

HD Digital Video Switcher

SE-2000R



Quick Start Guide

www.datavideo-tek.com

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What's in the box?

1	x	XLR 4P-F to DC Jack CAD-02
1	x	Switching AD DC12V/1.5A
1	x	SE-2000R Instruction Manual

Introduction

Thank you for purchasing SAE-2000R Digital Video Switcher. We hope you will be pleased with your purchase, and with what you can achieve with this advanced piece of technology. In order to get the most out of your new switcher, we recommend that you spend some time getting familiar with this manual, as it will describe in detail all the functions of this unit. In addition, you'll find some useful background information on video.

Product Overview

The SE-2000R is an HD input, digital processing live video switcher. The SE-2000R includes 6 groups of video inputs (4x BNC connector for HD -SDI & 2 x DVI), and 4 x video outputs PGM (2x HD-SDI output, 1x HD-YUV output, and, PVW (1x DVI-D output), PVW output include 6x monitoring screen and 1x PVW screen and 1x PGM screen. These allow easy monitoring of inputs and/or outputs. A built in frame synchroniser ensures glitch free switching of non synchronised inputs. Additional sockets include, Tally light output, RS-232 interface for firmware update.

Features

- **FULL HD:**

- Input:**

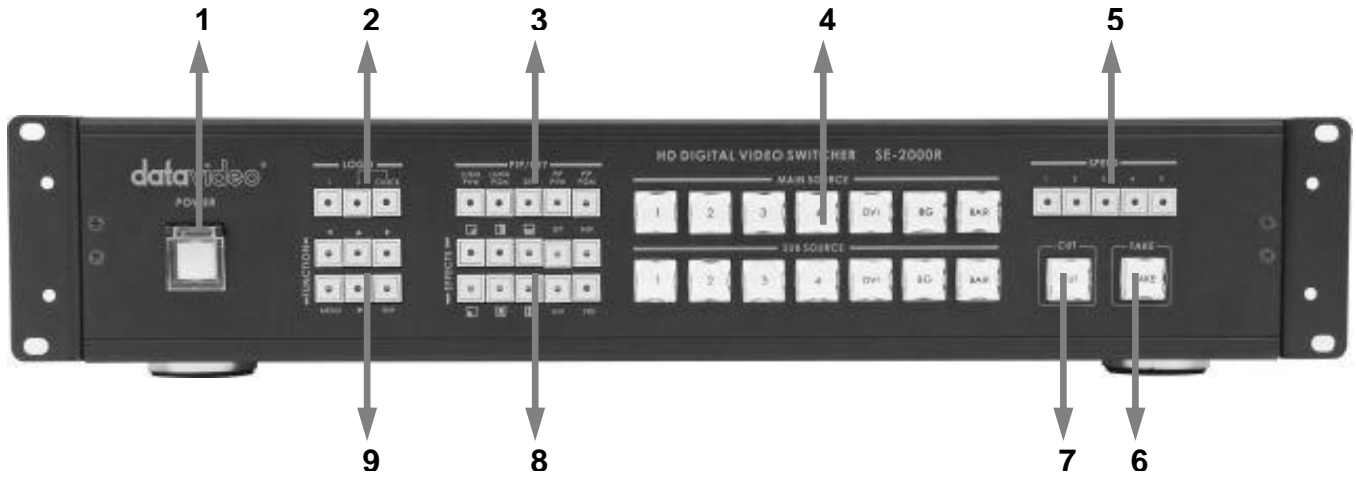
- 4x HD-SDI and 1x DVI-D input or 3x HD-SDI, and 2x DVI-D input (Options)

- Output:**

- PGM: Full HD output, HD-SDI and HD-YUV format
 - PVW: DVI-D

- PVW out with multi image and digital clock display
- DVI-D for power point presentation, simple title, support full HD input.
- LOGO insertion, up to 14 logos pre-store and LOGO's size is 256x192 pixels
- LUMA key
- PIP, FRZ, Black image
- 5 individual speed keys for instant selection with take effect
- 5 users preset memory
- Tally output
- RS-232 control
- DC 12V input
- 13 Transition effect + soft border

Front Panel



- | | |
|------------------------|----------------------|
| 1. Power | 6. TAKE |
| 2. Logo Setting | 7. CUT |
| 3. LUMA PVW / LUMA PGM | 8. Video Effects |
| 4. Main / Sub Source | 9. Menu and Controls |
| 5. Effect Speed | |



POWER

Switches the power On / Off.



Logo Setting

Select SE-2000R Logo1, Logo2 or Clock Functions on the screen.



LUMA PVW / LUMA PGM

Step 1: Select LUMA source from sub source.
Step 2: Press **LUMA PVW** or **LUMA PGM** key.

This function only key LUMA on the PVW or PGM display channel.

SET

SET key function: press **SET** key → press **INV** key → press **ENTER** key.

This function is retrieves previous resolution mode of output signal to multi screen in case when the monitor doesn't support a new mode selected from SE-2000R MENU.

PIP PVW / PIP PGM

Step 1: Press **SET** key.

Step 2: Press **PIP PVW** key.

Step 3: Select PIP source from sub source CH1~4.

Step 4: Press **PIP PVW** or **PIP PGM** key.

This function is show PIP window on the PVW or PGM display channel.

PIP effect, which stands for Picture in Picture, you can set different sizes and position.



Main Source

Used to select which of the four video input channels or background is sent to the Main video output. For more information, see **Video Source** (Page 6).

Sub Source

Used to select which of the four video input channels or background will be ransitioned to or used as a sub source in an effect.



Effect Speed

Selectable of five different speeds for transition effect.

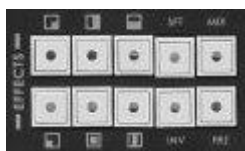


CUT

Change the main/sub source immediately.

TAKE

Take the effect by preset speed.



Video Effects

10 effect keys, for more information, see **Transition Effects** (Page 6).



Menu and Controls

Menu button is SE-2000R functions configuration and setting, press the **up**, **down**, **left**, **right** arrow button move to another control, and **ENT** button to confirm the setting.

Video Source

Selecting the Main and Sub Video Sources is the first thing to do when setting up the SE-2000R.

The source you select (by pressing one of the buttons; a bright red LED on the selected button lights for confirmation) on the Main Source bus is what is sent to the Video output. This means that you can perform cuts between sources by simply pressing different buttons.

The Sub Source selection determines which input will be transitioned to when using any of the transition controls and provides the video for Picture in Picture and Chroma Key functions.

Transition Effects (Reversible)



Right Down to Left High / Left High to Right Down



Right to Left / Left to Right



Top to Bottom / Bottom to UP



Left Down to Right High / Right High to Left Down



Inside Out / Outside In



Middle extend U/D / Middle extend L/R



Controls the border softness of the effect transforming.



Also known as a fade, is a transition wherein all the pixels of one source are replaced by all the pixels of another, at a smooth rate, and at the same time.

