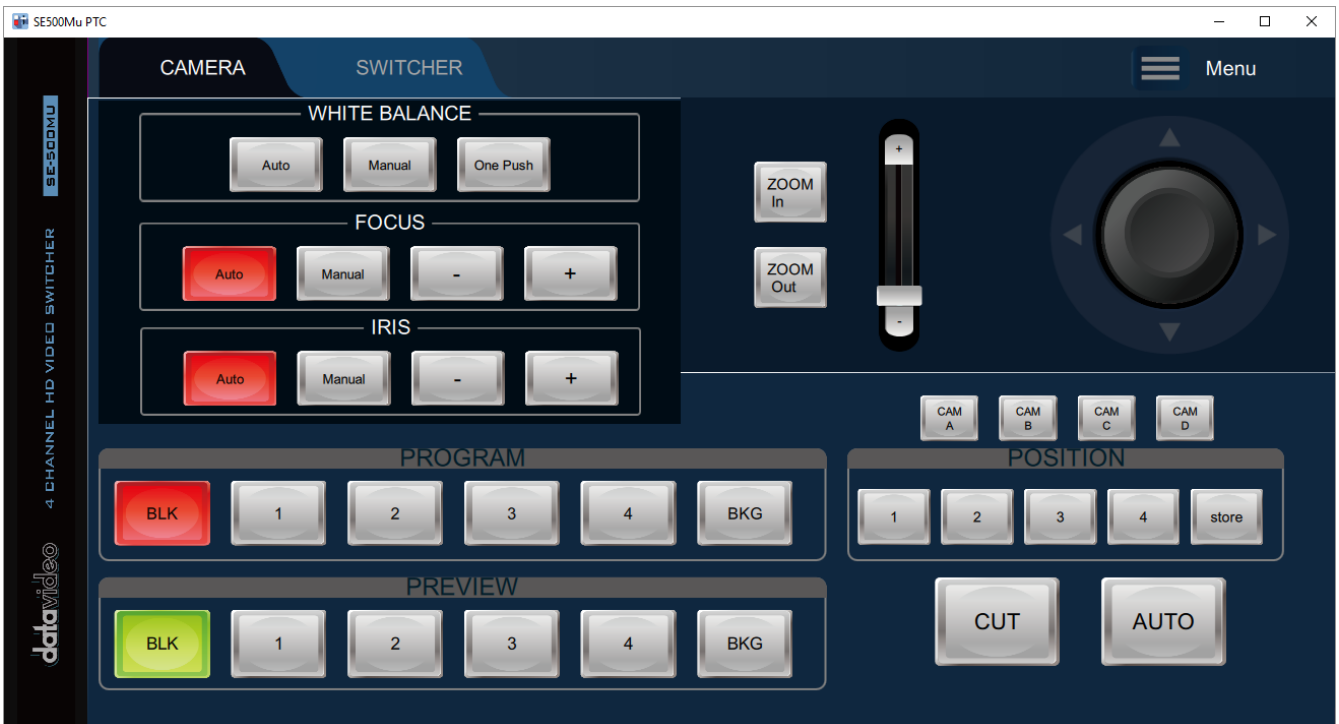
To reselect the interface, open the **Main Menu**, then click the **“Setup”** tab. On the **Setup** menu, click the **“ReSelect App Type”** drop-down menu and select **“Reselect once.”** Finally, click the **OK** button to save the new setting. In this way, you will be prompted to select your preferred interface again.



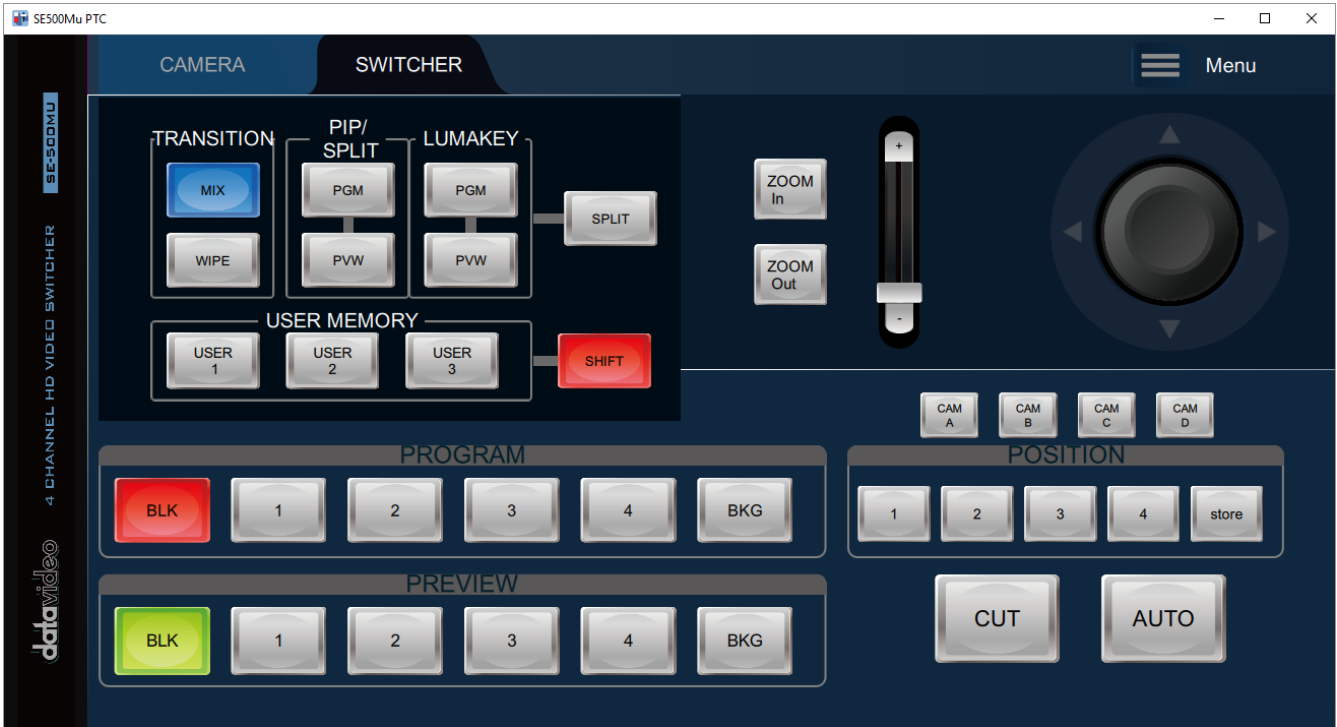
If you have selected the **SE500MU Control option**, you will see the regular switcher interface as shown in the diagram below.



Selection of the **SE-500MU PTC Control** will open the interface as shown below. Note that the user is allowed to switch between the **Camera** and **Switcher** modes. In the camera mode, you will be able to configure the camera settings such as white balance, focus and iris; whereas in the switcher mode, the user is allowed to activate graphic effects such as wipe and mix transitions, picture-in-picture and lumakey.



SE-500MU PTC Control – Camera Mode



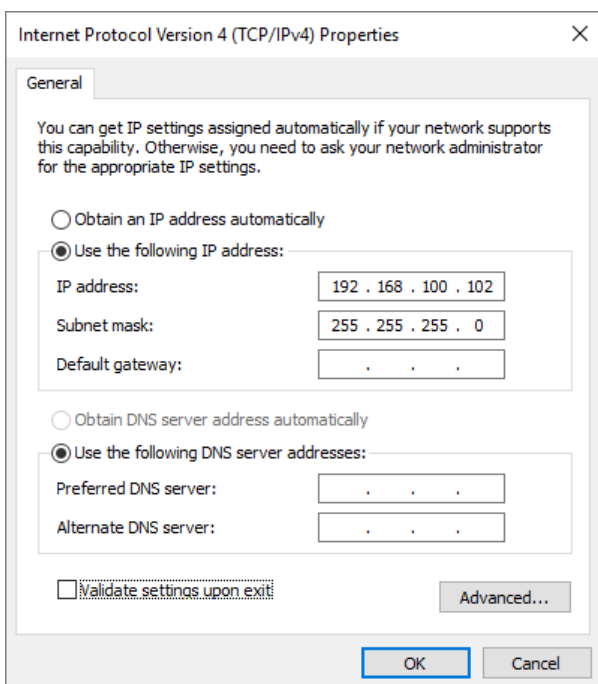
SE-500MU PTC Control – Switcher Mode

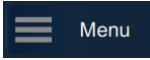
After successfully installing the SE-500MU's Software Control UI, follow the connection setup procedures outlined in the next two sections to establish direct connection between your PC and the switcher.

2.3.2 Connect on DVIP Interface

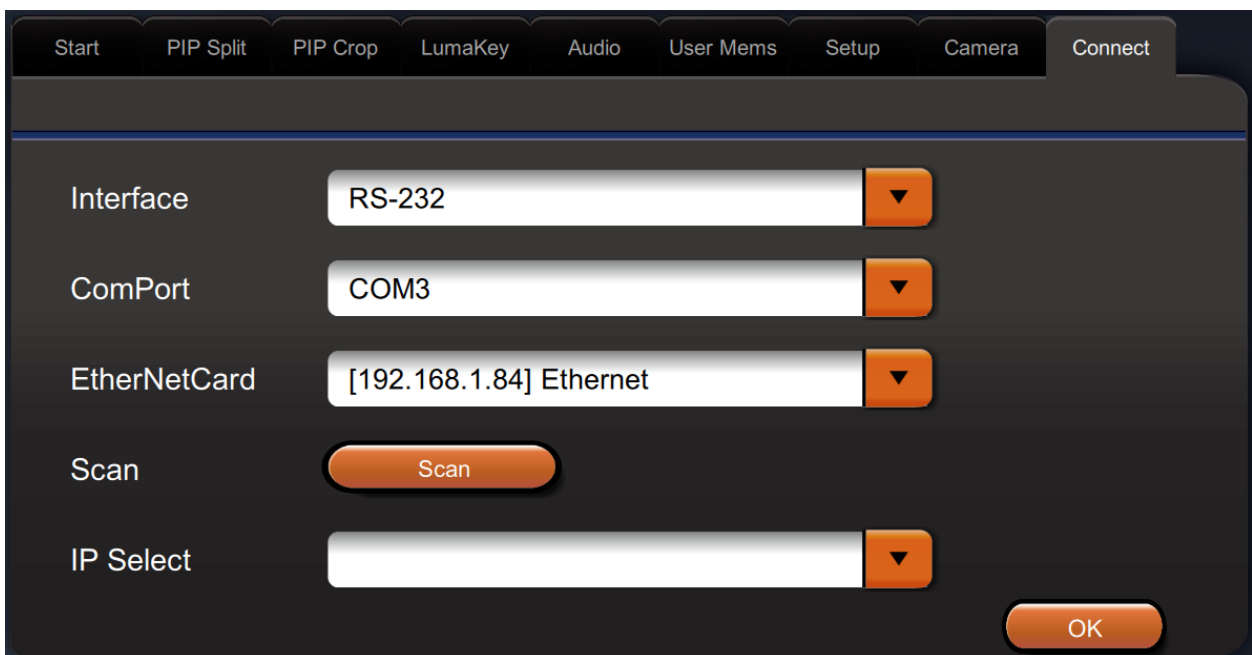
To connect to the SE-500MU on the DVIP interface, you should first configure the network settings of the switcher as well as the PC.

1. Connect one end of the Ethernet cable to SE-500MU and another end to the PC.
2. Turn ON the PC power and since the SE-500MU has a default IP of 192.168.100.101, we have set the PC's IP address to 192.168.100.102 as shown in the diagram below.



3. Power ON SE-500MU.
4. Run se500MuControl.exe to launch the User Interface.
5. At the top right of the interface, click the menu icon  to open the **Main Menu**.
6. On the main menu, click the **Connect** tab.
7. Click the **Interface** pull-down menu to select **DVIP**.
8. Click the **EtherNetCard** pull-down menu to select the IP of the Network Interface Card connected to the SE-500MU's DVIP port. After that, **click the Scan button to scan the network for all the connected DVIP devices**.
9. On the **IP Select** pull-down menu, select the SE-500MU's IP address.

Note: On the RS-232 board of the SE-500MU, push the IP RESET button to display the device's physical IP and MAC addresses on the MV out.

