

HD 4-CHANNEL
VIDED SWITCHER
SE-500MU
Instruction manual

Table of Contents

FCC COMPLIANCE STATEMENT	5
WARNINGS AND PRECAUTIONS	5
WARRANTY	6
STANDARD WARRANTY	6
THREE YEAR WARRANTY	
DISPOSAL	6
CHAPTER 1 INTRODUCTION	
1.1 FEATURES	
CHAPTER 2 CONNECTIONS AND CONTROLS	
2.1 REAR PANEL	8
2.2 FRONT PANEL	
2.3 SOFTWARE CONTROL UI	10
2.3.1 Installation	
2.3.2 Connect on DVIP Interface	11
2.3.3 Connect on RS-232 Interface	
2.3.4 Functions	
CHAPTER 3 SETTING PARAMETERS	20
3.1 Start	20
3.1.1 Transition Type	21
3.1.2 Transition Speed	21
3.1.3 Wipe Effect	21
3.1.4 WIPE Border Size	21
3.1.5 WIPE Border Color	21
3.1.6 BKG Color	21
3.2 PIP / SPLIT	22
3.2.1 PIP Source	23
3.2.2 PIP Size (PIP Window Size)	23
3.2.3 Position X	23
3.2.4 Position Y	23
3.2.5 Split Source	23
3.2.6 Border Size	24
3.2.7 Border Color	24
3.3 PIP CROP	24
3.4 LUMAKEY	25
3.4.1 Lumakey Source	26

3.4.2 Mode	26
3.4.3 Cleanup Level	26
3.4.4 Transparency	26
3.5 AUDIO	26
3.5.1 Mute	27
3.5.2 HDMI Input	27
3.5.3 HDMI Group	27
3.5.4 Level	27
3.5.5 Tally Mode	27
3.6 USER MEMS	27
3.6.1 Load Memory	28
3.6.2 Save Memory	28
3.7 Setup	28
3.7.1 PGM Out Res	30
3.7.2 MV Out Res	30
3.7.3 Save Setup	30
3.7.4 Factory Default	30
3.7.5 Language	31
3.7.6 MB Software / Software Version	31
3.7.7 Firmware Upgrade	31
3.8 CONNECT	31
3.8.1 Connection	32
3.8.2 Interface	32
3.8.3 Com Port	32
3.8.4 Ethernet Card	32
3.8.5 Scan	32
3.8.6 IP Select	32
3.8.7 Address Mode	32
CHAPTER 4 APPLICATIONS	33
4.1 PLACING A LOGO ON THE VIDEO USING THE LUMAKEY FUNCTION	33
CHAPTER 5 APPENDICES	34
APPENDIX 1TALLY OUTPUTS	34
Appendix 2 Firmware Upgrade	35
Appendix 3 Dimensions	37
Appendix 4 Specifications	
SERVICE AND SUPPORT	40

Disclaimer of Product & Services

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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.

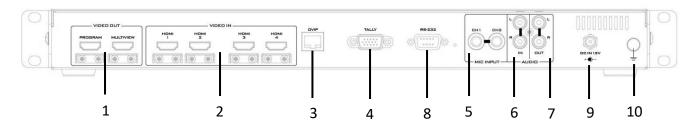
SE-500MU offers 4 HDMI inputs, a program output and a quad view output. The switcher supports video resolutions up to Full HD 1080p and provides functions such as Cut, Mix, Wipe Transitions, Fade to Black, PIP, Split, and Luma Keying.

1.1 Features

- Supports up to Full HD 1080p
- Remote Control over an Ethernet 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 Input: HDMI x 4
- 2 Video Output: 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)
- 2 HDMI Video Input 1-4
- 3 DVIP Port
- 4 TALLY Output Port
- **5** MIC IN CH1/CH2

- 6 Audio Input Stereo RCA (Left/Right)
- 7 Audio Output Stereo RCA (Left/Right)
- 8 RS-232 Port
- 9 DC IN
- **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

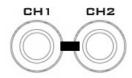
This port allows the SE-500MU to connect directly to the PC or an Ethernet switch or router.



