

***ez-Pro***

# **VS4**

H D S W I T C H E R

O P E R A T I O N

M A N U A L

**LUMANTEK**

**Revision Number: 1.0.0**

**Distribution Date: June 2017**

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#### **Warranty Period**

Lumantek's products comes with One (1) year limited warranty. Please contact below if you need more information.

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**Installation Precautions**

This page states the safety measures the users must take to avoid circumstances where the system may cause physical damages or injuries. Please THOROUGHLY go over this page before the system installation/operation.

**General Precautions**

- Maintain dust FREE condition during and after System Installation/Operation.
- Place the system cover in a safe location when opened.
- Securely stow tools and cables away from the passages.
- Avoid wearing loosened clothes or accessories during installation/Operation.
- Avoid any unnecessary actions that may damage/harm system or personnel.
- Do NOT open the system unless advised by Lumantek representative. Lumantek takes no responsibility on units with broken RMA seals.

**Power Precautions**

- Please check cable overload before connecting the system to the power supply.
- Avoid wearing metal accessories (Rings, Earrings) connecting system to the power source.
- Avoid operating on wet floors. Make sure power extension cables, floors, and instruments are grounded and in a safe operating condition.
- Discharge static electricity by touching grounding metals before starting hardware installation.
- The grounding parts must be disassembled last.
- Manufacture takes no responsibilities on Direct/Indirect losses or damages due to use of inappropriate parts or services by unauthorized service provider
- Supplying power during the system installation may cause damages to the system and personnel.

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## 4CH Video Switcher

### Introduction

Lumantek's ezStudio is an Audio & Video production brand developed by converging encoding and video switching technology suitable for small studios.

VS4 is a new product in ezStudio range, and a stand-alone type video switching console with integrated scaler.

The input resolution is scaled to system resolution and outputs 1 SDI and 1 HDMI channels. The "multiview" screen allows monitoring of a program (PGM) screen, preview (PVW) screen, and 4 input video sources. Each source is scaled and synchronized then controlled by the console.

Internal video processing:	4:2:2 10 bits or 4:2:2 8bits.
Audio:	4 video audio inputs (SDI/HDMI) 2 separate audio inputs

### Features

#### 1. Inputs & outputs

Input: 1 SDI  
1 SDI / HDMI (select 1)  
2 HDMI

Output: 1 SDI (PGM)  
1 HDMI (PGM)  
1 HDMI (Multiview)

#### 2. Picture in Picture (PIP), Keyer (Chroma/Luma)

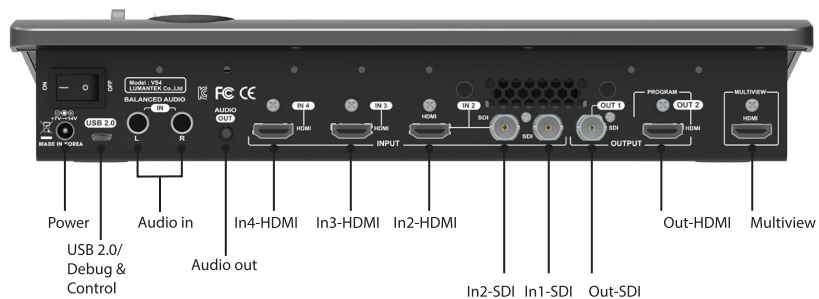
#### 3. 3G-SDI levels A and B support in SDI inputs

<Front>

Power LED



<Rear>



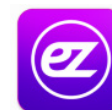
Stand-alone  
Video Switcher



Accessories



Manual



[S/W download]  
(주소: <http://www.lumantek.com>)