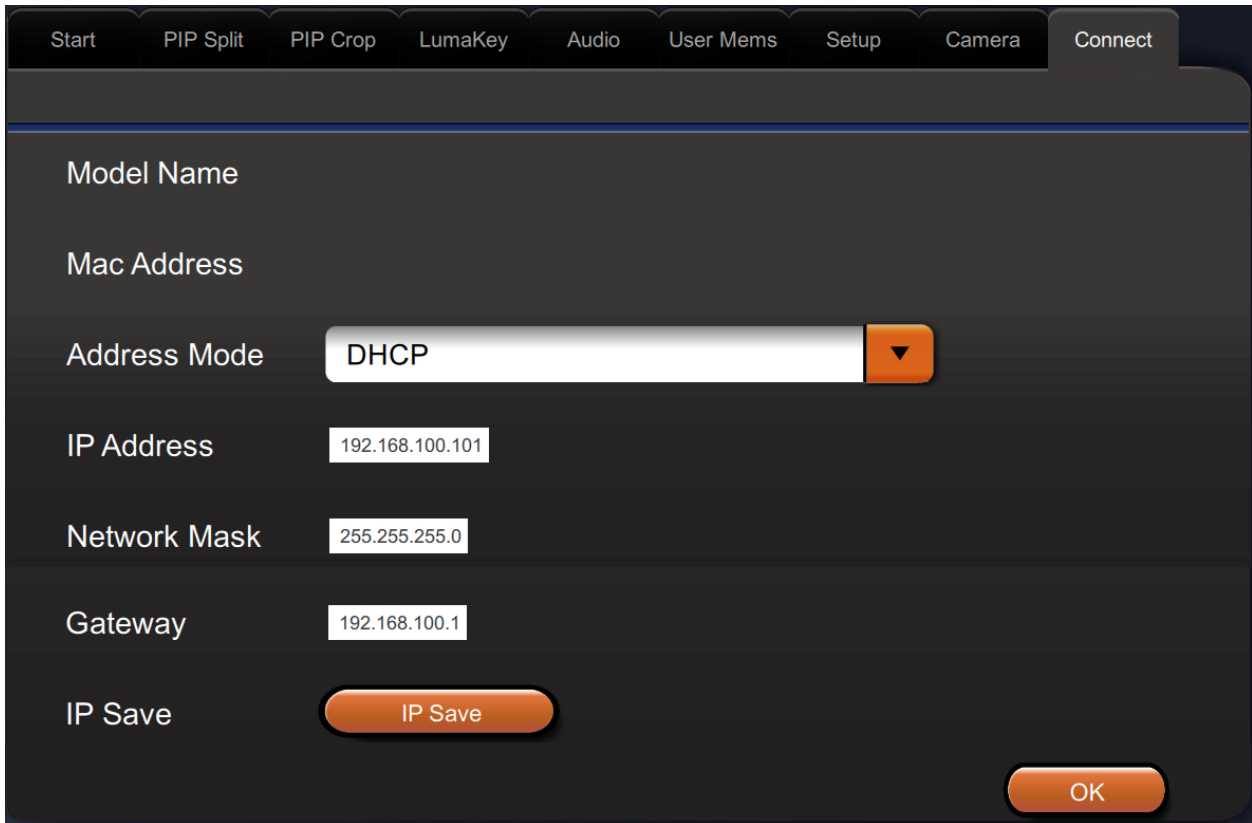


10. Now scroll down the **Connect** tab page to view the switcher's IP information and check if the Model Name displayed is "**SE-500MU**."

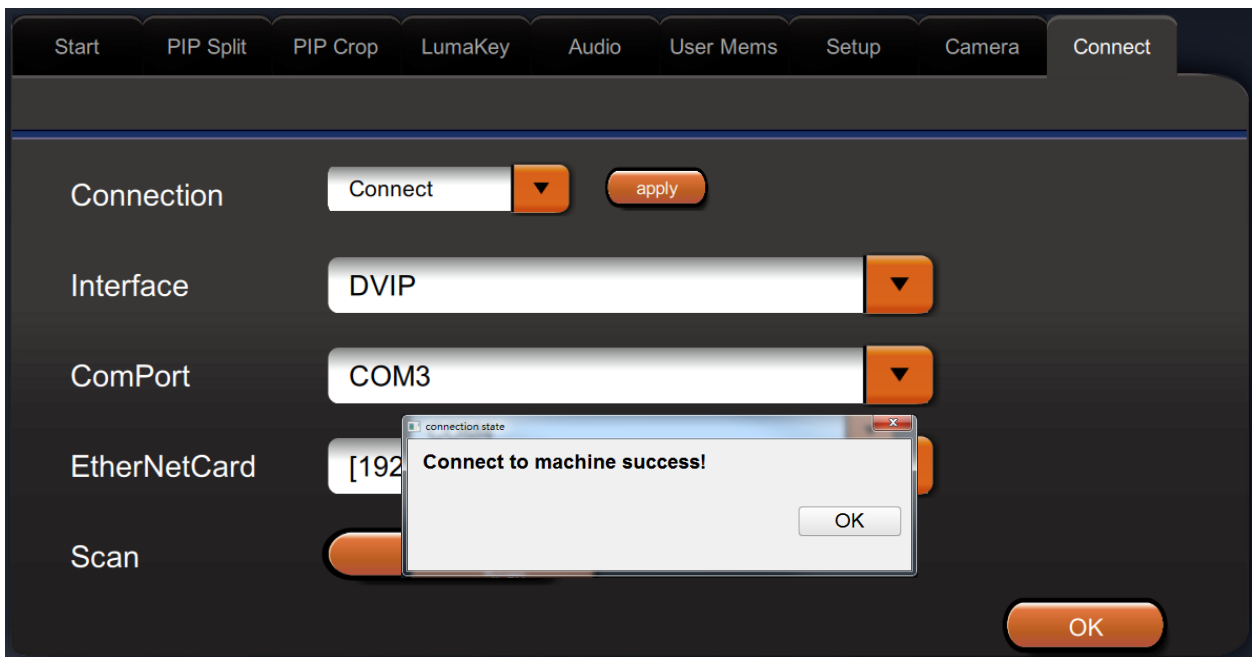
Note 1: If the **Address Mode** is "Fixed IP," please make sure the IP address is in the same IP range as the **EtherNetCard**, i.e. their first three octets are the same.

Note2: In a router connection scenario, if the switcher's IP address is in a different IP range from that of the EtherNetCard, you can simply change the Address Mode to DHCP so that the router will be able to automatically assign an IP address to the switcher. After the new IP address has been assigned, repeat Steps 8 and 9 to scan the network and select the IP address accordingly. Please remember to click the **IP Save** button to save the IP settings.

PS: Depending on the router settings, the IP assignment time may vary. You may experience 10 to 50 seconds of delay. However, most routers should assign an IP address to your device immediately. If necessary, you may have to reset your IP address by pressing the IP RESET button on the RS-232 board and confirm the IP assignment on the Multiview. To return the device IP to the default (192.168.100.101), simply press and hold the IP RESET button.



11. Finally, scroll the **Connect** tab page back up to the top and select **Connect**; click the **Apply** button to establish the connection between the PC and the SE-500MU. A dialog box displaying the message of “**Connection to machine success**” will appear if successfully established.



12. Click **OK** to close the dialog box and on the main screen, the “**Connected**” status will be displayed at the bottom right corner, indicating that the SE-500MU is ready for control.


Note: the DVIP settings will be remembered and the PC will automatically connect to the SE-500MU upon the next start up.

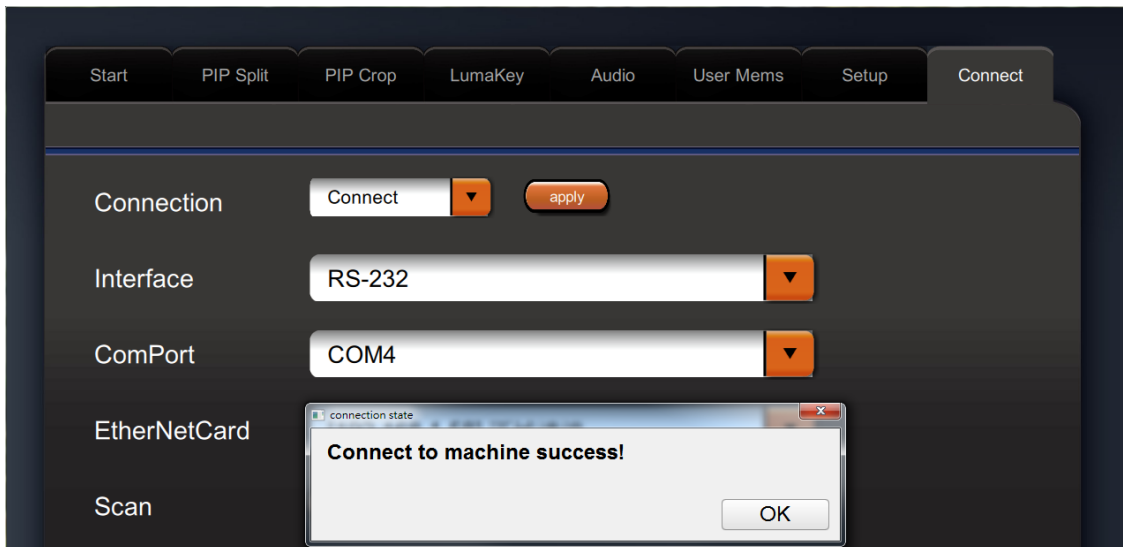
2.3.3 Connect on RS-232 Interface

Another alternative to connect to the SE-500MU is via the RS-232 interface. Follow the procedure below to establish connection.

1. Connect one end of the RS-232 cable to the SE-500MU and another end to the PC. Make sure the SE-500MU is powered ON.

Note: You will need an RS-232-to-USB adapter on the PC end.

2. Run se500MuControl.exe to launch the User Interface.
3. At the top right of the interface, click the menu icon  **Menu** to open the **Main Menu**.
4. On the main menu, click the **Connect** tab.
5. Click the **Interface** pull-down menu to select **RS-232**.
6. On the **ComPort** pull-down menu, select a COM port to which the SE-500MU is connected.
7. Finally, scroll the **Connect** tab page back up to the top and select **Connect**; click the **Apply** button to establish the connection between the PC and the SE-500MU. A dialog box displaying the message of “Connection to machine success” will appear if the connection is successfully established.

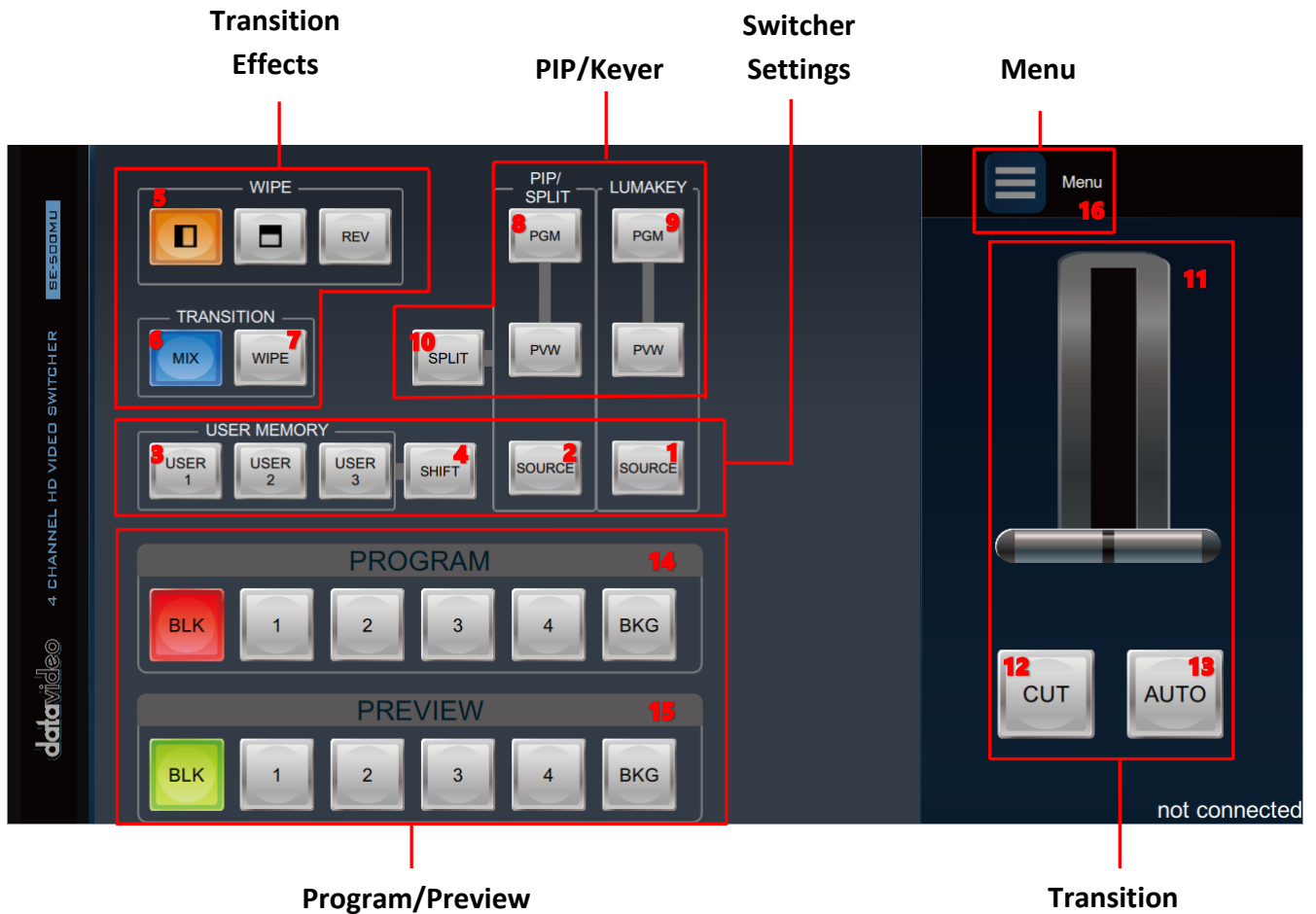


8. Click **OK** to close the dialog box and on the main screen, the “**Connected**” status will be displayed at the bottom right corner, indicating that the SE-500MU is ready for control.