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.



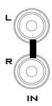
MIC INPUT

5. MIC IN - CH1/CH2

Two Channels of unbalanced MIC input.

ı	States	
` '		
IVIICZ	MIC 1(L) and MIC 2(R) are	
	respectively connected to left (CH	
	1) and right (CH 2) channels.	
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.	
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*	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*	

^{*}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.





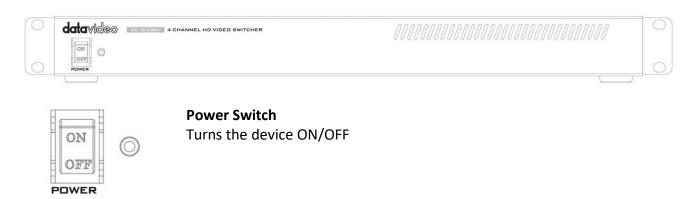
DC in socket connects the supplied 12V / 19W PSU. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.



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



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.



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** as shown below.

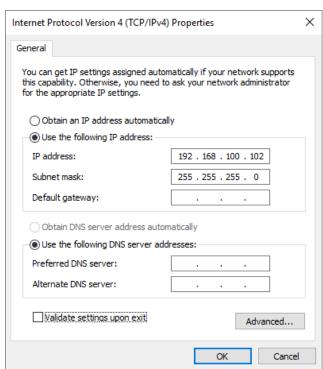


After successfully installing the SE-500MU's Software Control UI, follow the connection setup procedures outlined in the next two sections to establish direct connection between your PC and the switcher.

2.3.2 Connect on DVIP Interface

To connect to the SE-500MU on the DVIP interface, you should 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 Settings window.
- 6. On the Settings window, 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 rear panel of the SE-500MU, push the IP RESET button to display the device's physical IP and MAC addresses on MV out.

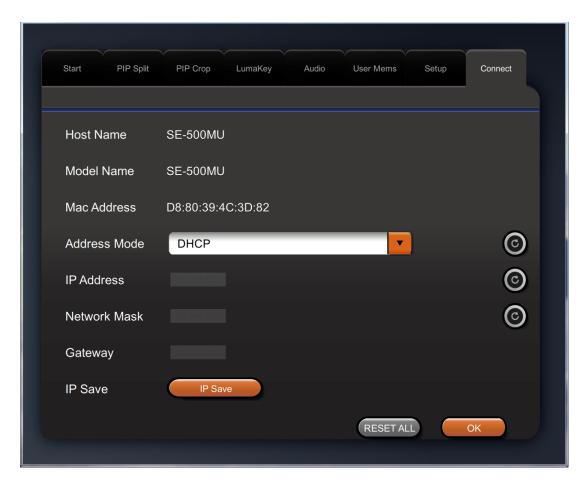


10. Now scroll down the **Connect** tab page to view the switcher's IP information and check if the Model Name displayed is "**SE-500MU**."

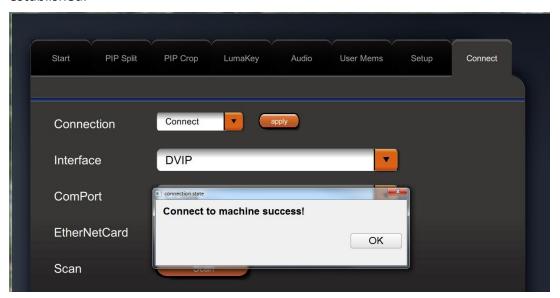
Note 1: If the **Address Mode** is "Fixed IP," please make sure the IP address is in the same IP range as the **EtherNetCard**, i.e. their first three octets are the same.