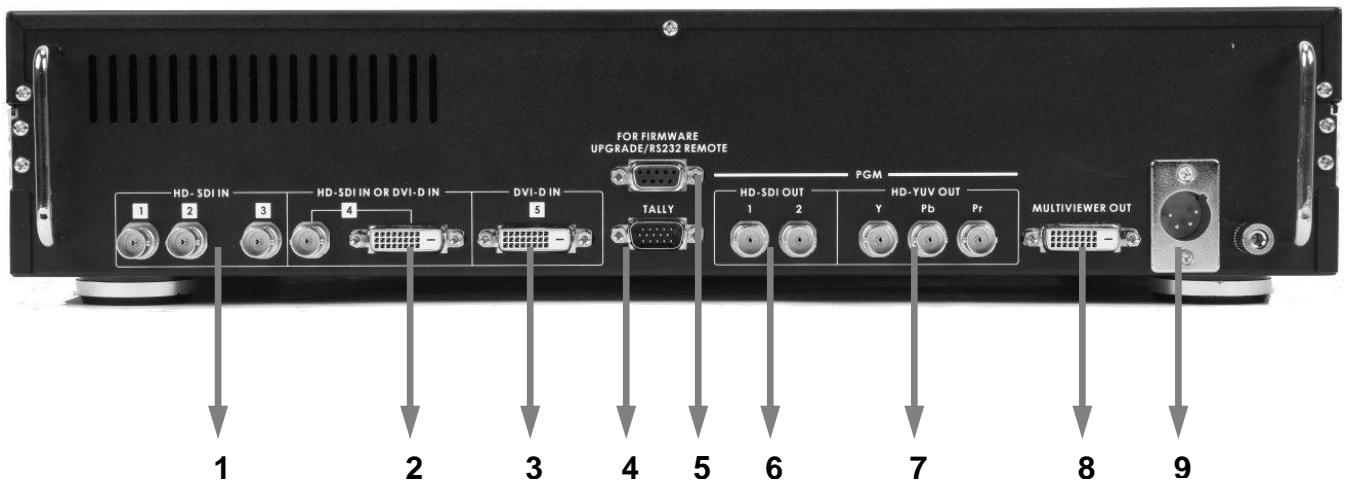


Inverse effect move way.



Press the button once and the video freezes, press it again, and it returns to the selected source in full motion.

Rear Panel

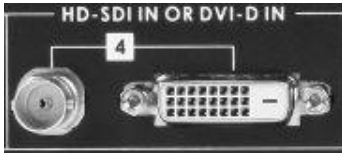


- | | |
|--------------------------|--------------------|
| 1. HD- SDI IN | 6. HD- SDI OUT |
| 2. HD- SDI IN / DVI-D IN | 7. HD- SDI YUV OUT |
| 3. DVI-D IN | 8. MULTIVIEWER OUT |
| 4. TALLY | 9. DC IN |
| 5. RS-232 | |



HD- SDI IN

HD SDI Signal Input (Digital Inputs 1 to 3).



HD- SDI IN / DVI-D IN

The digital Inputs 4 has two kinds of digital modes for use (**HD-SDI** & **DVI**) you can select the mode in **MENU** function.

For more information, see **INPUT 4 MODE** (Page 14).



DVI-D IN

DVI-I Signal Input (Digital Input 5).



TALLY

Tally out socket. This supplies tally light information up to seven buttons of main source, and other seven button of sub source.



RS-232

9-pin serial port standard RS-232 interface.

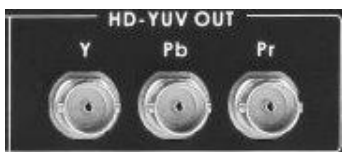
Connect PC to update firmware.



HD- SDI OUT

4:2:2 SDI Video data supports SMPTE 292M standard at 1.5G Mbps.

SDI transfers professional level video signals and it's can connect to long distance transmission systems.



HD- YUV OUT

HD- YUV component analogue output connectors.



MULTIVIEWER OUT

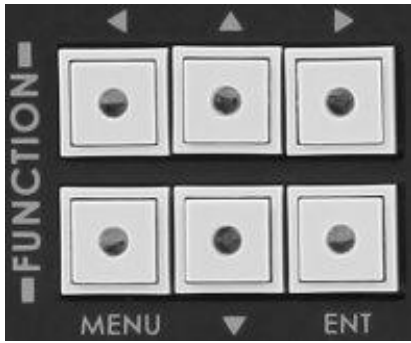
DVI-D digital signal preview output connector (PVW).



DC IN

DC in socket connect the supplied 12V 5A PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

System Configuration



Press on the **MENU** button for system configuration, press the **UP**, **DOWN**, **LEFT**, **RIGHT** button to select an item and press the **ENT** to confirm the setting.

1. USER'S PROFILE

- Press the **MENU** button and select item 1 for **USER'S PROFILE**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- 6 sets group (0~5) of user's setting and recall.

USER'S PROFILE	0 ~ 5
INPUT SETTINGS	
PIP SETTING	
LUMA SETTINGS	
LOGOS	
MODE SETTING	
MONITOR MODE	
INPUT 4 MODE	
MASTER USER SETTING	
SOFT EDGE	
AUTO TAKE SPEED	
BACKGROUND	
BLACK & BARS POS.RIGHT	
FACTORY SETTINGS	
CLOCK SETTINGS	

* After SE-2000R firmware upgrade, you need to reload your (logo, background, name...etc) files to SE-2000R.

2. INPUT SETTINGS

- Press the **MENU** button and select item 2 for **INPUT SETTINGS**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- **BRIGHTNESS**: adjustment range from -7 to +7
- **CONTRAST**: adjustment range from -7 to +7
- **SATURATION**: adjustment range from -7 to +7

USER'S PROFILE		
INPUT SETTINGS	BRIGHTNESS	-7 ~ +7
	CONTRAST	-7 ~ +7
	SATURATION	-7 ~ +7
	MASTER USER SETTING	●
PIP SETTINGS		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

3. PIP SETTING

- Press the **MENU** button and select item 3 for **PIP SETTING**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- **X- POSITION**: adjustment range from 0 to 102(**under 1080i**)
- **Y- POSITION**: adjustment range from 113 to 0(**under 1080i**)
- **X- POSITION**: adjustment range from 0 to 70(**under 720p**)
- **Y- POSITION**: adjustment range from 77 to 0(**under 720p**)
- **PIP SIZE**: adjustment range from +1 to 33
- The **PIP** windows will display on preview and program, where are the **PIP** displayed on, is dependent on your setting.

USER'S PROFILE			
INPUT SETTINGS			
PIP SETTING	PIP POSITION	X- POSITION	0~102
		Y- POSITION	0~113
	PIP SIZE		1~33
	MASTER USER SETTING		●
LUMA SETTINGS			
LOGOS			
MODE SETTING			
MONITOR MODE			
INPUT 4 MODE			
MASTER USER SETTING			
SOFT EDGE			
AUTO TAKE SPEED			
BACKGROUND			
BLACK & BARS POS.RIGHT			
FACTORY SETTINGS			
CLOCK SETTINGS			

4. LUMA SETTINGS

- Press the **MENU** button and select item 4 for **LUMA SETTINGS**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- **LUMA LEVEL**: adjustment range from 0 to 255
- The **PIP** windows will display on preview and program, where are the **PIP** displayed on, is dependent on your setting.