Note: the RS-232 settings will be remembered and the PC will automatically connect to the SE-500MU upon the next start up.

2.3.4 SE-500MU Control Functions (Switcher)

Once you have successfully connected to the switcher, you can then start operating it on the Software Control UI. Each individual functions are described and discussed in this section in detail.



Switcher Settings		9	Luma Keyer Enable/Disable buttons
1	Lumakey Source button	10	Split selection button
2	PIP Source button	Transition Methods	
3	User Memory	11	T-Bar (manual transition)
4	Shift button	12	CUT button
Transition Effects		13	AUTO transition button
5	WIPE transition effect selection	Program/Preview	
6	MIX Enable/Disable button	14	Program row
7	WIPE transition effect Enable/Disable	15	Preview row
PIP/Keyer		MENU	
8	Enable/Disable buttons for PIP	16	MENU button

Switcher Settings



Menu browsing buttons

Click the **MENU** button to gain access to the menu on a separate window.



User Memory

User Memory buttons 1-3 allow the user to quickly recall and load previously saved switcher settings with a single button click. This includes PIP and Keyer settings. See the [User Memory](#) section for more information.



Shift Button

Clicking the **Shift** button will switch USER 1-3 buttons to act as USER 4-6 buttons

Transition Effects



WIPE Transition Effect Selection

Each Wipe button consists of black and white colors. The white represents the current Program image and the black represents the WIPE-IN image. There are a total of 2 WIPE presets available on the SE-500MU PC APP panel; the WIPE buttons allow the user to make a selection directly from the control panel for the first two which are Left Right and Top Bottom wipes. Center WIPE can be selected from the **MENU** ([Start](#)).

Clicking the **REV** button reverses the direction of the **WIPE**.



MIX Enable/Disable button

A **MIX**, also known as a dissolve, is a transition wherein the Program video is replaced by the Preview video at a smooth rate, and at the same time. Clicking the **MIX** button will enable the **MIX** transition effect and automatically disable the **WIPE** button. To activate the **MIX** effect, simply click the **AUTO** button or move the **T-Bar**.

The MIX effect transition time can be configured in [Main Menu](#) → [Start](#) → [Transition Speed](#).



WIPE Transition Effect Enable/Disable button

Clicking the **WIPE** button enables the **WIPE** transition effect. After that, the **WIPE** transition effect can be selected. To trigger the **WIPE** transition effect, simply click the **AUTO** button or move the **T-Bar**.

Wipe transition effect selection, border and position can be configured in the **MENU** ([Start](#)).

PIP / Keyer



Enable/Disable buttons for PIP Keyer

Picture in Picture puts the selected Sub Video Source in a window on the Main Program view, with control over window size and placement. For PIP configuration, please refer to the [PIP](#) section.

PIP PGM: Shows the configured PIP on the PGM output after transition, however, the PIP cannot be previewed on the QUAD split view display.

PIP PVW: Sets the configured PIP on the next transition.

SOURCE: Clicking the source button allows the user to select the **PIP** source from the Preview row.



Luma Keyer Enable/Disable buttons

Luma Key PGM: Shows the luma key source on the PGM output and enables the luma key effect, however, the luma key effect cannot be previewed on the QUAD split view display.

Luma Key PVW: Enables luma key source for the PGM output on the next transition.

Please refer to the [Luma Key](#) section for luma key configurations.

SOURCE: Clicking the source button allows the user to select the **Lumakey** source from the Preview row.



Split Activation Button

After the PIP window is activated, clicking the **Split** button will split the PROGRAM output display into two with the program out view on the left and the PIP view on the right.

To select the Split source, i.e. the program out view, please see [section 3.2.5](#).

Transition Methods



T-Bar (Manual Transition)

T-Bar is used for performing a transition manually. The **T-Bar** can be either all the way up, all the way down or anywhere in between. When the **T-Bar** is moved to halfway between the topmost position and the bottommost position, the **PC APP Panel** functions will be disabled.

PVW and **PGM** views can be transitioned at your preferred speed. To include the transition effect, simply click the **WIPE** or **MIX** button, after which the **Transition Effect** will be triggered as you move the **T-Bar**.



CUT button

Clicking the **Cut** button performs immediate manual switch between **PVW** and **PGM** views without any transition effect.



AUTO button

Clicking the **Auto** button automatically transitions **PVW** and **PGM** views according to the selected speed and the configured transition effect. *See the [Start menu section](#) for transition effect settings.*

Program / Preview Outputs



Program Source Row

Clicking the number buttons along the **PROGRAM** row selects a video source for the **PGM** view.

BKG button: Clicking the **BKG** button will switch the background to the **Matte** background or color bars.

BLK button: Clicking the **BLK** button places a black screen on the monitor.



Preview Source Row

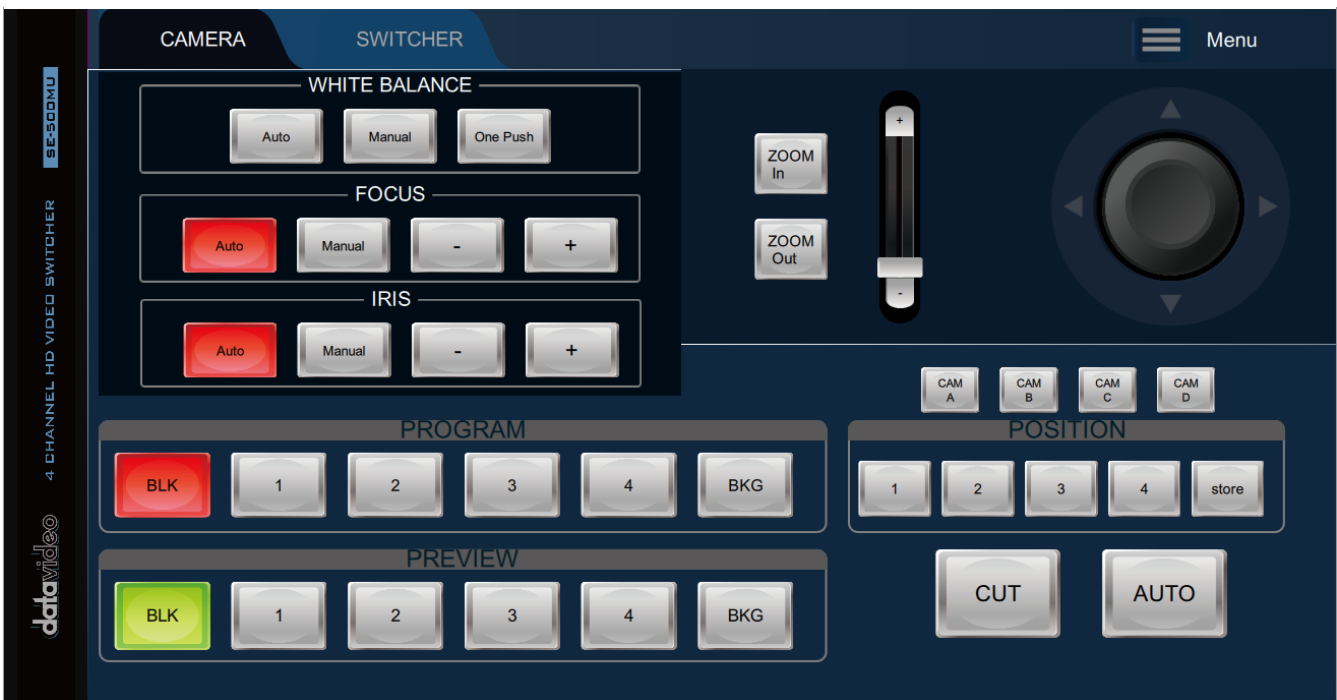
Clicking the number buttons along the **PREVIEW** row selects a video source.

BKG button: Clicking the **BKG** button will switch the background to the **Matte** background or color bars.

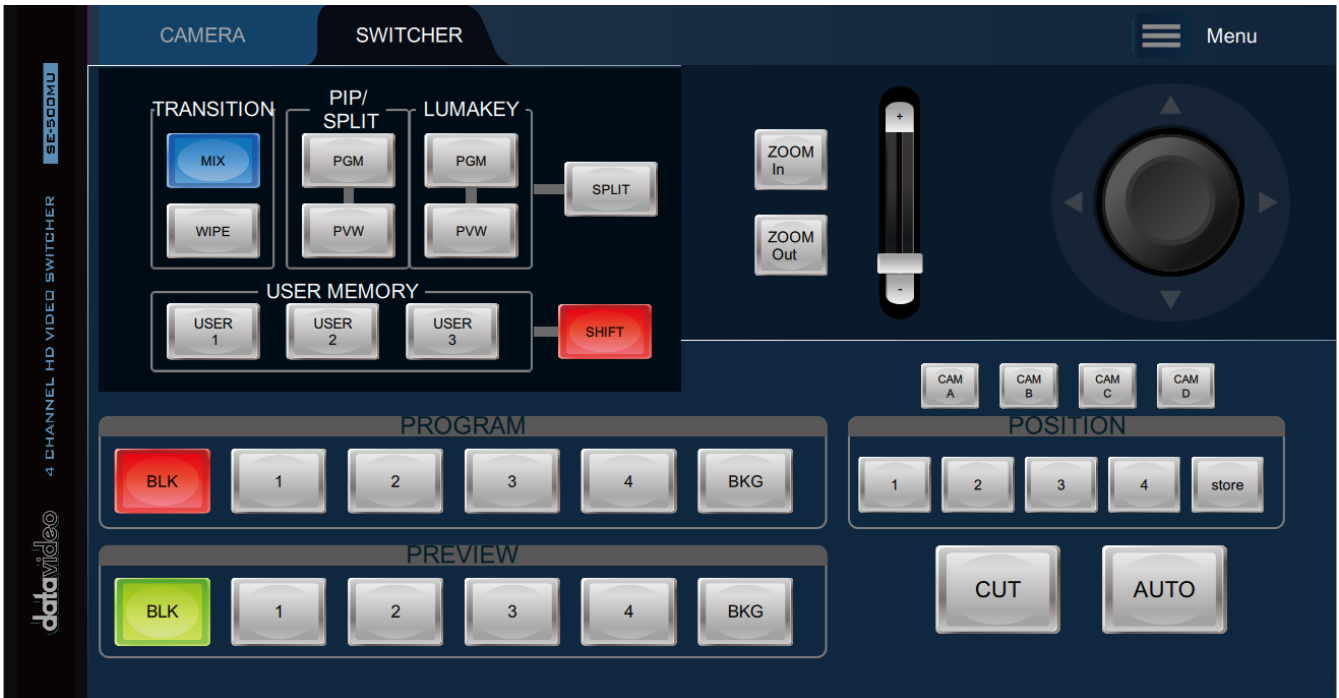
BLK button: Clicking the **BLK** button places a black screen on the monitor.

2.3.5 SE-500MU PTC Control Functions (Camera)

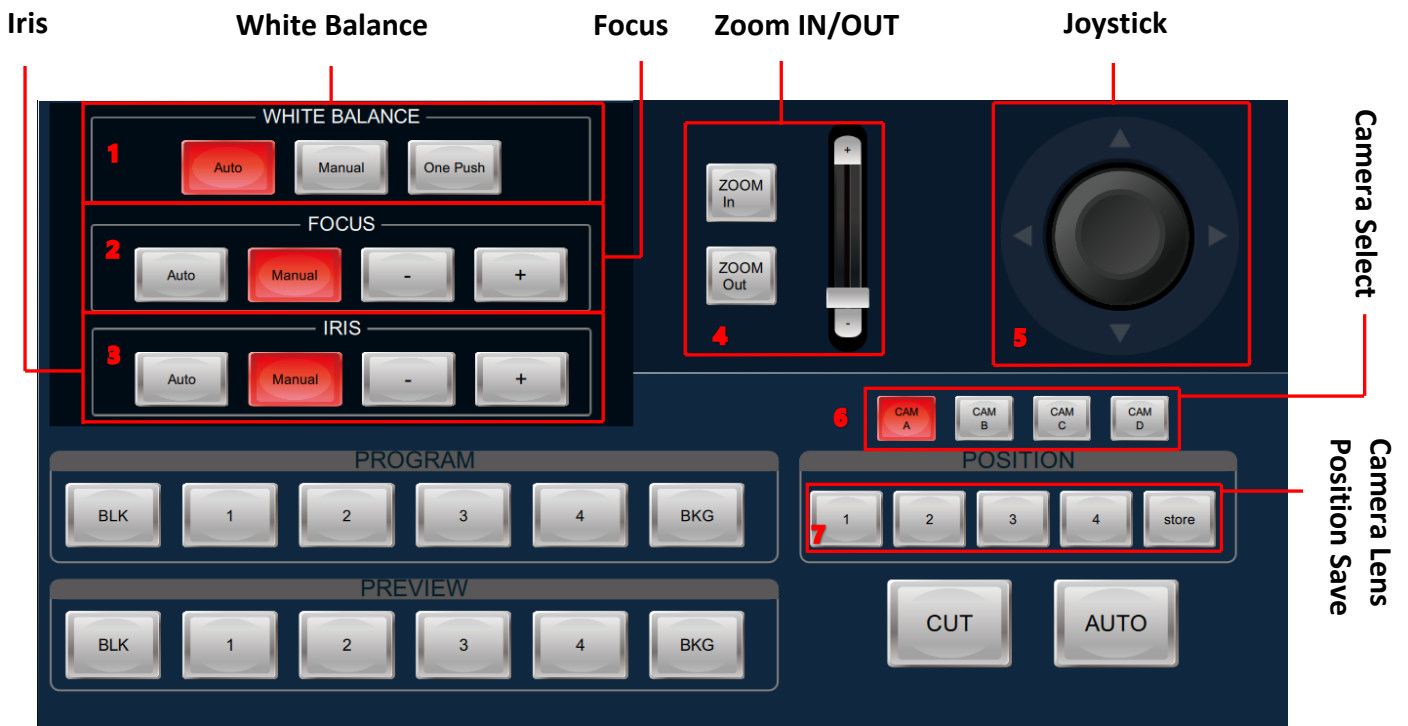
If your switcher system setup includes PTC cameras, select “SE-500MU PTC Control” at the start of the program. You will see the following after the program is started successfully.