### 3. Interface

#### HDMI Multiview Layout

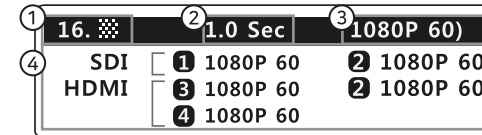


Red : -  
Yellow : Peak  
Green : Average

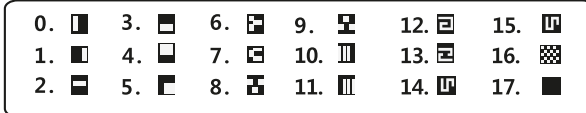


### 3. Interface

#### LED Screen : Main



#### ① Screen transition effects : effects 0 to 17



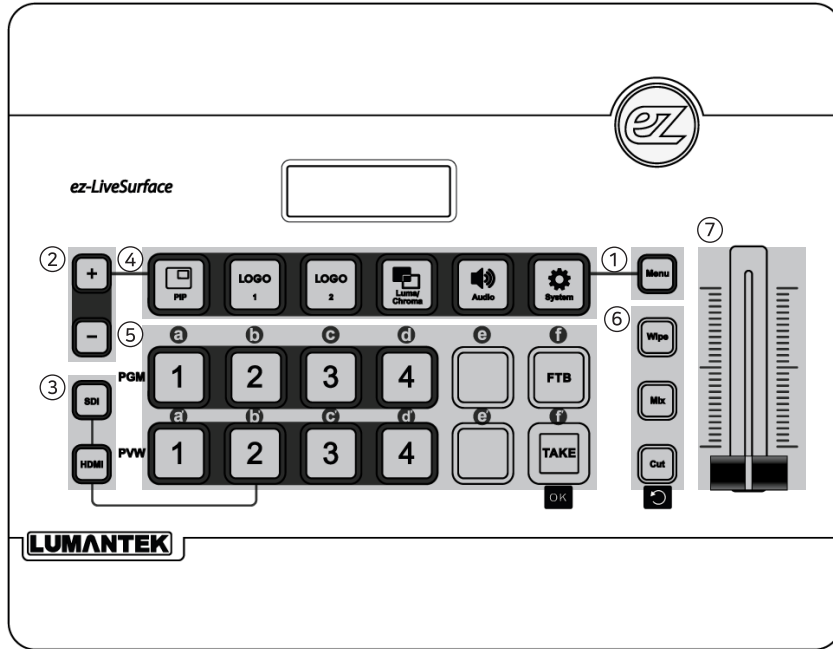
#### ② Screen transition time (sec)

0.5 /1.0 /1.5 /2.0 /2.5 /3.0

#### ③ System Resolutions

1080p60/1080p59/1080p50/1080p30/1080p29/1080p25/  
1080p24/1080p23/  
1080i60/1080i59/1080i50/  
720p60/720p59/720p50

#### ④ Input Resolutions



**Different functions are applied depending on the mode.**

- SWITCHER mode : [SW]
- MENU mode : [ME]

#### ① MENU key

(Menu button blinks while in Menu mode)

- [SW] - calls SWITCHER mode / resets sub-menu settings
- [ME] - calls MENU mode

#### ② UP & DOWN keys

- [SW] - changes transition time
- [ME] - changes values in settings

#### ③ SDI/HDMI keys

- [SW] - changes input channels between SDI and HDMI ports
- [ME] - changes sub-menu settings to their max. or min.  
SDI key - Maximum value  
HDMI key - Minimum value

#### ④ FUNCTION keys

- PIP / LOGO1 / LOGO2 / LUMA & CHROMA keys :  
[SW] - enable or disable functions  
[ME] - go to functions menu
- AUDIO / SYSTEM keys :  
[SW] - go to menu  
[ME] - go to menu

#### ⑤ SCREEN CONTROL keys

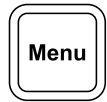
- Program (PGM) number keys  
[SW] - selects input channels  
[ME] - "alphabet" keys are activated for option selection
- Preview (PVW) number keys:  
[SW] - selects input channels
- Fade to Black (FTB) key:  
[SW] - fades the screen to black
- Take (TAKE) key:  
[SW] - play transition  
[ME] - applies changed settings (TAKE key blinks when changes are made but unsaved)

#### ⑥ TRANSITION keys (played by pushing TAKE key)

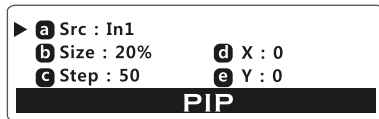
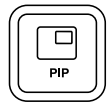
- Wipe key:  
[SW] - applies "wipe" transition effect
- Mix key:  
[SW] - applies "mix" transition effect
- Cut key:  
[SW] - applies "cut" transition effect  
[ME] - reverses sub-menu selection or switches the system to SWITCHER mode

#### ⑦ T-BAR

- Apply transition effect manually

**MENU Screen**

- Shows the version of the device

**PICTURE IN PICTURE (PIP) Screen**

[a] Src: Input source selection

[b] Size: In-picture size settings (10% ~ 50% of the screen size)

[c] Step: Units of pixels affecting effects of buttons [d] and [e]

[d] X: Horizontal displacement of In-picture screen

[e] Y: Vertical displacement of In-picture screen

(Upper-left corner of the screen has the coordinates 0,0)

**LOGO1 & LOGO2 Screen**

[a] Step: Units of pixels affecting effects of button [b] and [c]

[b] X: Horizontal displacement of the logo

[c] Y: Vertical displacement of the logo

(Upper-left corner of the screen has the coordinates 0,0)