USER'S PROFILE		
INTPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS	LUMA LEVEL	0~255
	MASTER USER SETTING	●
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

5. LOGOS

- Press the **MENU** button and select item 5 for **LOGOS**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- SELECT **LOGO 1**: 14 types (1~14) logo for user's setting on LOGO1.
- SELECT **LOGO 2**: 14 types (1~14) logo for user's setting on LOGO2.
- **X- POSITION**: adjustment range from 000 to 102(**under 1080i**)
- **Y- POSITION**: adjustment range from 110 to 000(**under 1080i**)
- **X- POSITION**: adjustment range from 000 to 62(**under 720p**)
- **Y- POSITION**: adjustment range from 130 to 000(**under 720p**)
- The **LOGOS** will display on preview and program, where are the **LOGOS** displayed on, is dependent on your setting.

USER'S PROFILE			
INTPUT SETTINGS			
PIP SETTING			
LUMA SETTINGS			
LOGOS	SELECT LOGO 1	01~14	
	SELECT LOGO 2	01~14	
	POSITION LOGO 1	X-POSITION	000~102
		Y-POSITION	000~110
	POSITION LOGO 2	X-POSITION	000~102
		Y-POSITION	000~110
	CLOCK POSITION	X-POSITION	000~102
		Y-POSITION	000~110
	MASTER USER SETTING		●
MODE SETTING			
MONITOR MODE			
INPUT 4 MODE			
MASTER USER SETTING			
SOFT EDGE			
AUTO TAKE SPEED			
BACKGROUND			
BLACK & BARS POS.RIGHT			
FACTORY SETTINGS			
CLOCK SETTINGS			

6. MODE SETTING

- Press the **MENU** button and select item 6 for **MODE SETTING**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- Mode setting is set the input mode.
- Please check your input source is what's mode, and then select same mode of SE-2000R.

USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING	1080i 50Hz	●
	1080i 60Hz	●
	1080i 59.94Hz	●
	720p 50Hz	●
	720p 60Hz	●
	720p 59.94Hz	●
	MASTER USER SETTING	●
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

7. MONITOR MODE

- Press the **MENU** button and select item 7 for **MONITOR MODE**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is setting DVI (preview) output mode, you can select Phase on 1080i or 720p.

USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE	1080i 60Hz	●
	720p 60Hz	●
	MASTER USER SETTING	●
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

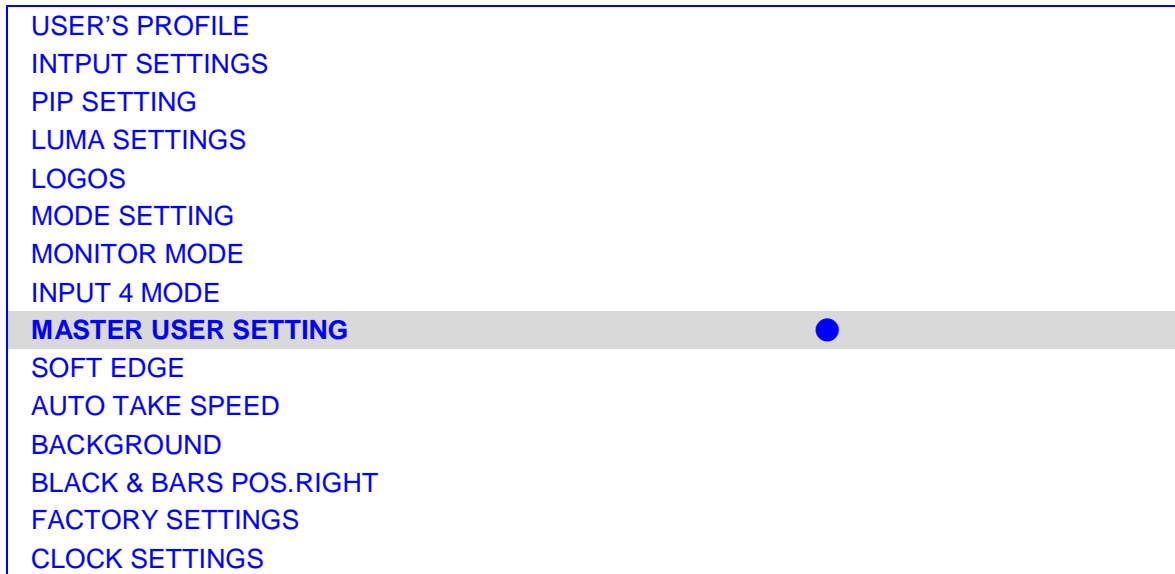
8. INPUT 4 MODE

- Press the **MENU** button and select item 8 for **INPUT 4 MODE**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is setting INPUT 4 format is SDI in or DVI in.
- When you finish your setting, you will see the changed information between PREVIEW and PROGRAM on the screen.

USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE	SDI	●
	DVI	●
	MASTER USER SETTING	●
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

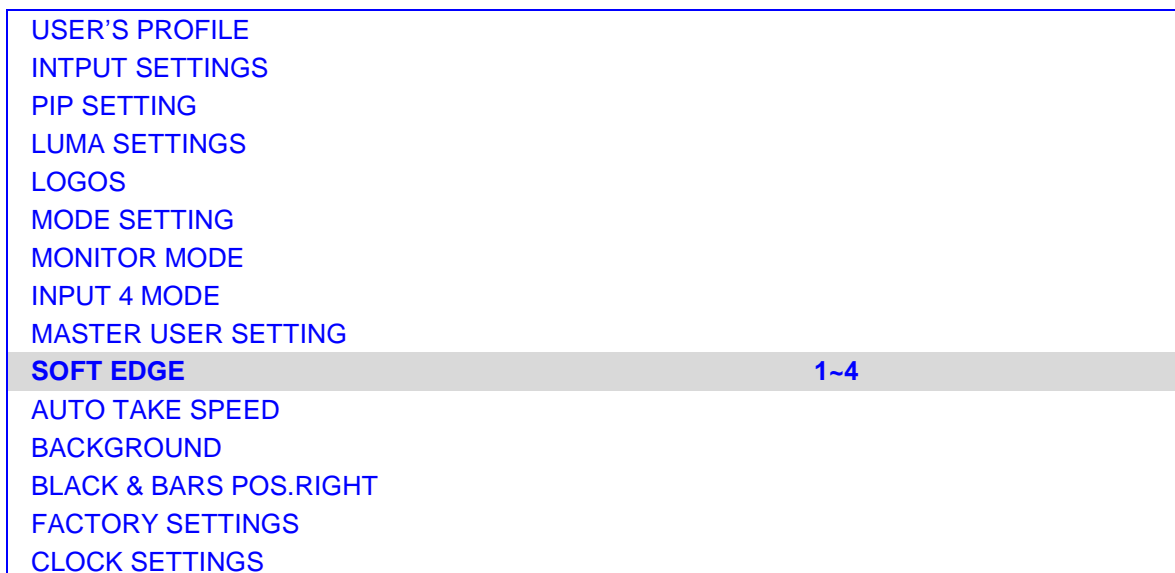
9. MASTER USER SETTING

- Press the **MENU** button and select item 9 for **MASTER USER SETTING**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is return SE-2000R **USER'S PROFILE (0)** to its factory default settings.