The Camera and Switcher tabs located at the top left corner allow the user to switch between camera and switcher modes. The diagram below depicts the UI after the Switcher tab is clicked.

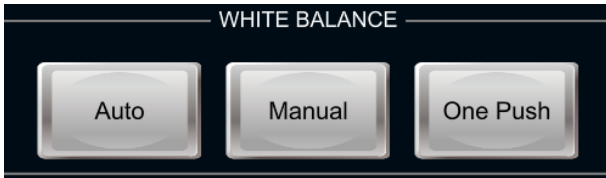


In this section, only camera functions will be described; see section 2.3.4 for descriptions of switcher functions.



Video Settings		Camera Select	
1	White Balance	6	Camera channel buttons
2	Focus	Camera Lens Position Save	
3	Iris	7	Position save/recall buttons
PTZ Camera Control			
4	Zoom IN/OUT buttons and speed slider		
5	Joystick		

Video Settings



White Balance

AUTO Button

Click the **AUTO** button to activate the camera's auto white balance function.

Manual Button

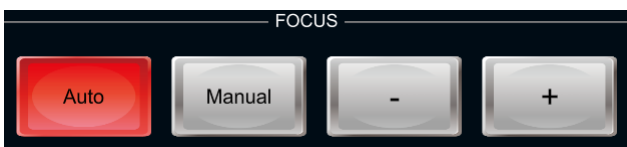
Click the **MANUAL** button to enter the camera into manual white balance mode. In the manual mode, the white balance can be adjusted along with the R-Gain and B-Gain. If the image is biased to red color, then increase the B-Gain; if biased to blue (cool color), then either increase the R-Gain or decrease the B-Gain.

Note: See sections [3.8.10](#) and [3.8.11](#) for **R-Gain** and **B-Gain** settings respectively. You may also refer to recommendation on one push button which calculates optimized **R-Gain** and **B-Gain** values based on the environmental factors.

One Push Button

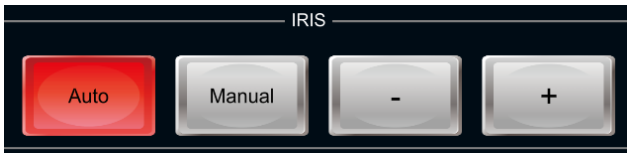
One Push button applies the white balance setting once only. The first click configures the camera's white balance settings and the second click applies the white balance settings.

Recommendation: In the shooting environment, place a white object in front of the camera lens then click the one push button to obtain an optimized white balance setting. The camera will save the optimized **R-Gain** and **B-Gain** values on the switcher as soon as the optimized white balance setting is obtained through this method (see sections [3.8.10](#) and [3.8.11](#)). Now, on the switcher APP, fine tune the **R-Gain** and **B-Gain** values to your shooting preference.



FOCUS Settings

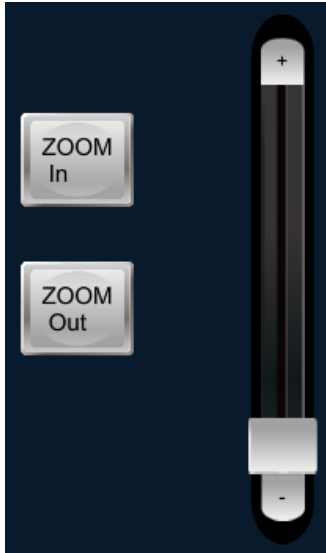
- **AUTO Button:** Click to activate the camera's auto focus function.
- **Manual Button:** Click to enter the camera into the manual focus mode.
- **+/- Button:** Adjust the focus setting.



IRIS Settings

- **AUTO Button:** Click to activate the camera's auto iris function.
- **Manual Button:** Click to enter the camera into the manual iris mode.
- **+/- Button:** Adjust the iris setting.

PTZ Camera Control



ZOOM IN/OUT Buttons and Speed Slider

ZOOM In/Out Buttons: **ZOOM In** button adjusts the lens of a camera so that the image appears larger and closer. **ZOOM Out** button adjusts the lens of a camera so that the image appears smaller and farther away.

PTZ Speed Slider

Slide up to increase the zoom speed; slide down to decrease the zoom speed.

Remark: The zoom speed is the slowest (zero) when the slider is moved to the bottom.

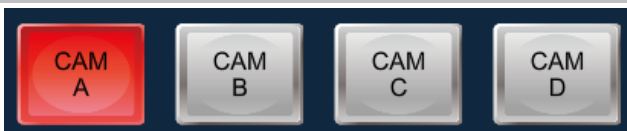


Joystick Control

PAN – Moving the joystick to the left moves the lens of the selected camera to the left and moving the joystick to the right moves the lens of the selected camera to the right.

TILT – Moving the joystick up moves the lens of the selected camera upwards and moving the joystick down moves the lens of the selected camera downwards.

Camera Select



Camera Channel Buttons

Click a camera channel button to activate the corresponding camera.

Note: the camera channel button will be illuminated once clicked.

Camera Lens Position Save



Position Save/Recall Buttons

The SE-500MU is equipped with the memory function for saving lens positions of a selected camera. Each preset button (**buttons 1 – 4**) saves one lens position only. Hence, the SE-500MU is able to save up to four preset lens positions for each connected camera. To recall the memory, simply click the preset button to move the lens to the preset position instantaneously (the preset button will be illuminated red once clicked).

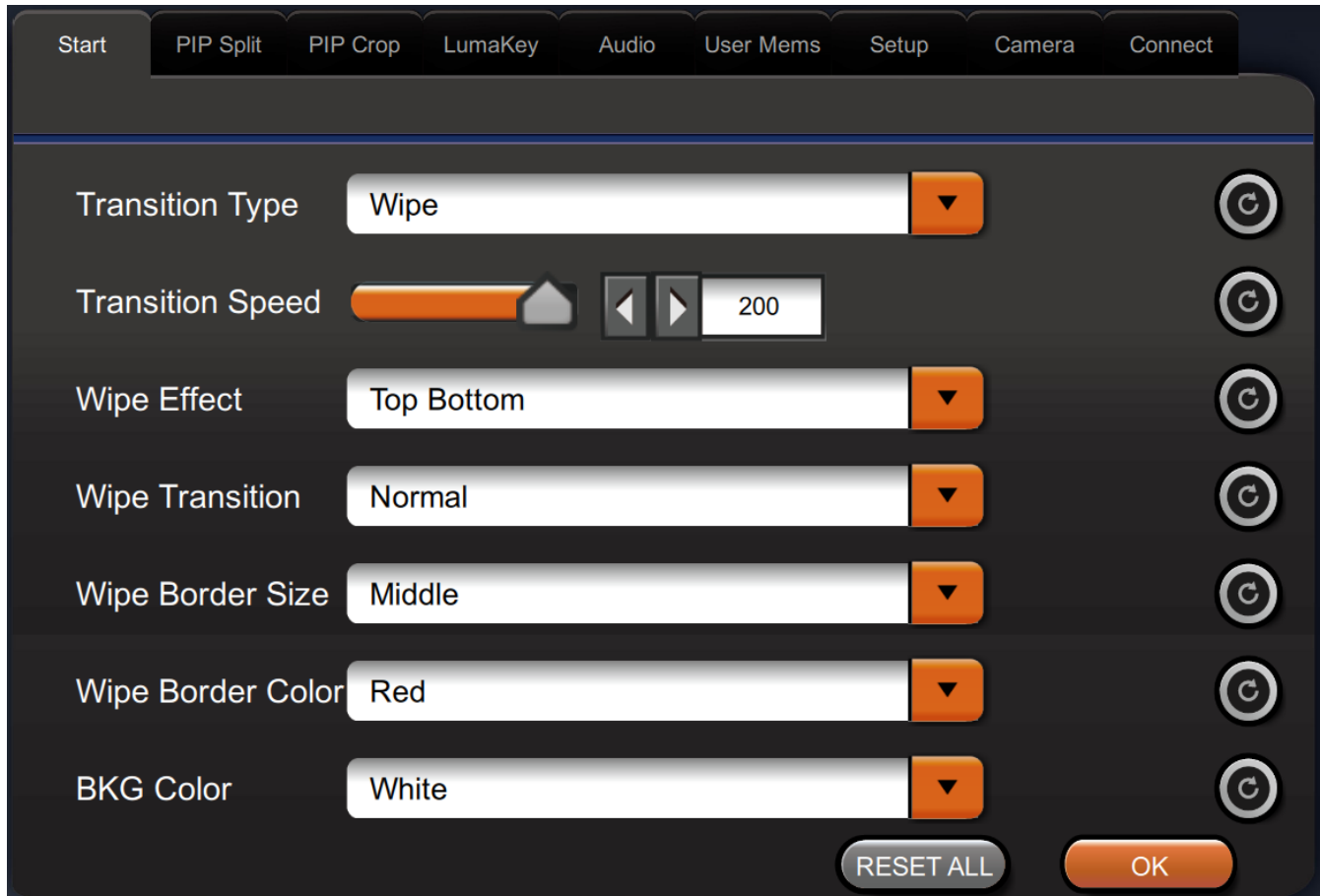
How to save: Click the **Store** button then the preset **buttons 1 – 4** start flashing, indicating that the SE-500MU is already in the **Store Mode**. At this point, you can click one of the preset buttons to save the current camera lens position to the selected preset button. When the save is complete, the preset button will stop flashing.

Click the Store button again to exit the **Store Mode**.

Chapter 3 Setting Parameters

The SE-500MU's **Software Menu** allows the user to perform several configurations of image effects, such as picture-in-picture, luma key and etc. The user can also configure the audio settings in the Audio option. In addition, the setup option allows the user to set video output resolution, reset the device to factory default, and select the interface language.

3.1 Start



Option	Parameters	Parameter Value or Range	Default Value
Start	Transition Type	MIX WIPE	Mix
	Transition Speed	1-200 frames	60 frames; the duration in second depends on the Program OUT resolution.
	WIPE Effect	1. Left Right 2. Top Bottom 3. Center	1
	WIPE Transition	Normal Reverse	Normal: default direction Reverse opposite direction of the default
	WIPE Border Size	OFF Small Middle Large	Small

	WIPE Border Color	White Yellow Cyan Green Magenta Red Blue Black	Red
	BKG Color	White Yellow Cyan Green Magenta Red Blue Black	White

3.1.1 Transition Type

The SE-500MU provides two types of transition effect, which are cross dissolve (MIX) and WIPE. The default setting is MIX.

3.1.2 Transition Speed

The **Transition Speed** allows the user to set the **MIX** or **WIPE** effect duration, in frames. Simply slide the **Transition Speed** bar to set the transition speed and the parameter value will be displayed in the text box next to the slider.

3.1.3 Wipe Effect

On the SE-500MU, there are three wipe effects available for the user to choose. The three wipe effects are **LEFT RIGHT**, **TOP BOTTOM** and **CENTER**. The default is **LEFT RIGHT**.

3.1.4 Wipe Transition

In this option, the user is allowed to choose the direction of the WIPE. Two directions, listed as follows, are available for the user:

- Normal: default direction
- Reverse: opposite direction of the default

3.1.5 WIPE Border Size

The **WIPE Border Size** generally allows the user to select an appropriate border width. Setting the **WIPE Border Size** to OFF turns the border off. Setting this parameter to small selects a thin border; middle will yield a medium size width; large is the maximum wipe border width.