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 allowed to automatically assign an IP address to the switcher. After the new IP address has been assigned, please repeat Steps 8 and 9 to scan the network and select the corresponding IP address. 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 and confirm the IP assignment on the Multiview.



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 the connection is 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 to open the Settings window.
- 4. On the Settings window, 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.

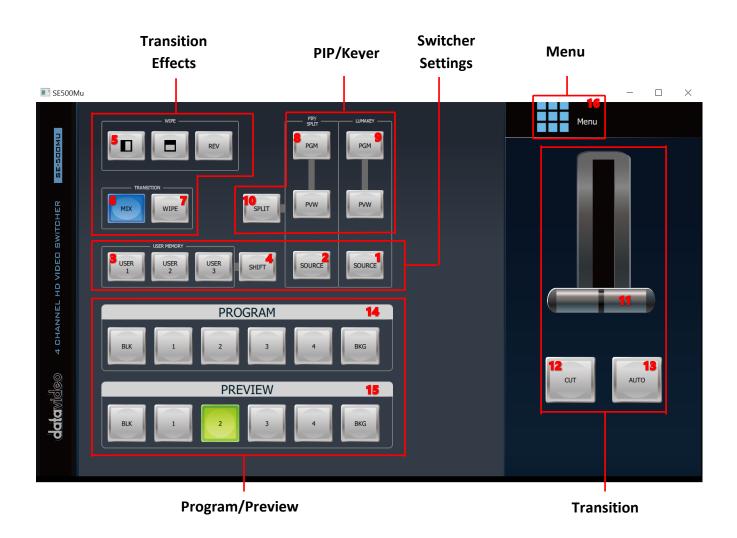


8. Click **OK** to close the dialog box and on the main screen, the "**Connected**" status will be displayed at the bottom right corner, indicating that the SE-500MU is ready for control.

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 Functions

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.



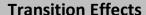
User Memory

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 <u>User Memory</u> section for more information.



Shift Button

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





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.



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/Disa



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 <u>Luma Key</u> section for luma key configurations.

SOURCE: Pressing 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 press 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.

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.

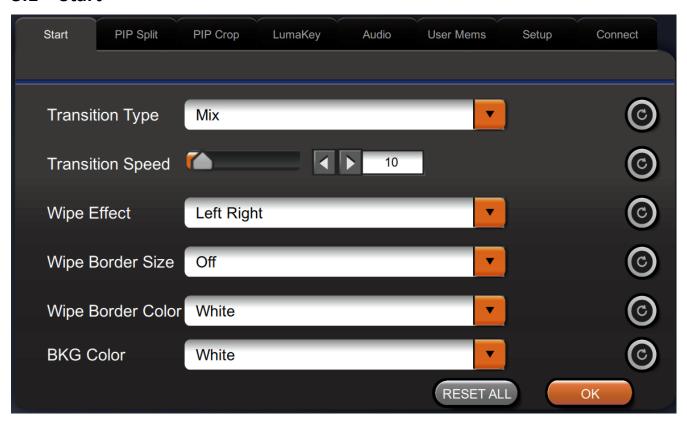
BKG button: Clicking the **BKG** button will switch the background to the **Matte** background or color bars.

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

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, in the setup option, the user is allowed to set video output resolution, reset to factory default, and selects the interface language.

3.1 Start



Option	Parameters	Parameter Value or Range	Default Value
	Transition Type	MIX	Mix
	Transition Type	WIPE	
	Transition Speed	1-200 frames	60 frames; the duration in second depends on the Program OUT resolution.
		1. Left Right	1
	WIPE Effect	2. Top Bottom	
		3. Center	
Start		OFF	Small
Start	WIPE Border Size	Small	
WIPE Border Size	Middle		
		Large	
		White	Red
		Yellow	
v	WIPE Border Color	Cyan	
	WIPE BOIDER COIOF	Green	
		Magenta	
		Red	

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

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 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.