10. SOFT EDGE

- Press the **MENU** button and select item 10 for **SOFT EDGE**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is set size of softer border when the transferring effect and Wipe transition only, and can only be activated when the Picture in Picture or Wipe control is active.



11. AUTO TAKE SPEED

- Press the **MENU** button and select item 11 for **AUTO TAKE SPEED**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is setting different speeds of transition effect.

USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED	SPEED 1	004~064
	SPEED 2	004~064
	SPEED 3	004~064
	SPEED 4	004~064
	SPEED 5	004~064
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

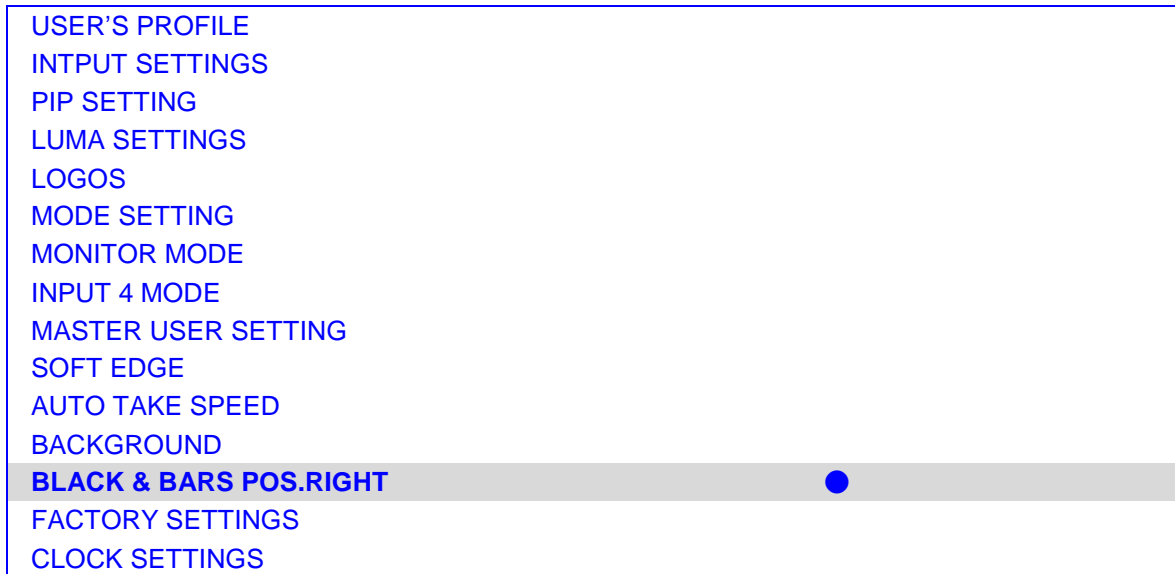
12. BACKGROUND

- Press the **MENU** button and select item 12 for **BACKGROUND**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is set Preview background of the screen.

USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		1~8
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS		

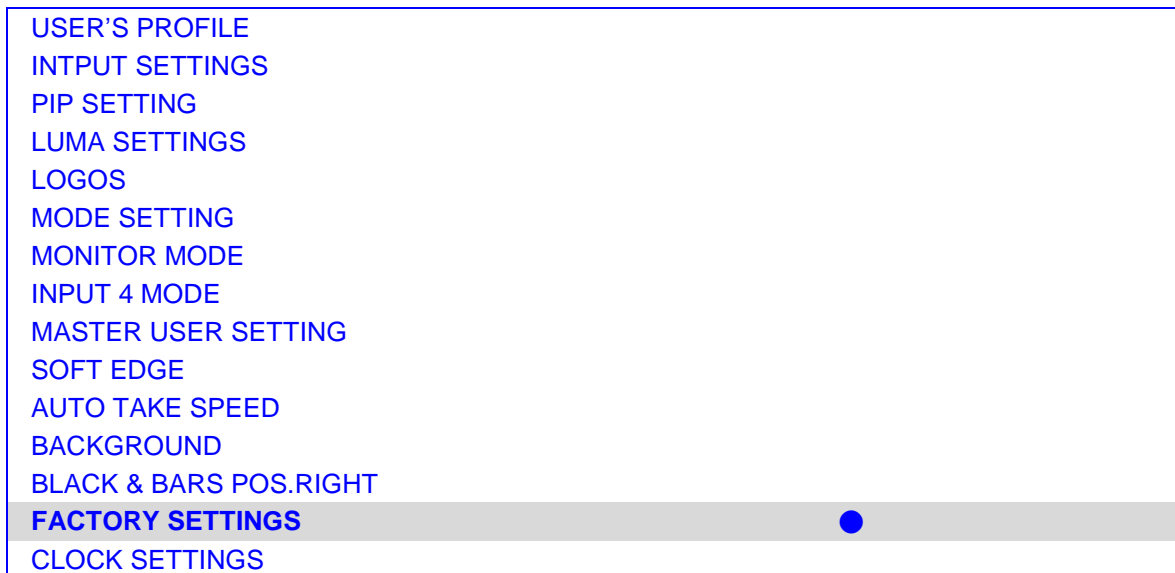
13. BLACK & BARS POS.RIGHT

- Press the **MENU** button and select item 13 for **BLACK & BARS POS.RIGHT**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is (BLK, BAR) swap position to (1, 2) of main/sub source (set to enable).



14. FACTORY SETTINGS

- Press the MENU button and select item 14 for **FACTORY SETTINGS**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is return SE-2000R **USER'S PROFILE (all)** to its factory default settings.



15. CLOCK SETTINGS

- Press the **MENU** button and select item 15 for **CLOCK SETTINGS**.
- Press the arrows button to select an item and press the **ENT** to confirm the setting.
- This mode is set the clock of the screen.