3.1.6 WIPE Border Color

In this option, you will be allowed to select a color for your wipe border. The available colors are listed as follows:

- White
- Yellow
- Cyan

- Green
- Magenta
- Red Blue
- Black

3.1.7 BKG Color

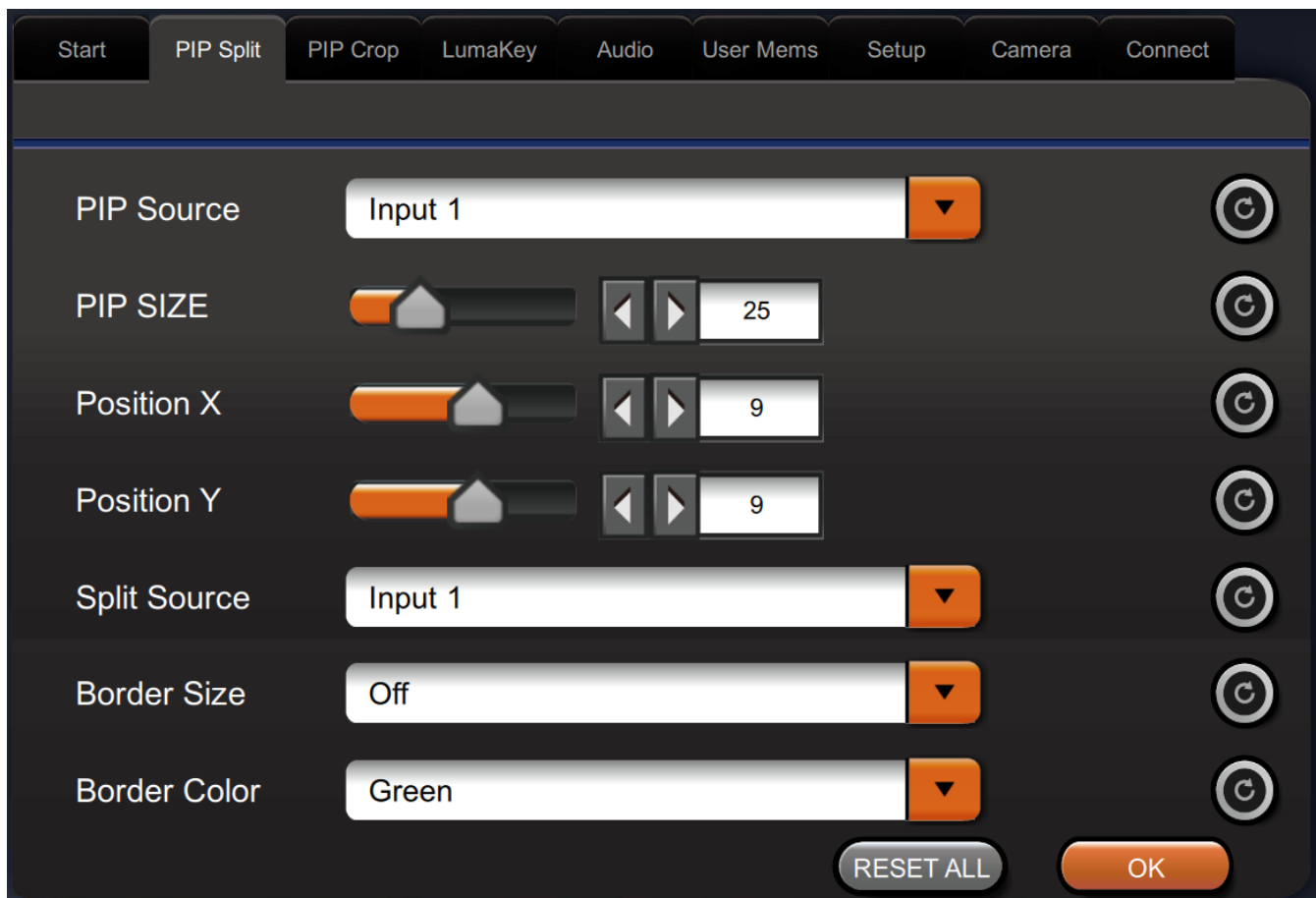
In this option, you will be allowed to assign a color to the **BKG** button. The available colors are listed as follows:

- White
- Yellow
- Cyan
- Green
- Magenta
- Red Blue
- Black

3.2 PIP / Split

Picture-In-Picture (P-In-P) places a sub window on the **PGM** or **Multiview** screen. This option (**PIP/Split**) allows you to configure various parameters of the PIP window.

Note: When PIP and LumaKey features are enabled at the same time, the lumaKey source will be the upper layer and the PIP source will be the lower layer. The layer order cannot be changed.



Option	Parameters	Parameter Value or Range	Default Value
PIP/Split	PIP Source	Black Input 1 Input 2 Input 3 Input 4 Background Color Bar	Input 2
	PIP Size	1-100%	30%
	Position X	-50% - +50%	20%
	Position Y	-50% - +50%	10%
	Split Source	Black Input 1 Input 2 Input 3 Input 4 Background Color Bar	Input 2
	Border Size	OFF Small Middle Large	Small
	Border Color	White Yellow Cyan Green Magenta Red Blue Black	Red

3.2.1 PIP Source

In this option, the user will be allowed to assign the PIP source; the available sources are listed as follows:

- Black
- Input 1
- Input 2
- Input 3
- Input 4
- Background
- Color Bar

3.2.2 PIP Size (PIP Window Size)

The PIP Size parameter ranges from 1 to 100 with 1% being the smallest and 100 being the largest. Therefore 50% would represent a PIP window which is half the size of the background image. 100% would see the PIP window totally cover the background image unless offset to one side. To adjust this parameter, simply move the cursor on the slide bar and the parameter value will be displayed in the text box next to the slider.

3.2.3 Position X

Adjusting **Position X** parameter moves the PIP window horizontally. Simply move the **Position X** slide bar to adjust the PIP window's horizontal position and the parameter value will be displayed in the text box next to the slider.

3.2.4 Position Y

Adjusting **Position Y** parameter moves the PIP window vertically. Simply move the **Position Y** slide bar to move the PIP window's vertical position and the parameter value will be displayed in the text box next to the slider.

3.2.5 Split Source

After the PIP window is activated, clicking the Split button will split the PROGRAM output display into two with the program out view on the left and the PIP view on the right. The Split source, i.e. the program out view, can be selected in this option. The available split sources are listed as follows:

- Black
- Input 1
- Input 2
- Input 3
- Input 4
- Background
- Color Bar

3.2.6 Border Size

The **Border Size** generally allows the user to select an appropriate PIP border width. Setting the **Border Size** to OFF turns the PIP border off. Setting this parameter to small selects a thin border; middle will yield a medium size width; large is the maximum PIP border width.

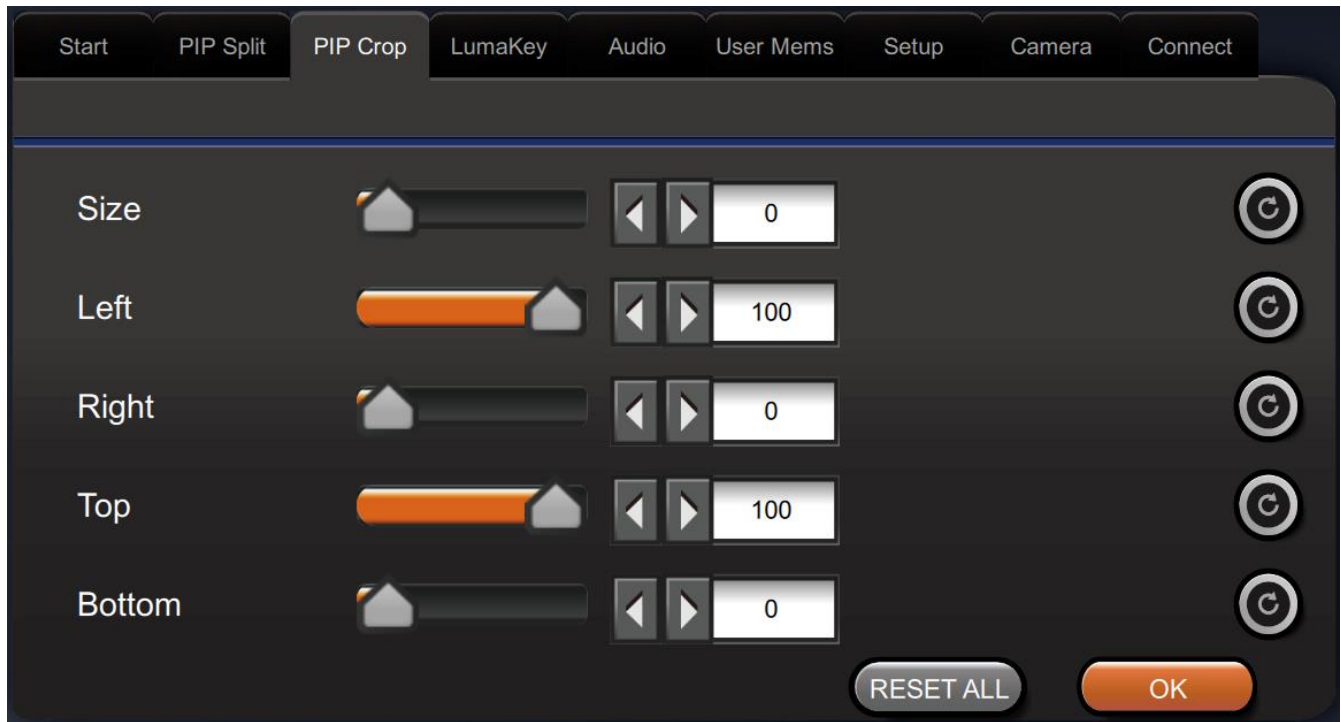
3.2.7 Border Color

The user is allowed to assign a PIP border color. The available colors are listed as follows:

- White
- Yellow
- Cyan
- Green
- Magenta
- Red
- Blue
- Black

3.3 PIP Crop

The PIP Crop basically adjusts the PIP window borders. You can adjust each side individually (Left / Right / Top / Bottom) or all four sides at the same time (Size).



Option	Parameters	Parameter Value or Range	Default Value
PIP Crop	Size	0 – 100%	0
	Left	0 – 100%	0
	Right	0 – 100%	0
	Top	0 – 100%	0
	Bottom	0 – 100%	0

Effects of the five sliders are described below:

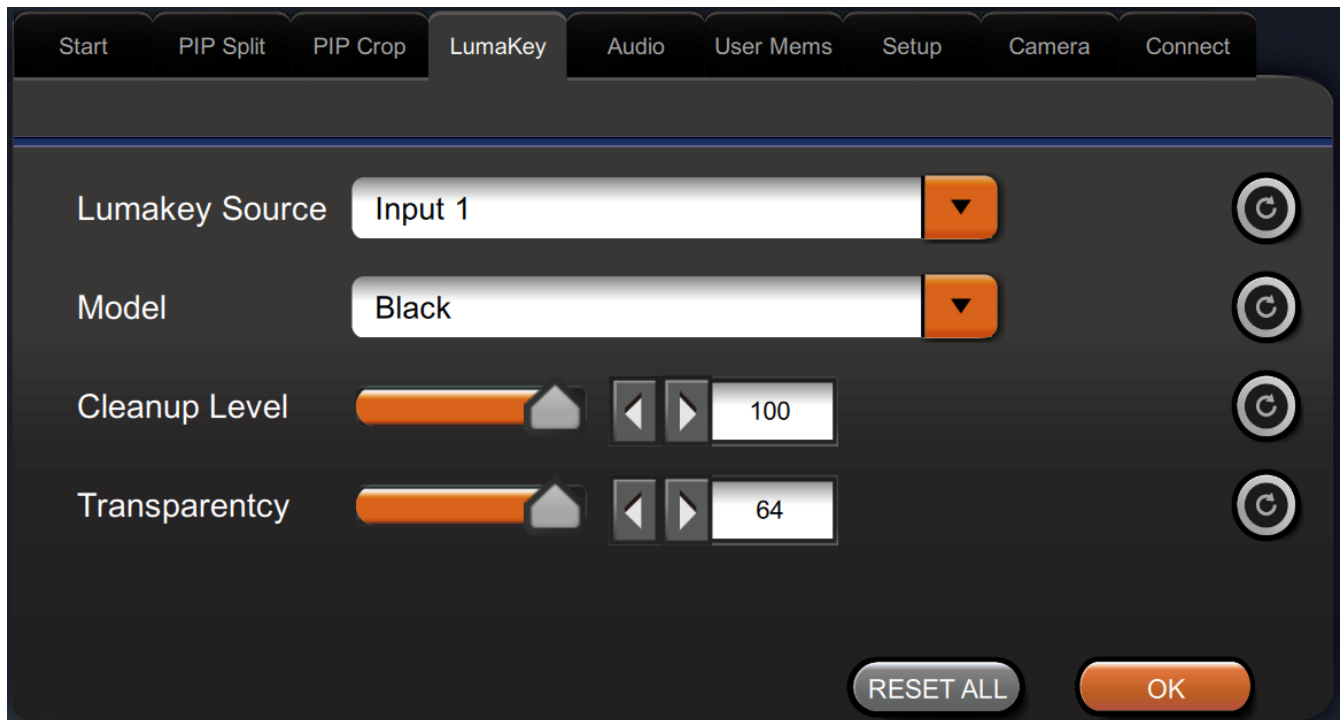
- **Left** – Adjusts the position of the left edge of the PIP window;
- **Right** – Adjusts the position of the right edge of the PIP window;
- **Size** – Adjusts the PIP image crop size;
- **Top** – Adjusts the position of the top edge of the PIP window;
- **Bot** – Adjusts the position of the bottom edge of the PIP window.

The parameter value will be displayed in the text box next to the slider.

3.4 Lumakey

Keyer of the SE-500MU provides the user with the capability of luma keying.

Note: When PIP and Lumakey features are enabled at the same time, the lumakey source will be the upper layer and the PIP source will be the lower layer. The layer order cannot be changed.