**CHROMA Screen**

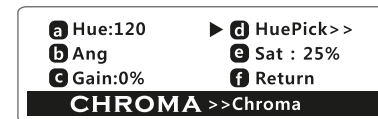
[a] Src: Input source selection

[b] Color: Color of the Chroma background (green, blue, user)

[c] Chroma: Go to "Chroma" menu

[d] Value: Go to "Value" menu

(VALUE/CHROMA Screens are interchangeable by changing setting in SYSTEMS Screen)

**CHROMA Screen >> chroma**

[a] Hue : Color setting for transparent foreground

[b] Ang : Color range setting to make the foreground transparent

[c] Gain : Range setting for foreground translucent

[d] HuePick: Go to "HuePick" menu

[e] Sat : Chroma range setting for translucent foreground

[f] Return: Go to previous menu

**CHROMA Screen >> chroma >> Hue Pick**

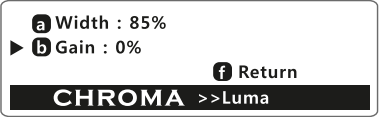
[a] X: Horizontal displacement of chroma

[b] Y: Vertical displacement of chroma

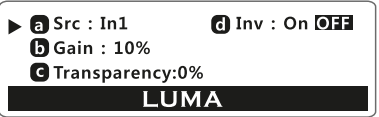
\* Hue: Value of hue from X and Y

[f] Return: Go to previous menu





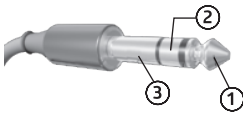
**CHROMA Screen >> Luma menu**  
[a] Width: Transparent foreground luma area  
[b] Gain: Translucent foreground luma area (outside of width)  
[f] Return: Go to previous menu



**LUMA Screen >>**  
It can be triggered by changing the settings in the SYSTEMS menu.  
[a] Src: Input source selection  
[b] Gain: Translucent area setting of foreground  
(100% :Only black is transparent, 0% largest translucent area)  
[c] Transparency: Minimum transparency % of foreground  
[d] Inv: Turn invert on/off  
  
(LUMA/CHROMA Screens are interchangeable by changing setting in SYSTEMS Screen)



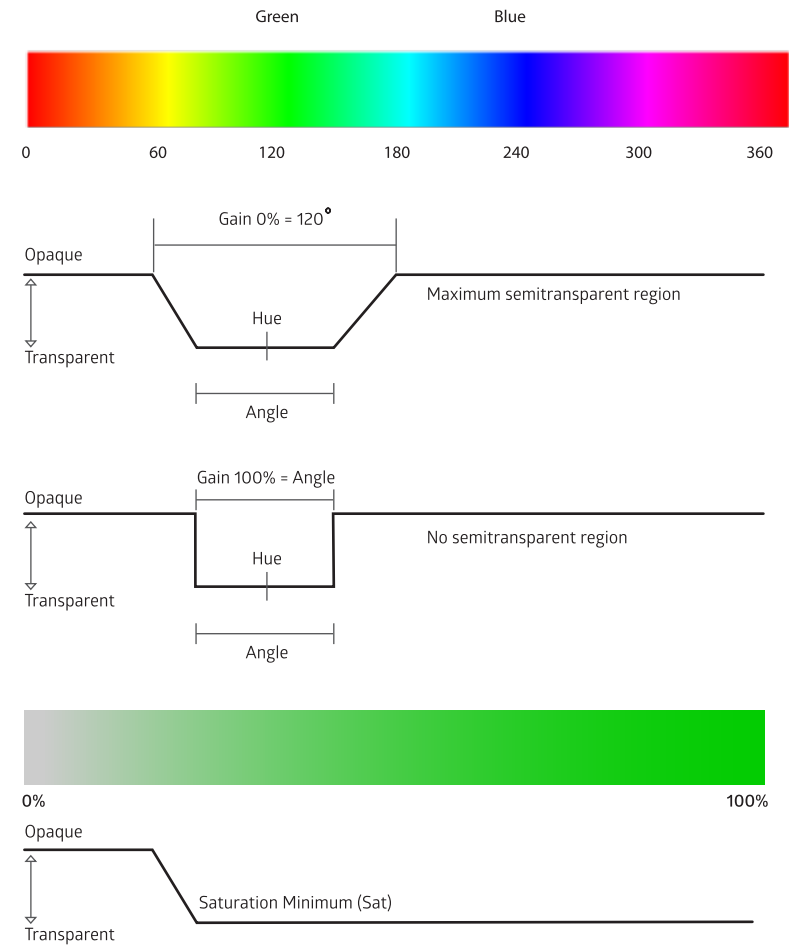
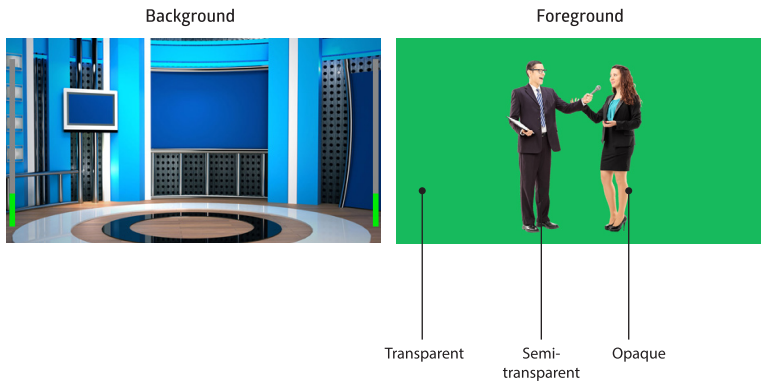
**AUDIO Screen**  
[a] In 1 [a'] In 1 mute  
[b] In 2 [b'] In 2 mute  
[c] In 3 [c'] In 3 mute  
[d] In 4 [d'] In 4 mute  
[e] External Input [e'] External In mute  
[f] Master  
  