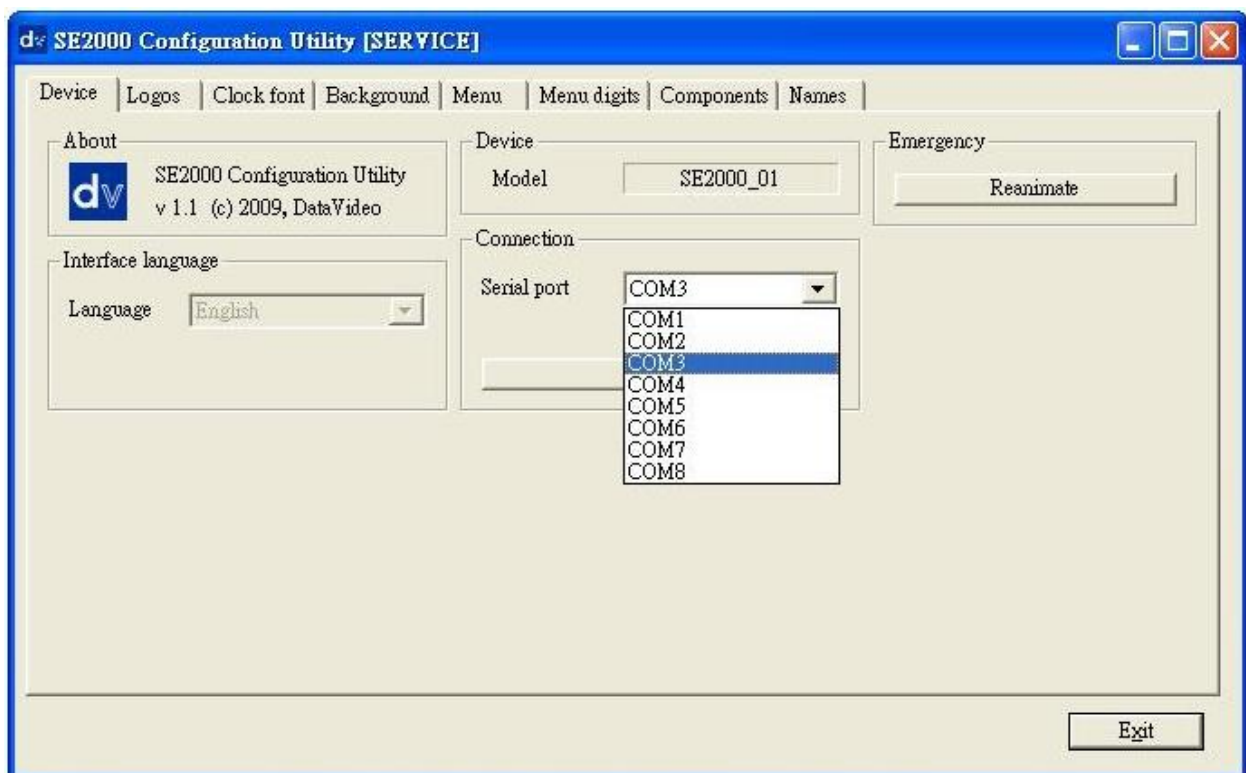
USER'S PROFILE		
INPUT SETTINGS		
PIP SETTING		
LUMA SETTINGS		
LOGOS		
MODE SETTING		
MONITOR MODE		
INPUT 4 MODE		
MASTER USER SETTING		
SOFT EDGE		
AUTO TAKE SPEED		
BACKGROUND		
BLACK & BARS POS.RIGHT		
FACTORY SETTINGS		
CLOCK SETTINGS	SET HOURS	00~23
	SET MINUTES	00~59
	CLEAR SECONDS	●

Configuration Utility Service

- Computer platform: Windows XP
- Installation: SE2000SetupService.exe
- Default Installation Directory: C:\Program Files\SE2000 Setup Service
- Add and Remove Programs: SE2000 Configuration Utility Service, Uninstall

1. Device Setup

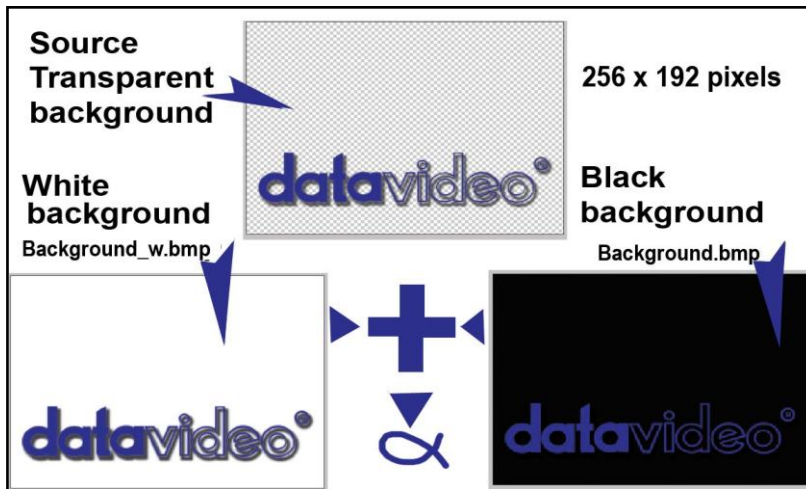
- ◆ Connect SE2000 to PC COM port
- ◆ Open “SE2000 Configuration Utility Service” tools
- ◆ If connection is correct appear window:



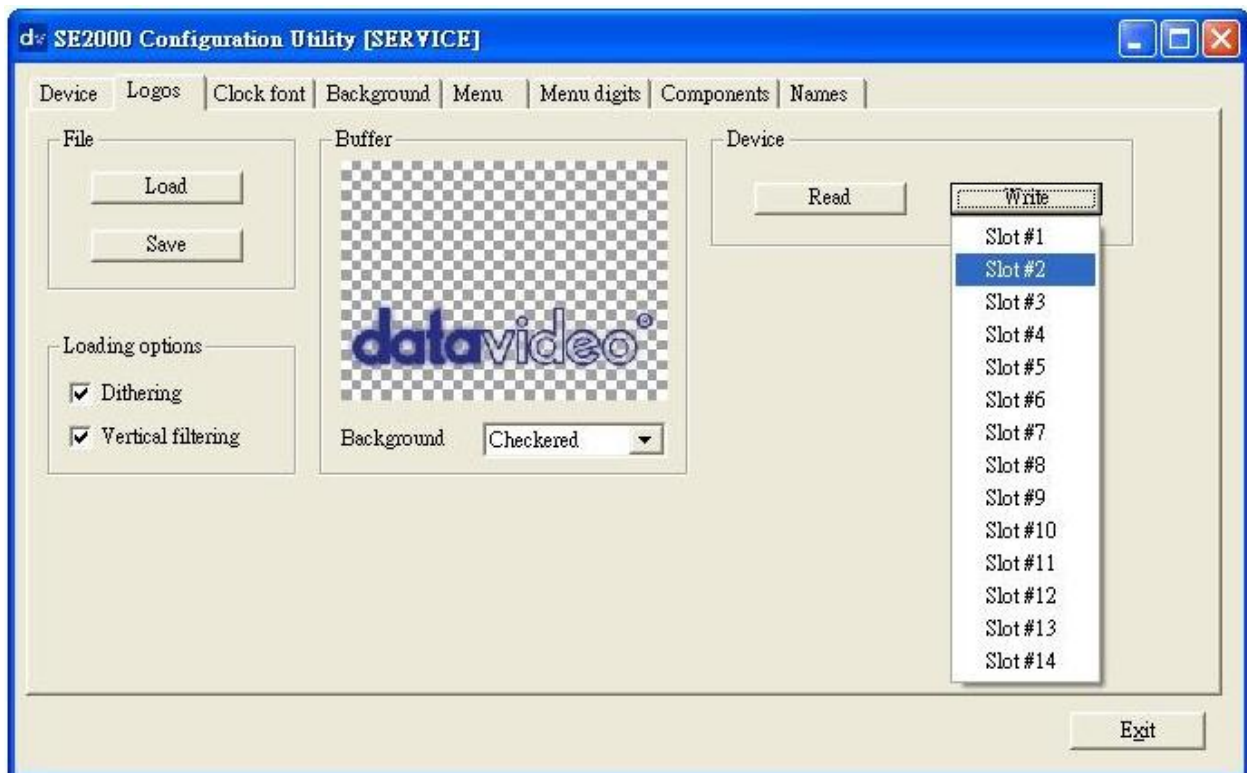
- ◆ If model is not appointed, change Serial (COM) port