Option	Parameters	Parameter Value or Range	Default Value
Lumakey	Lumakey Source	Black Input 1 Input 2 Input 3 Input 4 Background Color Bar	Input 2
	Mode	Black White	Black
	Cleanup Level	0 – 100	20
	Transparency	0 – 64	64

3.4.1 Lumakey Source

Lumakey source is where you can select the image for luma keying. The available sources are listed as follows:

- Black
- Input 1
- Input 2
- Input 3
- Input 4
- Background
- Color Bar

3.4.2 Mode

There are two modes available on the Luma Keyer. Select Black if the image is on a black background and white if the image is on a white background.

3.4.3 Cleanup Level

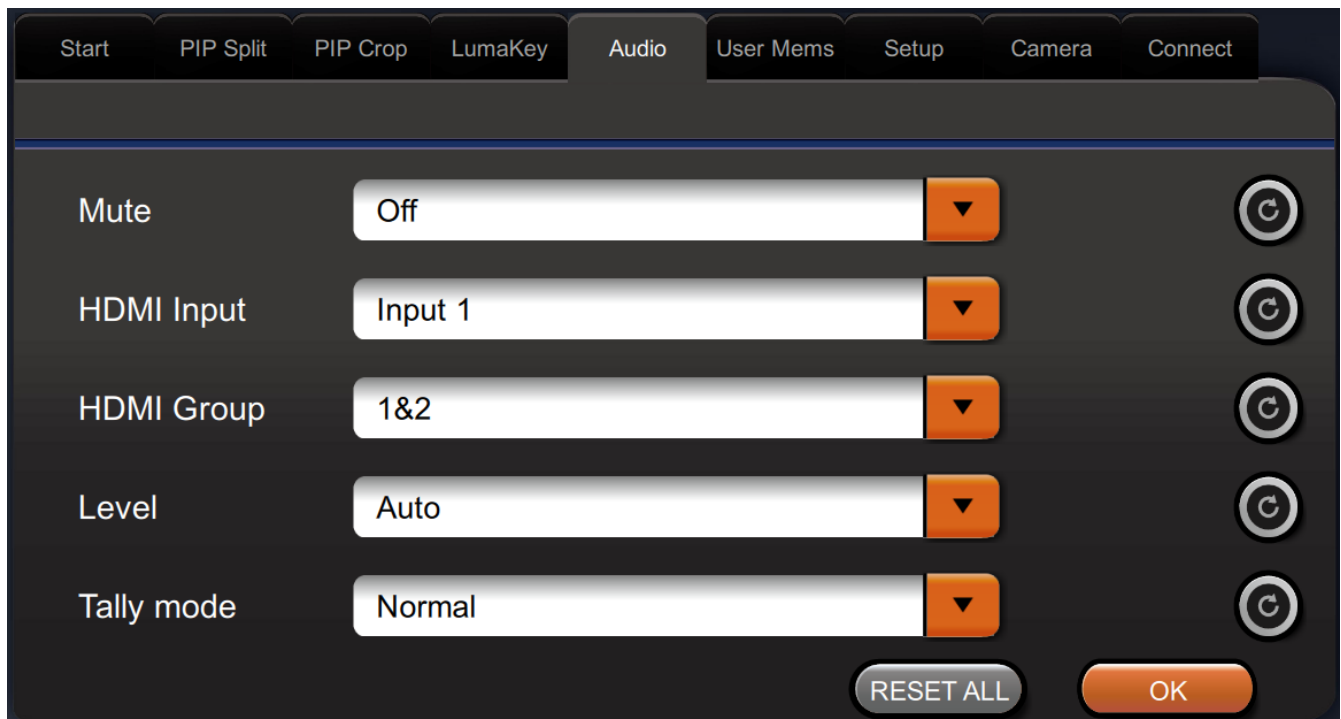
The **Cleanup Level** allows the user to fine tune the effect of the luma key. The default value is 20.

3.4.4 Transparency

This slider allows you to adjust the transparency of the overall foreground key image and as you adjust the slider, the parameter value will be displayed in the text box next to the slider.

3.5 Audio

This option allows the user to configure various audio settings such as muting HDMI output audio, setting the audio type, selecting your tally type and etc.



Option	Parameters	Parameter Value or Range	Default Value
Audio	Mute	OFF/ON	Off
	HDMI Input	Input 1-4 / Follow	Follow
	HDMI Group	Channel 1/2 Channel 3/4 Channel 5/6 Channel 7/8	Channel 1/2
	Level	Auto / SMPTE / EBU	Auto
	Tally Mode	Normal / Audio Mixer	Normal

3.5.1 Mute

The **Mute** allows you to turn ON/OFF the embedded audio component at the **HDMI-in**. The default is OFF.

3.5.2 HDMI Input

In this option, you can select the audio source. Selection of inputs 1-4 allows the SE-500MU to play the enabled audio source. If **“Follow”** is selected, the audio will enter Audio follow Video mode, i.e. playback of the audio of the output video.

3.5.3 HDMI Group

The HDMI Group allows the user to assign the HDMI audio channel. The default audio channel is Channel 1/2. Any audio channel pair of the four audio channel pairs can be selected.

3.5.4 Level

There are two different audio standards available for selection. The user can either select the EBU or SMPTE standard. By selecting AUTO allows the device to automatically detect the audio standard. When the image is 50 Hz, the audio follows EBU standard and when the image is 59.94/60 Hz, the audio follows SMPTE standard.

3.5.5 Tally Mode

Tally output port generally sends two tally signals to each channel. In Datavideo products, **Red** indicates On-Air, and **Green** indicates next camera source.

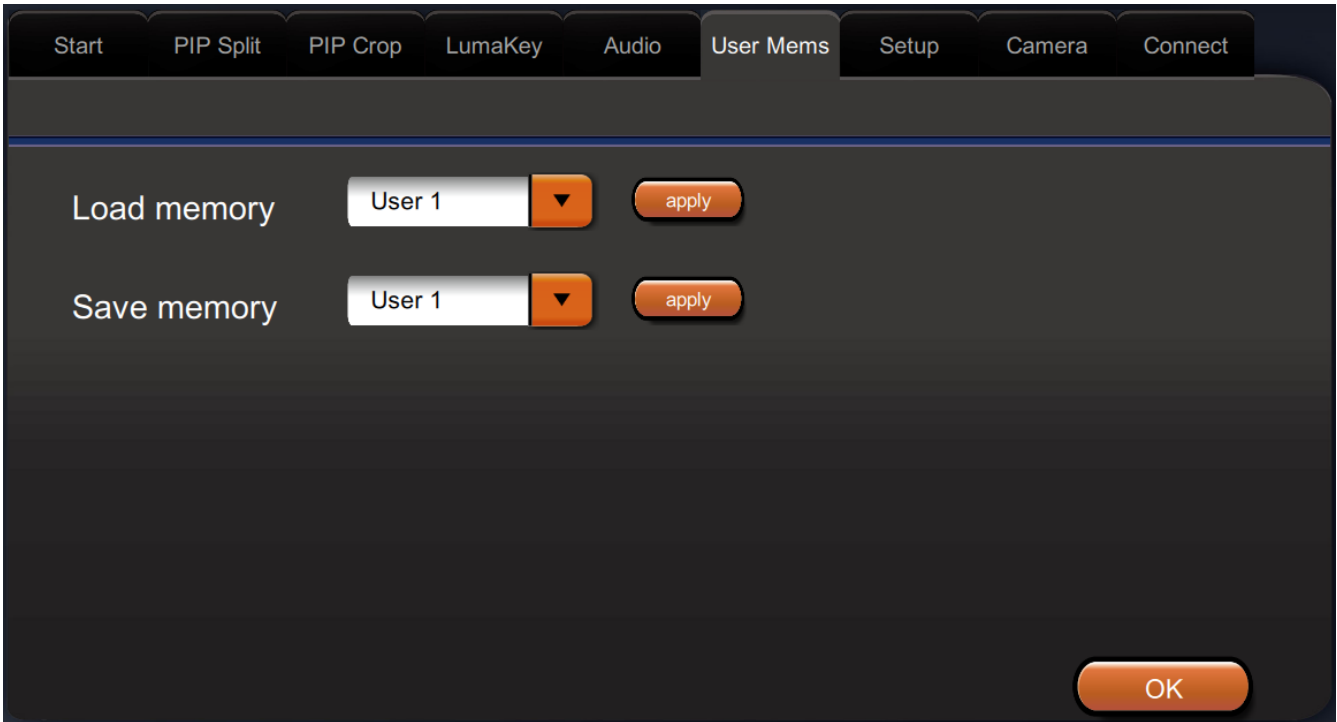
The SE-500MU provides **two tally modes**:

Normal: If in normal mode, tally lights of all camera sources displayed on the PGM monitor will be turned ON (Red). These sources include PGM, PIP and Key sources. While transition is in progress, the next video will be seen on the PGM monitor, tally light of the PVW source camera will thus also be turned ON (**Red**).

Audio Mixer: If Audio Mixer mode is selected, tally light of the PGM source camera selected on the PCC APP panel will be turned ON (Red). While transition is in progress, the tally light color will remain unchanged. The tally light color will only change (red/green) after the transition of PGM and PVW views is complete.

3.6 User Mems

In “User Mems”, the user is allowed to **load** previously saved settings and **save** the currently configured settings.



Option	Parameters	Parameter Value or Range	Default Value
User Mems	Load Memory	User 1-6	
	Apply		
	Save Memory	User 1-6	
	Apply		

3.6.1 Load Memory

Click the **Load Memory** pull-down menu to select the desired memory location and load the saved setting by clicking the “**apply**” button.

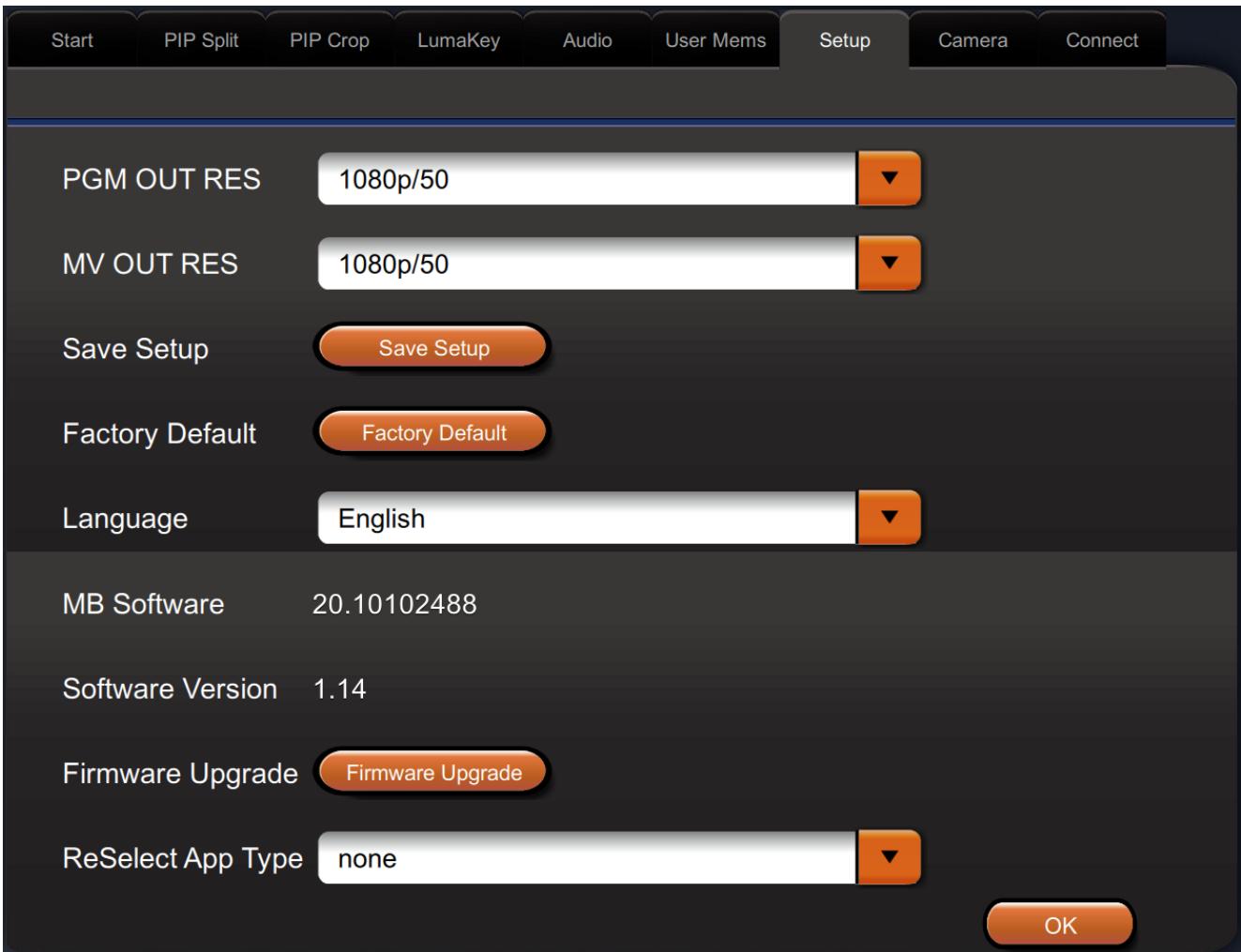
Tip: The user can also click one of the USER memory shortcut buttons (1-3) on the PC APP Panel as a quick way of loading those previously saved User configurations. Use the **SHIFT** button to switch between **USER MEMORY 1-3** and **USER MEMORY 4-6**.