3.1.5 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

3.1.6 BKG Color

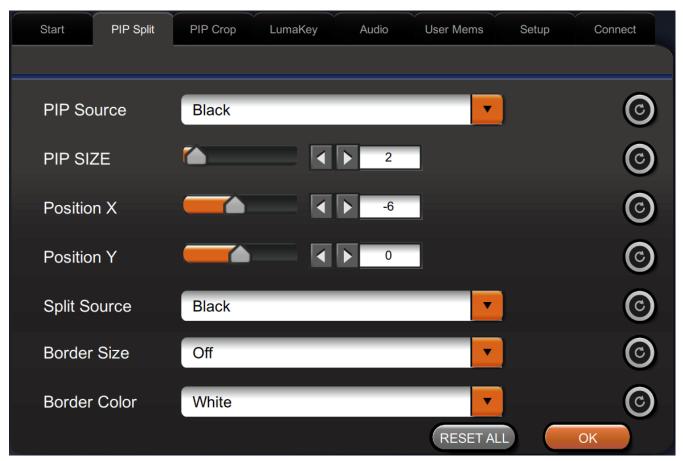
In this option, you will be allowed to assign a color to the **BKG** button. The available colors are listed as follows:

- 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
		Black	Input 2
		Input 1	
		Input 2	
	PIP Source	Input 3	
		Input 4	
		Background	
		Color Bar	
_	PIP Size	1-100%	30%
PIP/Split	Position X	-50% - +50%	20%
	Position Y	-50% - +50%	10%
		Black	Input 2
		Input 1	
		Input 2	
	Split Source	Input 3	
		Input 4	
		Background	
		Color Bar	

	OFF	Small
Border Size	Small	
Border Size	Middle	
	Large	
	White	Red
	Yellow	
	Cyan	
Border Color	Green	
Border Color	Magenta	
	Red	
	Blue	
	Black	

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

Tip: To quickly assign the PIP source, simply press and hold the PIP PGM button and then select a source from the Program BUS.

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.

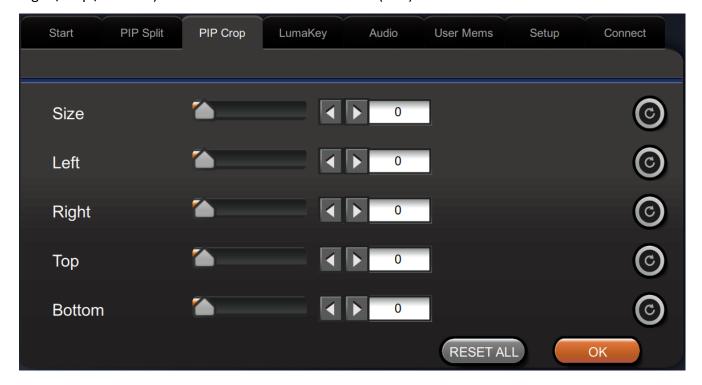
3.2.7 Border Color

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
	Size	0-100%	0
PIP Crop	Left	0 – 100%	0
	Right	0-100%	0

Тор	0 – 100%	0
Bottom	0 – 100%	0

Effects of the five sliders are described below:

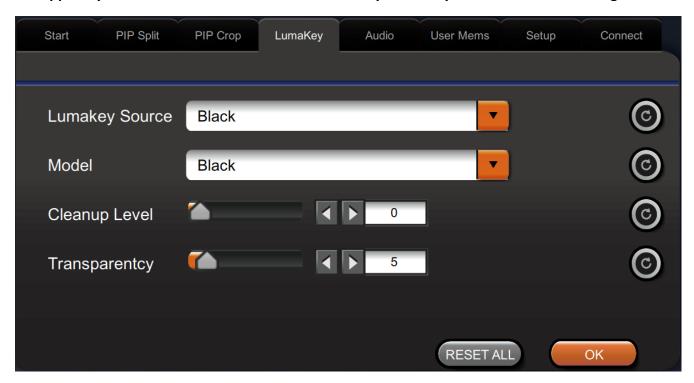
- Left Adjusts the position of the left edge of the PIP window;
- Right Adjusts the position of the right edge of the PIP window;
- Size Adjusts the PIP image crop size;
- **Top** Adjusts the position of the top edge of the PIP window;
- **Bot** Adjusts the position of the bottom edge of the PIP window.