2. LOGOS Setup

- ◆ Logo source please use 256 x192 pixels, TGA 32bit or BMP 24 bit files with α - channel
- ◆ α - channel can be obtain from pair of bmp files, see picture below:



- ◆ Step by step:
 1. Open "SE2000 Configuration Utility Service" tools
 2. Select bookmark: Logos
 3. Load file: 256 x192 pixels, TGA 32bit or BMP 24 bit files
 4. Write to the Slot you need.

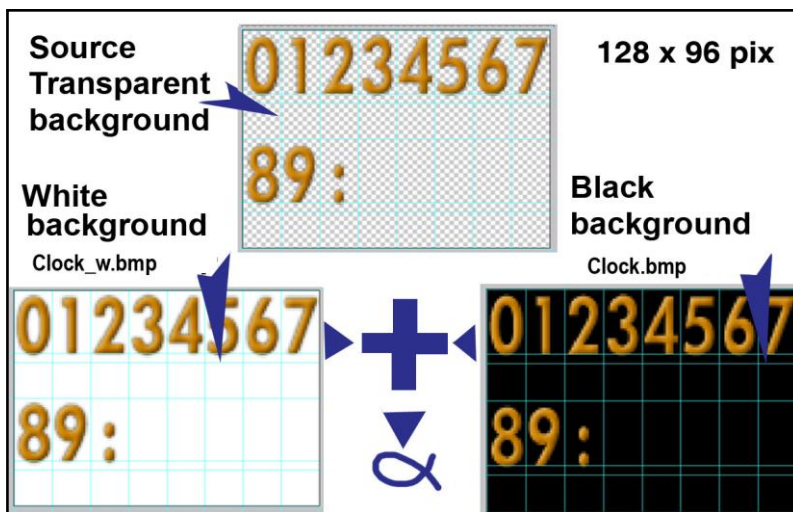


Note: If you use the pair of BMP files, only one file can be selected – the Config program add second file automatically.

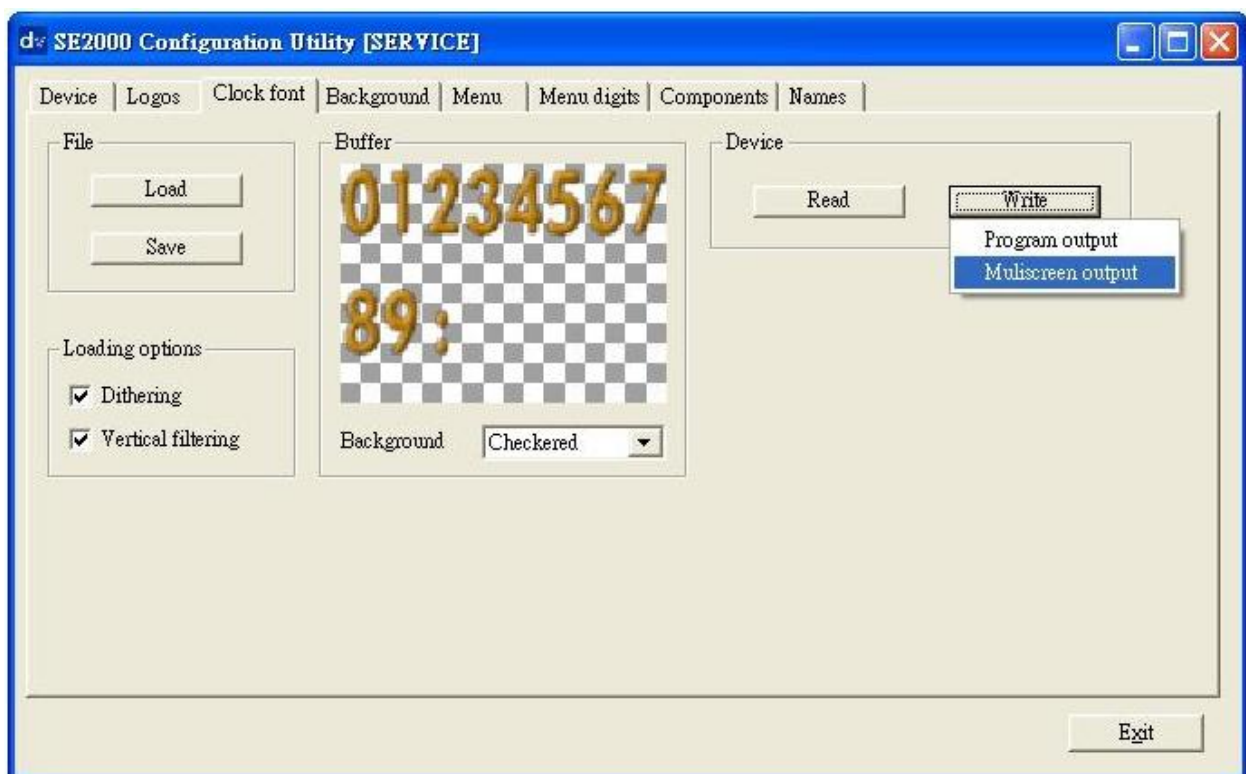
Note: When you upgrade SE-2000R, The Datavideo logo will reappear.

3. Clock Font

- ◆ Clock Source Files: 128 x96 pixels, TGA 32bit or BMP 24 bit files with α - channel
- ◆ α - channel can be obtain from pair of bmp files , see picture below:



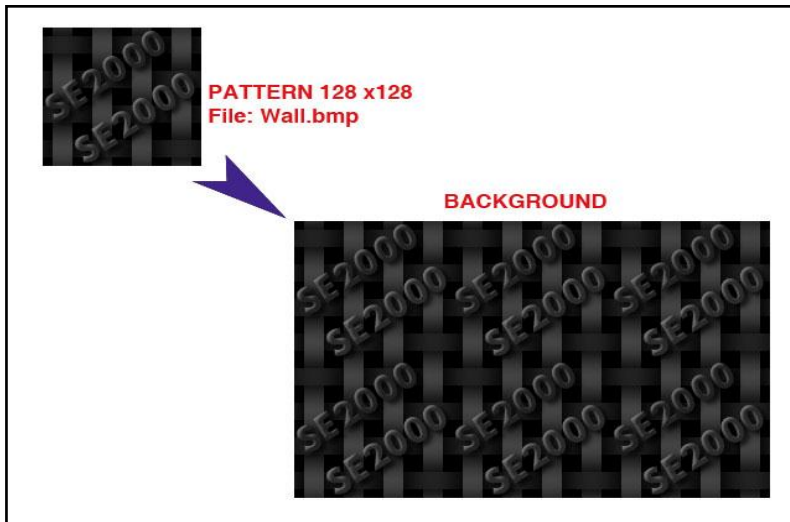
- ◆ Step by step:
 1. Open "SE2000 Configuration Utility Service" tools
 2. Select bookmark: Clock font
 3. Load file 256 x192 pixels, TGA 32bit or BMP 24 bit files with α - channel
 4. Write to the output parts you need.