3.6.2 Save Memory

Click the **Save Memory** pull-down menu to select the desired memory location and save the current setting by clicking the “**apply**” button.

3.7 Setup

In the “Setup” menu, the user can change the **output resolution**, reset the SE-500MU to its **Factory Default** values, choose the preferred OSD menu **language**, view the **current firmware and software versions** (mainboard firmware and PC APP) and perform a firmware upgrade.



Option	Parameters	Parameter Value or Range	Default Value
Setup	PGM Out Res.	1080p/60 1080p/59.94 1080p/50 1080i/60 1080i/59.94 1080i/50 720p/60 720p/59.94 720p/50 576i 480i	
	MV Out Res.	1080p/60 1080p/59.94 1080p/50 1080i/60 1080i/59.94	

		1080i/50 720p/60 720p/59.94 720p/50	
	Save Setup	[Save]	
	Factory Default	[Reset]	
	Language	English Simplified Chinese Traditional Chinese	
	MB Software	Firmware Version	
	Software Version	PC APP Version	
	Firmware Upgrade		
	ReSelect App Type	None Reselect once	

3.7.1 PGM Out Res.

In **PGM Out RES.**, the user is allowed to select an appropriate PROGRAM output resolution. The available resolutions are listed as follows:

- 1080p/60
- 1080p/59.94
- 1080p/50
- 1080i/60
- 1080i/59.94
- 1080i/50
- 720p/60
- 720p/59.94
- 720p/50
- 576i
- 480i

Once done, simply click the **“Save Setup”** button to confirm the selected output resolution.

Note: Please make sure the output resolution is same as the input resolution to prevent unexpected issues from occurring.

3.7.2 MV Out Res.

In **MV Out RES.**, the user is allowed to select an appropriate MULTIVIEW output resolution. The available resolutions are listed as follows:

- 1080p/60
- 1080p/59.94
- 1080p/50
- 1080i/60
- 1080i/59.94
- 1080i/50
- 720p/60
- 720p/59.94
- 720p/50

Once done, simply click the **“Save Setup”** button to confirm the selected output resolution.

3.7.3 Save Setup

Clicking the “**Save Setup**” button to save the current configuration.

3.7.4 Factory Default

The **Factory Default** button, once clicked, allows the user to restore the factory default settings. The device will start the factory reset process in 2 to 3 seconds after the “**Factory Default**” button is clicked.

3.7.5 Language

The available OSD menu languages are English, Traditional Chinese and Simplified Chinese. Please restart the PC APP after modifying the language setting.

3.7.6 MB Software / Software Version

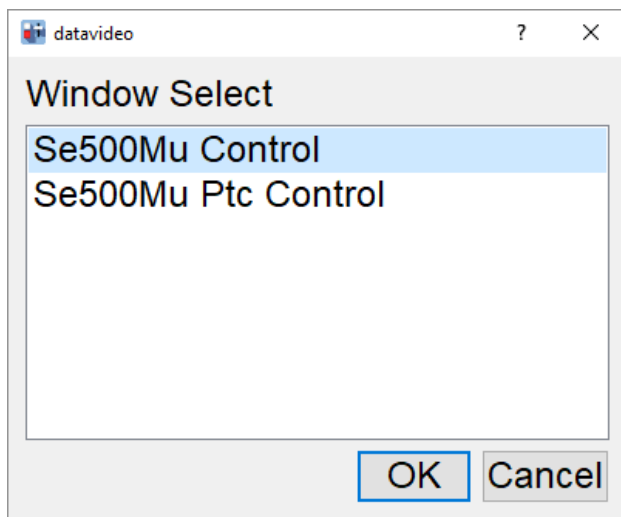
Mainboard and keyboard software versions will be displayed.

3.7.7 Firmware Upgrade

Click the Firmware Upgrade button to perform a firmware upgrade.

3.7.8 Reselect App Type

The SE-500MU offers the user two graphical interfaces. Upon the start of the program, the user will be prompted to select the preferred interface on the Window Select window as shown below.



After you have selected the desired interface option upon the first launch of the program, the system will **NOT** prompt you to re-select the interface option at the next launch of the program. Instead, you will be taken directly to the interface option selected at the start of the program.

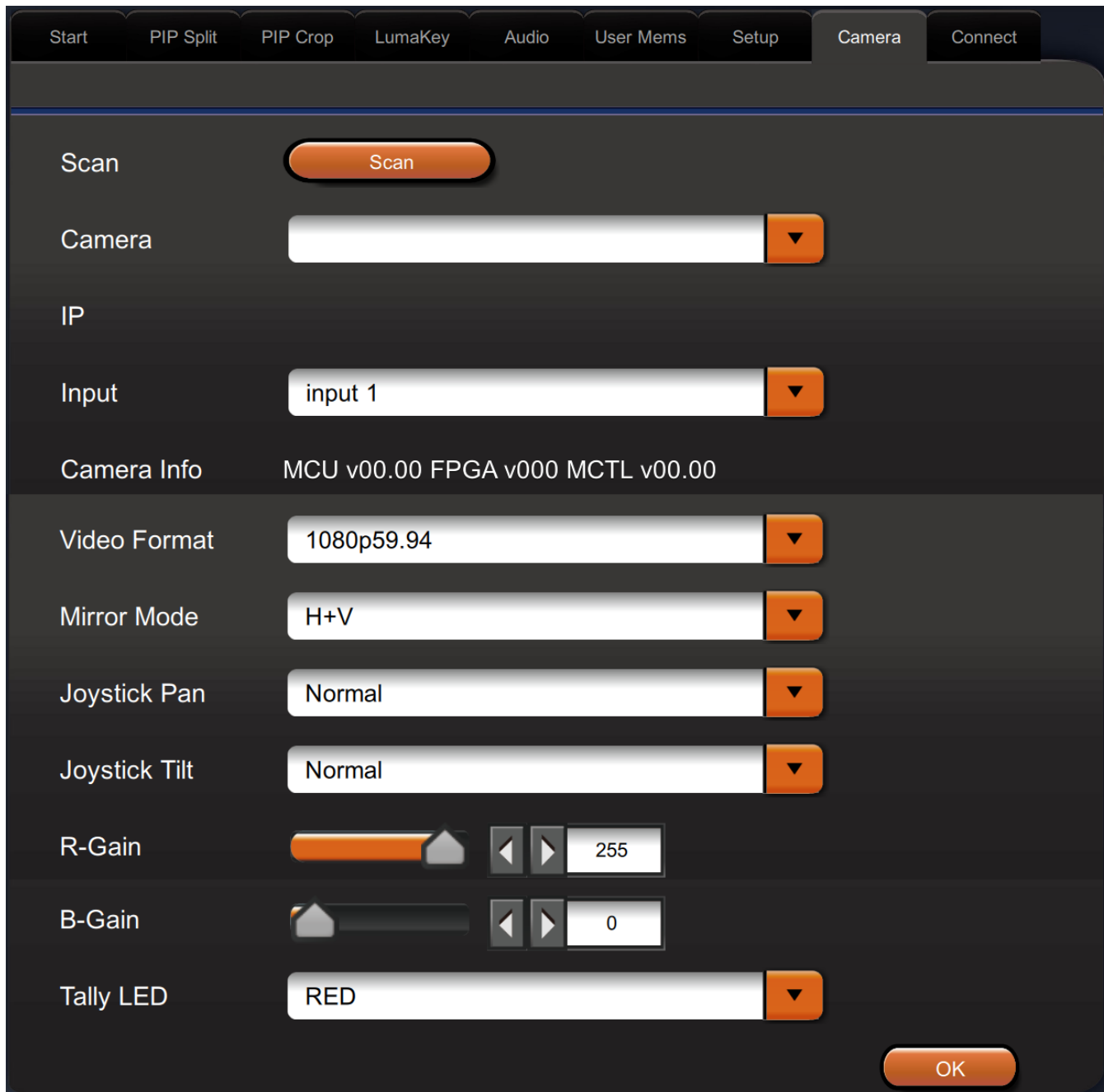
To reselect the interface, on the **Setup** menu, click the “**ReSelect App Type**” drop-down menu and select “**Reselect once.**” Finally, click the **OK** button to save the new setting. In this way, you will be prompted to select your preferred interface again at

the next launch of the program.

If “None” is selected, you will be taken directly to the user interface selected previously.

3.8 Camera (SE-500MU PTC Control)

Note: The “Camera” menu appears only in the SE-500MU PTC Control user interface.



Option	Parameters	Parameter Value or Range	Default Value
Camera	Scan	Scan button	N/A
	Camera	Camera drop-down list	N/A
	IP	IP address display	N/A
	Input	Input 1 – 4	Input 1
	Camera Info	MCU FPGA MCTL	N/A

	Video Format	1080i59.94 1080i50 1080p29.97 1080p25 720p59.94 720p50 1080p59.94 1080p50 2160p29.94 2160p25	
	Mirror Mode	Off V H H + V	
	Joystick Pan	Normal Reverse	
	Joystick Tilt	Normal Reverse	
	R-Gain	0 - 255	
	B-Gain	0 - 255	
	Tally LED	Off Red Green	

3.8.1 Scan

The **SCAN** button, once clicked, will trigger the SE-500MU to search for all connected cameras.

3.8.2 Camera

All cameras successfully connected to the SE-500MU will be shown in the “**Camera**” drop-down list. Click to select the camera that you would like to configure.

3.8.3 IP

Cameras in the “**Camera**” drop-down list will be represented by A/B/C/D with each corresponding to CAM A-D respectively.

3.8.4 Input

The SE-500MU provides a quad view display and the user is allowed to manually assign the camera image selected from the “**Camera**” drop-down list to one of the following input display windows.

- Input 1
- Input 2
- Input 3
- Input 4

3.8.5 Camera Info

The camera’s installed firmware info.

3.8.6 Video Format

The available video formats for the camera:

- 1080i59.94

- 1080i50
- 1080p29.97
- 1080p25
- 720p59.94
- 720p50
- 1080p59.94
- 1080p50
- 2160p29.94
- 2160p25

3.8.7 Mirror Mode

The mirror mode configures the direction of the camera image. Below is a list of available mirror modes.

- Off: Normal
- V: Image flip along the vertical axis
- H: Image flip along the horizontal axis
- H+V: Image flip along vertical and horizontal axes

3.8.8 Joystick Pan

Customization of the joystick's pan direction:

- Normal: Default pan direction
- Reverse: Reverse of the default pan direction

3.8.9 Joystick Tilt

Customization of the joystick's tilt direction:

- Normal: Default tilt direction
- Reverse: Reverse of the default tilt direction

3.8.10 R - Gain

Red color gain ranges from 0 – 255; if the image is biased to blue (cool color), either increase the R-Gain or decrease the B-Gain.

3.8.11 B - Gain

Blue color gain ranges from 0 – 255; if the image is biased to red (warm color), increase the B-Gain.

3.8.12 Tally LED

The tally LED turns the camera tally ON/OFF. To activate the camera tally, simply set this item to either red or green. The available options are listed as follows:

- Off: Turns tally light off
- Red: Red tally
- Green: Green tally

3.9 Connect

The “**Connect**” Menu allows you to configure remote connection settings on the SE-500MU. Click the “**Interface**” pull-down menu to select DVIP or RS-232 interface then configure the connection accordingly. Please make sure the correct IP or COM Port is selected so that the connection can be successfully established.

The screenshot shows the 'Connect' menu with the following settings:

- Connection: Connect (dropdown), apply (button)
- Interface: RS-232 (dropdown)
- ComPort: COM3 (dropdown)
- EtherNetCard: [192.168.1.84] Ethernet (dropdown)
- Scan: Scan (button)
- IP Select: (empty dropdown)
- Host Name: (empty text field)
- Model Name: (empty text field)
- Mac Address: (empty text field)
- Address Mode: DHCP (dropdown)
- IP Address: 192.168.100.101 (text field)
- Network Mask: 255.255.255.0 (text field)
- Gateway: 192.168.100.1 (text field)
- IP Save: IP Save (button)

An OK button is located at the bottom right of the menu.

Option	Parameters	Parameter Value or Range	Default Value
Connect	Connection	Connect	
		Disconnect	
	Interface	DVIP	
		RS-232	
	Com Port	Pull-down menu	
	Ethernet Card	Pull-down menu	
	Scan	Click to scan the network	
	IP Select	Pull-down menu	
	Host Name	SE-500MU	
	Model Name	SE-500MU	
	MAC Address		
	Address Mode	Fixed IP	
		DHCP	
	IP Address	Enter manually	
	Network Mask	Enter manually	
	Gateway	Enter manually	
IP Save	Click to save the entered IP address, network mask and gateway settings.		

3.9.1 Connection

Select “**Connect**” to enable the remote connection and “**Disconnect**” to disable the remote connection.

3.9.2 Interface

The available interfaces are “**DVIP**” and “**RS-232**.”

3.9.3 Com Port

Click the pull-down menu to select the desired COM port from the displayed list.

3.9.4 Ethernet Card

Click the pull-down menu to select an Ethernet Card from the displayed list.

3.9.5 Scan

Click the **SCAN** button to scan the network to which the switcher is connected to.

3.9.6 IP Select

After scanning the network, click the “**IP Select**” pull-down menu to select the IP address of the switcher that you would like to access.