(Mixer concept audio control)  
(Volume controllable in units of 3dB)  
(Input sound can be identified on the "Multiview" Screen)  
(Volumes can be muted with respective keys on the "PVW" row.)



**[e] External Input**  
1. Tip : positive polarity for balanced mono signals  
2. Ring : negative polarity for balanced mono signals  
3. Sleeve : usually ground

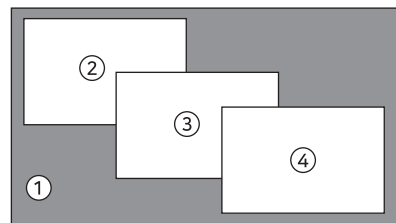


**SYSTEM Screen**  
a : System resolution configuration  
b : Chroma, Luma menu selection  
c : Control of In-Audio (0dB, original sound / -10dB (10dB decreased))  
d : save  
e : load  
f : default



## 5. Screen

### Program Screen



- ① **BACKGROUND Screen** : Inputs 1/2/3/4
- ② **CHROMA/LUMA**  
Chroma: Used a lot in programs like weather broadcast  
Luma: Used to apply power point screens
- ③ **LOGO1 & LOGO2**  
File formats in bmp and png can be applied through USB 2.0  
Saved in the internal ROM.  
Max size: 512 x 512 up to 2 logos
- ④ **PICTURE IN PICTURE (PIP)**  
Inserts a screen over another screen

## 5. Screen

### Multiview Screen



- **Multiview displays the audio status**
  - Input screens: volume of each inputs are visible
  - Preview (PVW): shows volume of "analog audio input"
  - Program (PGM): shows volume of output program
- **Chroma / Luma / Logo1 / Logo2 are visible on the "Multiview" screen.**
  - PIP / LOGO1 / LOGO2 are visible as a rectangle frame on the Multiview screen while changing position
  - HuePick icon appears while using "Hue Pick" option of the "Chroma" Menu (PIP is not available on the "Multiview" screen.)

#### 4x1 Video Switcher with Scaler

##### Input

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Video Input: SDI(BNC 75Ω) x2, HDMI x3

Analog Audio Input : 6.35mm(1/4") Phone Jack(Balanced) x 2  
±10V (Max) @ -10dB

##### Output

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Video Output(PGM) HDMI x1, SDI(BNC 75Ω)x1

Multiview Output: HDMI x1

Analog Audio Output: 3.5mm Stereo Jack x 1

##### Key

- PIP x 1

- LOGO x 2

- CHROMA/LUMA x 1

Internal Processing : 4:2:2 10bits/8bits

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##### Resolution supported

###### Input

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- SD : 480i59/ 576i50/

- HD : 1080p30/1080p29/1080p25/1080p24/1080p23/  
1080i60/1080i59/1080i50/720p60/720p59/720p50

- Full HD : 1080p60/1080p59/1080p50

###### Output

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- HD : 1080p30/1080p29/1080p25/1080p24/1080p23/  
1080i60/1080i59/1080i50/720p60/720p59/720p50

- Full HD : 1080p60/1080p59/1080p50

##### Management

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###### Console

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USB2.0 @ GUI application, Firmware Upgrade, LOGO Update

##### Physical

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Dimension : 70(H) X 297(W) X 230(D)(excluding connectors)

Power Input: DC 7 - 14V

Operation Temperature: 0 - 40C

Power Consumption: 20W(max)

Weight: 1.7Kg

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