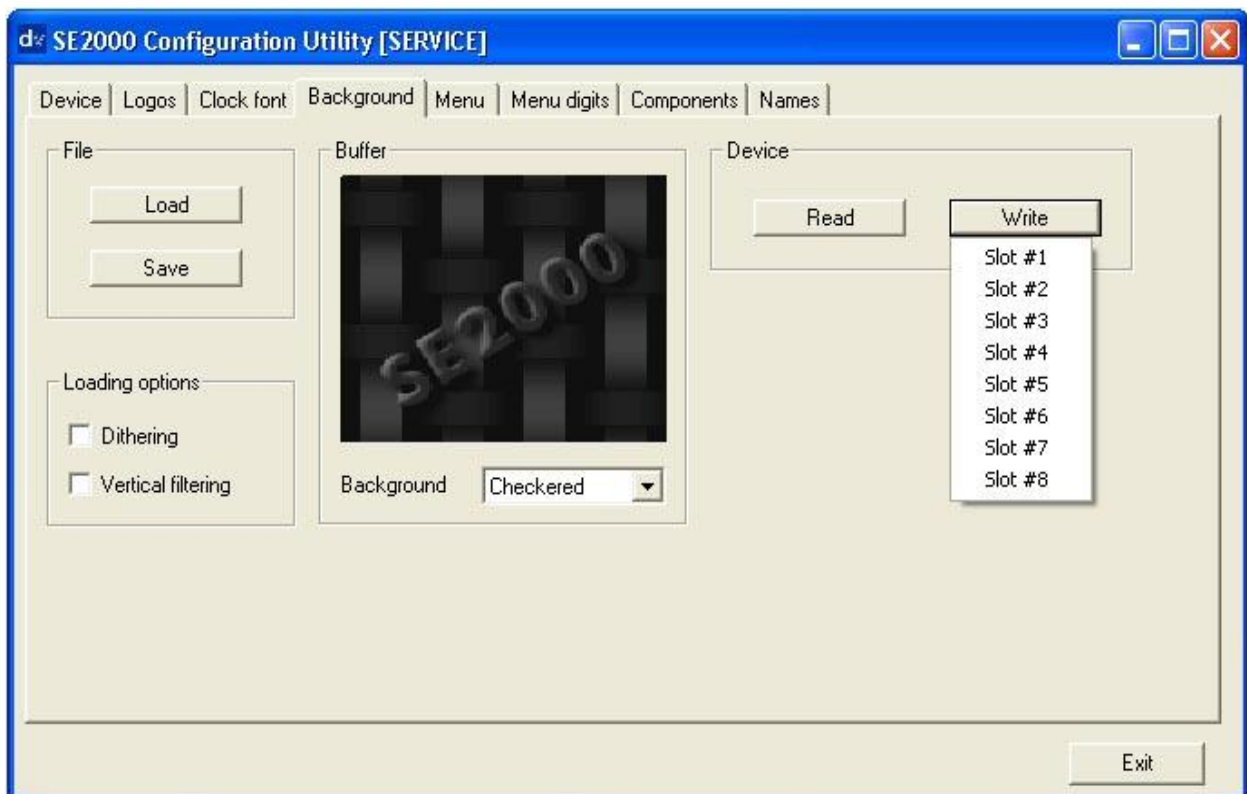
Note: If you use the pair of BMP files, only one file can be selected – the Config program add second file automatically .

4. Background

- ◆ Background Source Files: 128 x128 pixels, TGA 32bit or BMP 24 bit

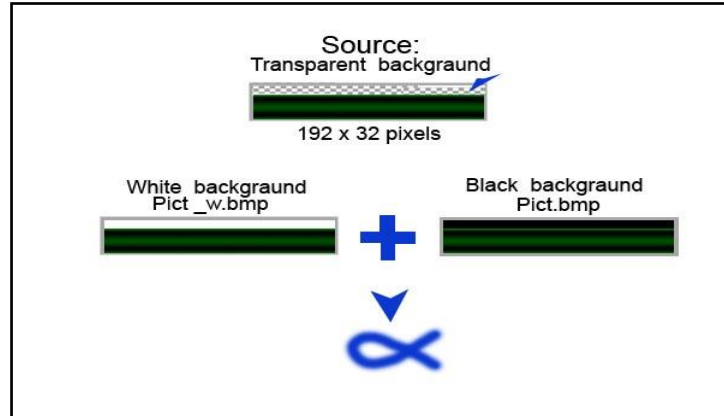


- ◆ Step by step:
 1. Open "SE2000 Configuration Utility Service" tools
 2. Select bookmark: Background
 3. Load file 128 x128 pixels, TGA 32bit or BMP 24 bit
 4. Write to the Slot you need.