After selecting the switcher’s IP address, the device information such as **Host Name**, **Model Name** and **MAC Address** will be displayed immediately.

3.9.7 Address Mode

The **Address Mode** option allows the user to configure the switcher’s network settings. The available address modes are **FIXED IP** and **DHCP**. If the **FIXED IP** mode is selected, the user will be allowed to enter the network settings (**IP Address**, **Network Mask** and **Gateway**) manually. Once the correct network settings are entered, click the **IP SAVE** button to save the settings.

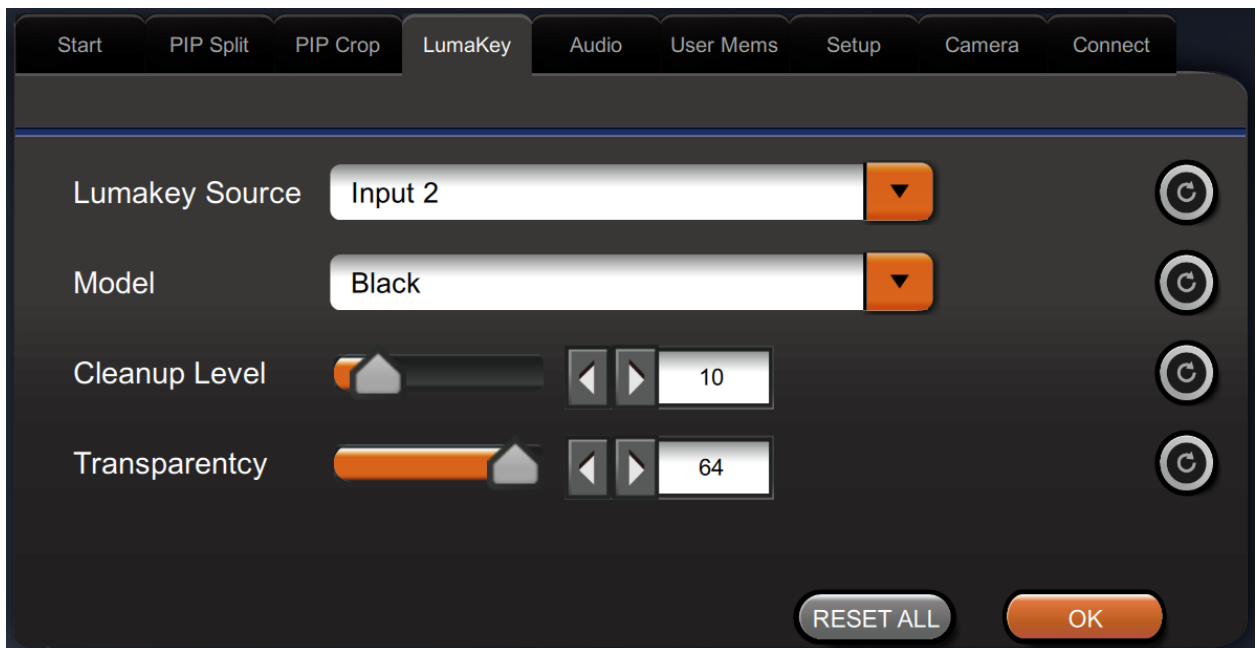
Chapter 4 Applications

4.1 Placing a logo on the video using the lumakey function

The SE-500MU allows the user to place a logo on the video using the lumakey function. First of all, create a 1920x1080 (16:9) logo against a black or white background on a laptop. Once the logo is created, please follow the steps outlined as follows to insert the logo layer.

Note: If the logo is dark, choose a white background; if the logo consists primarily of bright colors, choose a black background.

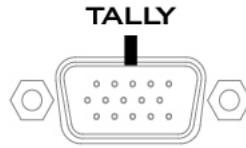
1. Connect the laptop to one of the switcher's **HDMI Input Ports**, HDMI Input 2 for example.
2. Click the **MENU** button on the Software Interface to open the **Setting** window.
3. Click the **LumaKey** tab and on the menu that opens, set the "**LumaKey Source**" to **Input 2**.
4. In this example, the logo is against a black background so **Black Mode** is chosen.
5. Set the "**Cleanup Level**" to 10 if the background is in total black.
6. "**Transparency**" is set to 64 if an opaque logo is desired. **Opaque** logo can be created by setting the "**Transparency**" parameter to 64. **Semi-transparency** effect can be generated by setting the "**Transparency**" to a value between 0 and 64.



7. Exit the menu once the configuration is complete.
8. Click the **Luma Key PGM** button to place the logo on the Program screen or the **Luma Key PVW** button to place the logo on the Preview screen.

Chapter 5 Appendices

Appendix 1 Tally Outputs



The SE-500MU has a D-sub 15 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. The ports are open collector ports and as such do not provide power to tally light circuits.

The pin outputs are defined as follows:

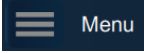
PIN No.	Signal Name	Input/Output	Description of Signal
1	Program 1	Open collector output	Tally output of input video Program 1
2	--	--	No Function
3	Preview 1	Open collector output	Tally output of input video Preview 1
4	RCOM (GND)	Ground	Ground
5	Program 4	Open collector output	Tally output of input video Program 4
6	Program 2	Open collector output	Tally output of input video Program 2
7	--	--	No Function
8	Preview 2	Open collector output	Tally output of input video Preview 2
9	GND	Ground	Ground
10	--	--	No Function
11	Program 3	Open collector output	Tally output of input video Program 3
12	--	--	No Function
13	Preview 3	Open collector output	Tally output of input video Preview 3
14	YCOM (GND)	Ground	Ground
15	Preview 4	Open collector output	Tally output of input video Preview 4

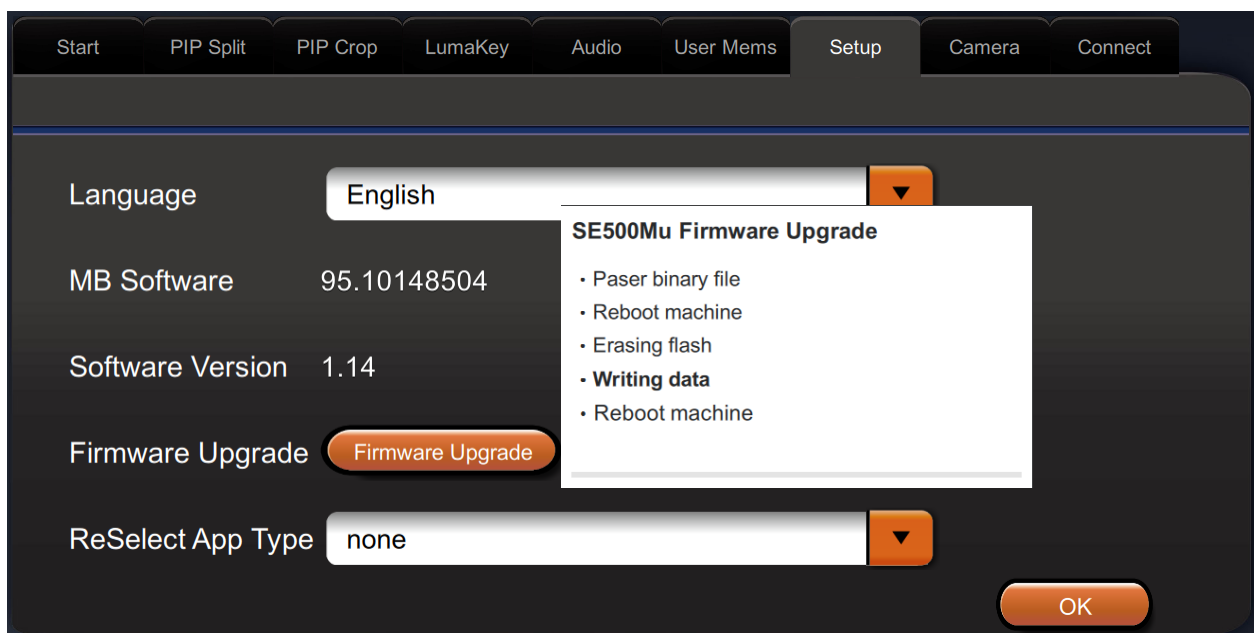
Appendix 2 Firmware Upgrade

Datavideo usually releases new firmware containing new features or reported bug fixes from time to time. Customers can either download the SE-500MU firmware as they wish or contact their local dealer or reseller for assistance.

This section outlines the firmware upgrade process which should take ***approximately few minutes to complete***. The existing SE-500MU settings should persist through the ***firmware upgrade process, which should not be interrupted once started*** as this could result in a non-responsive unit.

During the firmware upgrade process, please make sure power and RS-232 connections are not interrupted.

1. Follow the procedure outlined in the section on “**Connect on RS-232 Interface**” to connect the PC to the SE-500MU.
2. Run se500MuControl.exe to launch the User Interface.
3. At the top right of the interface, click the menu icon  to open the **Main Menu**.
4. On the main menu, click the **Setup** tab.
5. On the **Setup** tab page, scroll down to the bottom and then click the **Firmware Upgrade** button.
6. Select the firmware SE500MUM_Vx.xx.x.xx.bin to start the upgrade.
7. An SE500MU Firmware Upgrade dialog box will pop up to display the upgrade progress.



8. Reboot the machine after the firmware upgrade is finished successfully.
9. After the machine is rebooted, you will immediately see images of the four inputs being displayed on the MV monitor. Reconnect to the SE-500MU via the RS-232 interface. On the **Setup** tab page, confirm that MB Software displays the correct version number of the firmware installed.

Remark 1: If the firmware upgrade process is interrupted, you may see nothing displayed on your screen after the machine is rebooted but connection to the SE-500MU can still be established. On the PC APP, you will see that the switcher is working in the Bootloader mode. At this point, do not

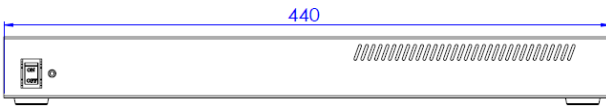
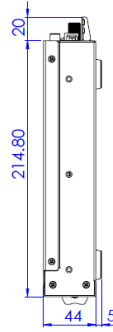
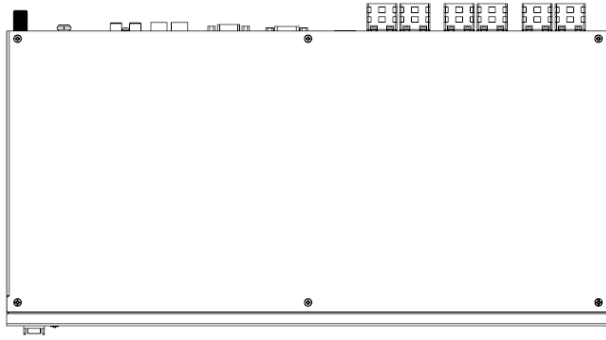
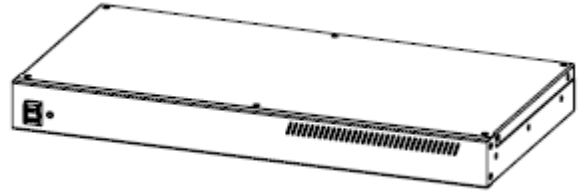
operate the switcher but click the Firmware Upgrade button to re-run the firmware upgrade process.

Remark 2: If your RS-232 connection is transmitting at 115,200 bps, please restrict the cable length to less than two meters as long cable connection may deteriorate signal quality, leading to unstable connection.

Note 1: Please disconnect all HDMI IN ports to prevent firmware upgrade failure.

Note 2: Firmware upgrade can only be done via the RS-232 interface.

Appendix 3 Dimensions



All measurements in millimeters (mm)

Appendix 4 Specifications

Model Name	SE-500MU
Product Name	4 Channel HD Video Switcher
Video Standard	Full HD & SD
Video Format	1080p 50/59.94/60Hz 1080i 50/59.94/60Hz 720p 50/59.94/60Hz 576i 50Hz 480i 59.94Hz
Video Processing	HDMI: YUV 4:4:4 10 bit, RGB: 4:4:4
Input Routable / Crosspoint	N/A
Video Input	4 x HDMI
Mix HD & SD Source	Yes
Computer Graphical Interface	4 via HDMI
Video Output	2 x HDMI (1 is MV, 1 is PGM)
Down-Converted Output	Yes
Built-in Multi-View Monitoring Out	HDMI
Audio Input	1 x Stereo RCA (L/R) 2 x Mono Microphone De-embedded Digital Audio (2 CH)
Audio Output	1x Stereo RCA (L/R) Embedded Digital Audio (2 CH)
Embedded Audio Support	Embedded 2-CH digital/analogue audio
Audio Delay Calibration	N/A
A+V Switching	Yes
Chromakey	N/A
Title Creator	N/A
USK	Lumakey
DSK	N/A
Picture in Picture	1
Logo Insertion	N/A
Still Store	N/A
Effects	FTB, Cut, Wipe with border

Transition Preview	N/A
Sync / Reference In / Out	Built-in Genlock (internal)
Tally Output	1x D-sub 15pin, dual color
PC Remote Control	N/A
Built-in Audio Mixer	N/A
Special Features	Support Apple iOS, Apple MAC, Android Control Built-in video scaler for mixed resolution inputs
Chassis	1 RU Rackmount
Power	DC 12V 20W
Accessory	CB-60/61/62 (30/50/100m)

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