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
		Black	Input 2
		Input 1	
		Input 2	
	Lumakey Source	Input 3	
		Input 4	
Lumakey		Background	
,		Color Bar	
	Mode	Black	Black
	Cleanup Level	White	
		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

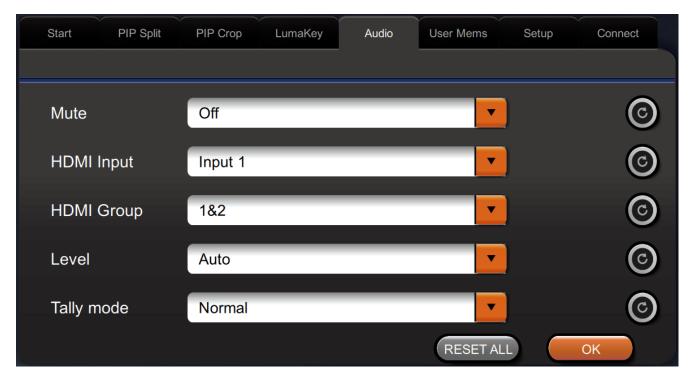
The **Cleanup Level** allows the user to fine tune the effect of the luma key. The default value is 20.

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, set the audio type, selecting your tally type and etc.



Option	Parameters	Parameter Value or Range	Default Value
	Mute	OFF/ON	Off
Audio	HDMI Input	Input 1-4 / Follow	Follow
Audio	HDMI Group	Channel 1/2	Channel 1/2
		Channel 3/4	

	Channel 5/6 Channel 7/8	
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.

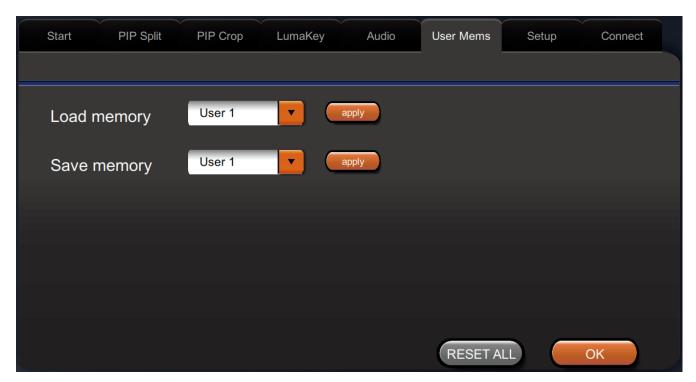
The SE-500MU provides two tally modes:

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
		1080p/60	
		1080p/59.94	
		1080p/50	
		1080i/60	
		1080i/59.94	
	PGM Out Res.	1080i/50	
		720p/60	
		720p/59.94	
		720p/50	
		576i	
		480i	
Setup		1080p/60	
Setup		1080p/59.94	
		1080p/50	
		1080i/60	
	MV Out Res.	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		

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.

Note: The new resolution will be effective once selected. If you have selected a resolution that is not supported by the monitor, you will not be able to view the OSD menu. In this case, please reboot your machine to restore the default resolution previously configured in the "Save Setup" option.