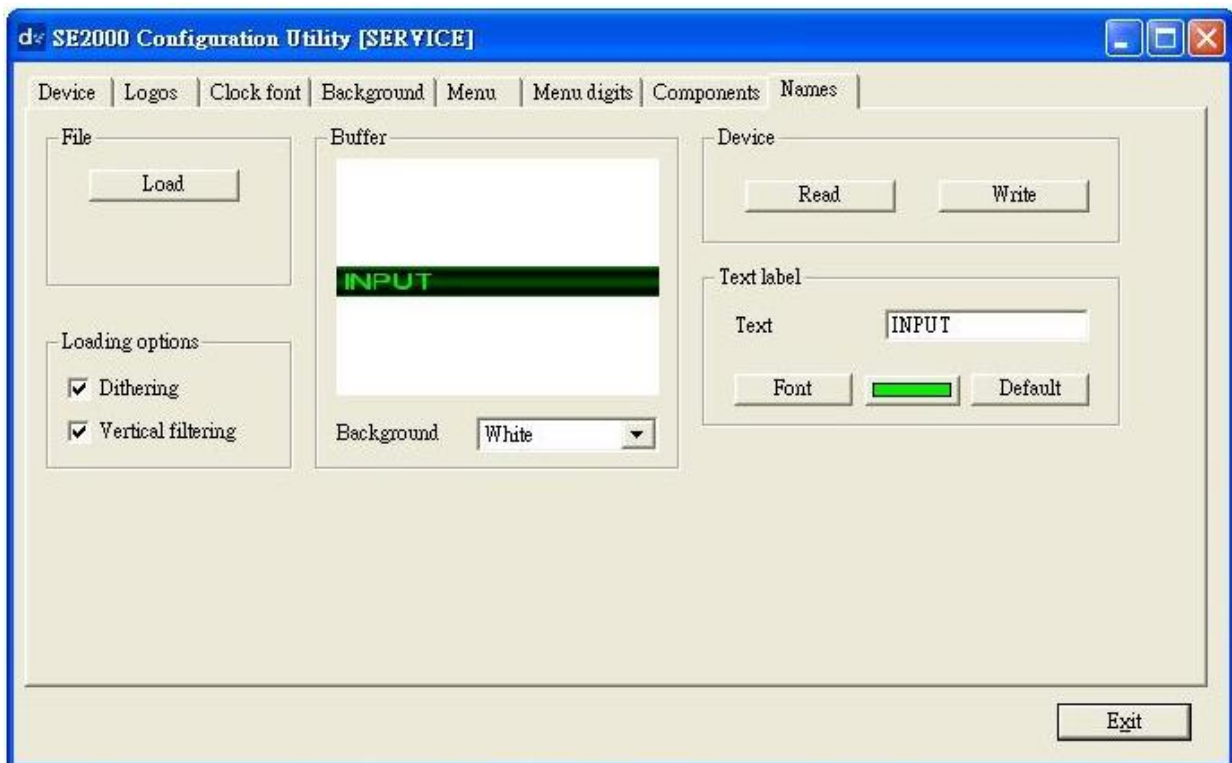
5. Names

- ◆ Name source files consist 2 elements:
 1. Inscription Background 192 x32 pixels, TGA 32bit or BMP 24 bit files with α - channel.
 2. Key in text label name in spatial window named "Text".
- ◆ α - channel can be obtain from pair of bmp files, see picture below:

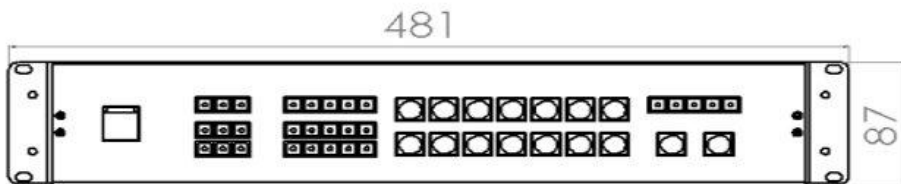
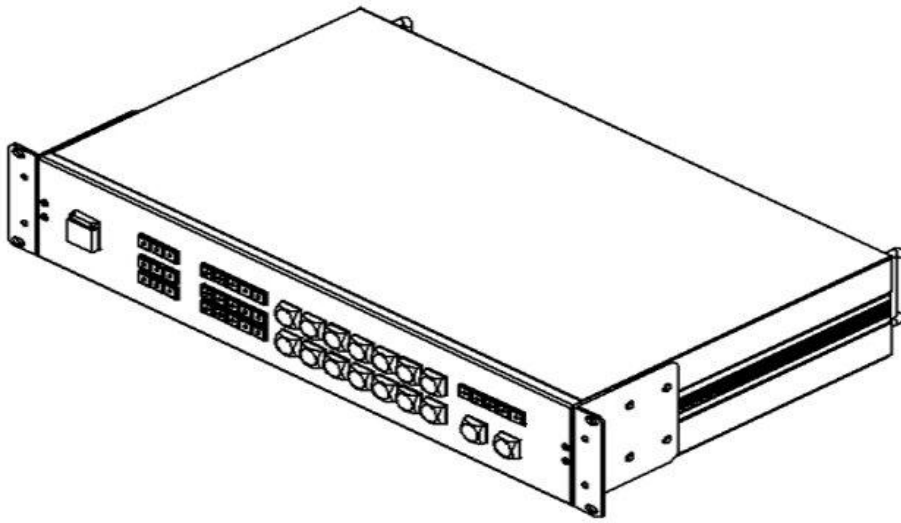
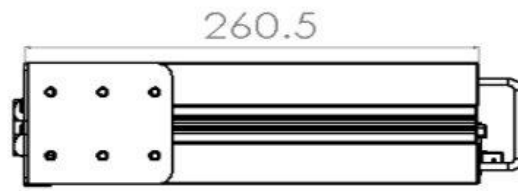


- ◆ Step by step:
 1. Open "SE2000 Configuration Utility Service" tools
 2. Select bookmark: Names
 3. Load file 192 x32 pixels, TGA 32bit or BMP 24 bit files with α - channel
 4. Select Font you want
 5. Type Name
 6. Write to the Slot you need.

Note: If you use the pair of BMP files, only one file can be selected – the Config program add second file automatically.



Dimension



Specification

Inputs	<ul style="list-style-type: none"> • 4x BNC connector for HD -SDI input • 2x DVI connector for DVI-D input (1x DVI-D input is collective with SDI#4 channel)
Outputs	<ul style="list-style-type: none"> • 2x HD-SDI output, 1x HD-YUV output, and 1x DVI-D output
Video Input	<ul style="list-style-type: none"> • HD (1080/50i -1080/60i -1080/59.94i -720/50p -720/60p -720/59.94p)
Multi view output	<ul style="list-style-type: none"> • 1x DVI-D output • Multi screen display include 6 x monitoring screen(include 1 x PIP) and 1x PVW screen and 1x PGM screen • Resolution is 1280 x 720, 1920x1080
Other Interface	<ul style="list-style-type: none"> • Serial (Editor) D-Sub 9 Pin x 1 RS232 • Tally Output D-Sub 15 Pin x 1 14 Channel Open Collector Output • Support Line and MIC mode
HD SDI signal	<ul style="list-style-type: none"> • SMPTE 292M standard complied with • Output return loss : More than 15 dB (5MHz to 750MHz) More than 10 dB (750MHz to 1.5 GHz) • Output level : 0.8 Vpp \pm 10% • Rise time : Less than 270 ps • Fall time : Less than 270 ps • Difference between rise time and fall time within 100 ps • Alignment jitter : Less than 0.2 UI • Timing jitter : Less than 1.0 UI • Eye aperture ratio : More than 90% • DC offset : 0 \pm 0.5V • Equalizer use 5C-FB cable support 100 meters
HD-YUV Output	<ul style="list-style-type: none"> • Bandwidth 30MHz < +/-3dB • S/N Ratio > 50 dB • DG <3%, DP <3 degree (Base on U, V signal analyzer)
Operating Temperature	<ul style="list-style-type: none"> • 0°C to 40°C (32°F to 102°F)
Humidity	<ul style="list-style-type: none"> • 10% to 90% (non condensing)
Dimension & Weight	<ul style="list-style-type: none"> • 425mm (W) x 400mm (D) x 96mm (H) / 4Kgs
Power	<ul style="list-style-type: none"> • Input AC 100 ~ 240V Switching Adaptor, output DC 12V / 17W

Service & Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo-tek.com for answers to common questions, support requests or contact your local office below.

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