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

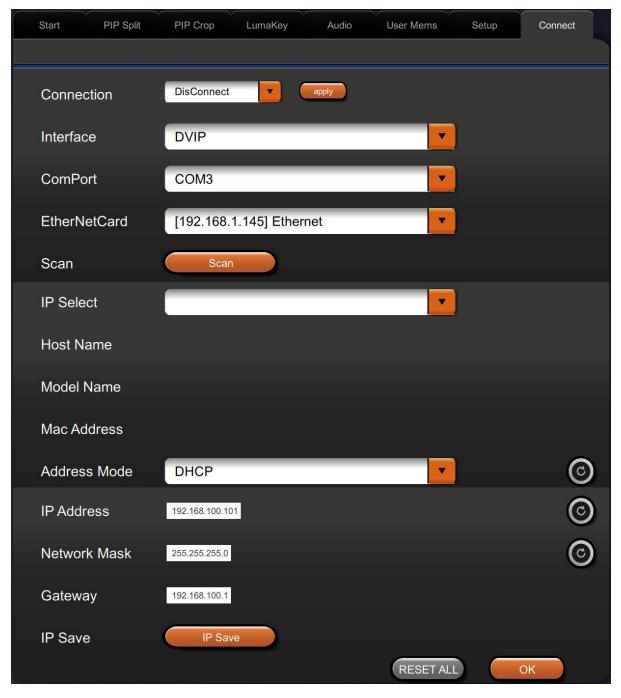
Mainboard and keyboard software versions will be displayed.

3.7.7 Firmware Upgrade

Click the Firmware Upgrade button to perform a firmware upgrade.

3.8 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 and then configure the connection accordingly. Please make sure the correct IP or COM Port is selected so that the connection can be successfully established.



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.	

3.8.1 Connection

Select "Connect" to enable the remote connection and "Disconnect" to disable the remote connection.

3.8.2 Interface

The available interfaces are "DVIP" and "RS-232."

3.8.3 Com Port

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

3.8.4 Ethernet Card

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

3.8.5 Scan

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

3.8.6 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.

3.8.7 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" parameter to a value between 0 and 64.
- 7. Exit the menu after the Logo is properly configured.
- 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

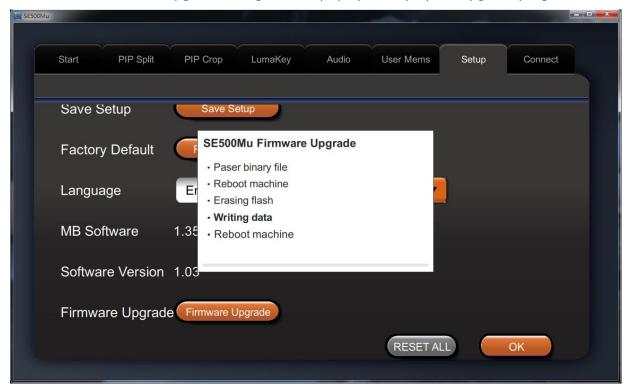
Appendix 2 Firmware Upgrade

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 Settings window.
- 4. On the Settings window, 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.

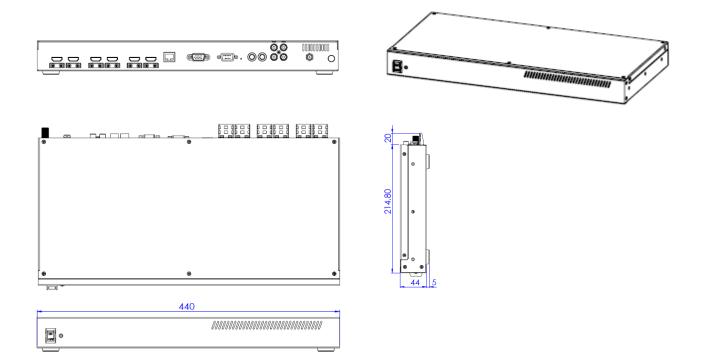
Remark 1: If the firmware upgrade process is interrupted, you may see nothing displayed on your screen after the machine is rebooted but connection to the SE-500MU can still be established. On the PC APP, you will see that the switcher is working in the Bootloader mode. At this point, do not operate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

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	НДМІ	
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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