INSTRUCTION MANUAL

DVPS44

Video Wall Processor & Matrix Switch
4x4 HDMI™ Scaler

Full HD 1080 | 7.1 CH AUDIO | HDCP HIGH-DEFINITION CONTENT PROTECTION | x.v.Color

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SAFETY AND NOTICE

The **DVPS44 Video Wall Processor and Matrix Switch 4x4 HDMI™ Scaler** has been tested for conformance to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the **DVPS44** should be used with care. Please read and follow the safety instructions to protect yourself from possible injury and to minimize the risk of damage to the unit.

- Follow all instructions and warnings marked on this unit.
- Do not attempt to service this unit yourself, except where explained in this manual.
- Provide proper ventilation and air circulation and do not use near water.
- Keep objects that might damage the device and assure that the placement of this unit is on a stable surface.
- Use only the power adapter and power cords and connection cables designed for this unit.
- Do not use liquid or aerosol cleaners to clean this unit.
- Always unplug the power to the device before cleaning.

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INTRODUCTION

The DVPS44 Video Wall Processor and Matrix Switch 4x4 HDMI Scaler provides the most flexible and cost effective solution in the market.

The new DVPS44 can be used as a conventional matrix switch, routing up to four different HDMI video sources to any monitor independently or be used as video wall processor, splitting a chosen image from one source to four displays.

On top of that, it can work as "combo" gear, showing any individual input source in full-screen for any selected display while other displays are working in video wall mode.

Features

- HDCP compliant
- Allows any HDMI display to view any HDMI source at any time
- Supports default HDMI EDID and learns the EDID of displays
- Supports HDMI™ DVI input, from 640x480 to 1920x1200@60, interlaced or progressive
- Four HDMI outputs from 640x480 to 1920x1200
- User-selectable output settings, up to 1920x1200
- Fast response time for channel switch
- Supports 7.1 channel digital audio
- The matrix master can switch every output channels to any HDMI inputs by push-in button, IR remote control, RS-232 control
- Resize, position, zoom, rotation, fade-in fade-out output video
- CE labs TV Video wall processor calculator for bezel compensation
- Each HDMI output has an independent controllable display area
- Image parameters and layouts are automatically saved in flash memory of the device and can be recalled for later use
- Several Image parameters and layouts can be saved in software and can be loaded for later use
- Software control through RS-232
- Firmware upgradable for support of new features and technology enhancements
- Easy installation with rack-mounting and wall-mounting designs for master and receiver respectively
- 1U size

Specifications

Technical	
Typical usage	True 4x4 Matrix, Wall Processor
HDCP compliance	Yes
Video bandwidth	Single-link 225MHz [6.75Gbps]
Video support	480i/480p/720p/1080i/1080p60/1920x1200@60Hs 30-bit color
Video Format Support	HDMI/DVI
Video loop-out	No
Audio support	Up to 7.1ch Surround Sound of Stereo Digital Audio
ESD protection	Human body model — ± 19kV [air-gap discharge] & ±12kV [contact discharge]
PCB stack-up	8-layer board [impedance control — differential 100Ω; single 50Ω]
Input	4x HDMI / 1x RS-232 / 1x Ethernet (for test)/ 1x 2.1mm power jack
Output	4x HDMI/2x USB
Control	Remote Control (IR) / RS-232 / Front Panel Buttons
Input TMDS signal	1.2 Volts [peak-to-peak]
HDMI connector	Type A [19-pin female]
USB connector	Type A
RS-232 connector	DE-9 [9-pin D-sub female]
RJ-45 connector	WE/SS 8P8C with 2 LED indicators (Not in use)

Mechanical		
Enclosure		Metal case
Dimensions [L x W x H]	Model	$17^{3/8}$" x $10^{1/4}$" x $1^{3/4}$" [441 x 260 x 44mm]
	Package	$20^{3/8}$" x $18^{1/4}$" x $5^{3/4}$" [517 x 464 x 146mm]
	Carton	$21^{3/4}$" x $12^{1/2}$" x $19^{3/4}$" [570 x 580 x 260mm]
Weight	Model	6.4 lbs (102.4 oz) [2.9 Kg]
	Package	9.9 lbs (158.4 oz) [4.5 Kg]
Fixedness		1U rack-mount with ears & wall hanging holes
Power supply		12V 5A DC 2.1mm
Operation temperature		32~104°F [0~40°C]
Storage temperature		-4~140°F [-20~60°C]
Relative humidity		20~90% RH [no condensation]

Package Contents

- 1x DVPS44
- 1x Power Adapter DC 12V 5A
- 1x User Manual
- 1x Installation software CD
- 1x IR Receiver
- 1x IR Remote Control
- 1x Rack-mounting ear set
- 1x USB to RS-232 converter

INSTALLATION

1. Connect all HDMI sources to the HDMI Inputs of the DVPS44 Video Wall Processor and Matrix Switch 4x4 HDMI Scaler

2. Connect all displays (Monitors) to the HDMI Outputs of the DVPS44

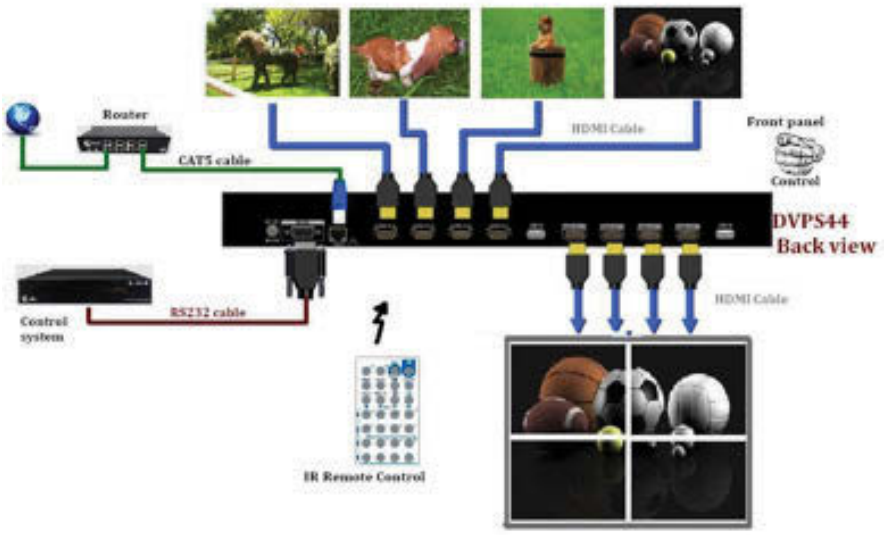
3. Connect the RS232 controller cable from the DVPS44 to a PC

4. Connect the +12V 5A DC power supply to the DVPS44

Example Connection Diagram

Used as a Video Wall processor:

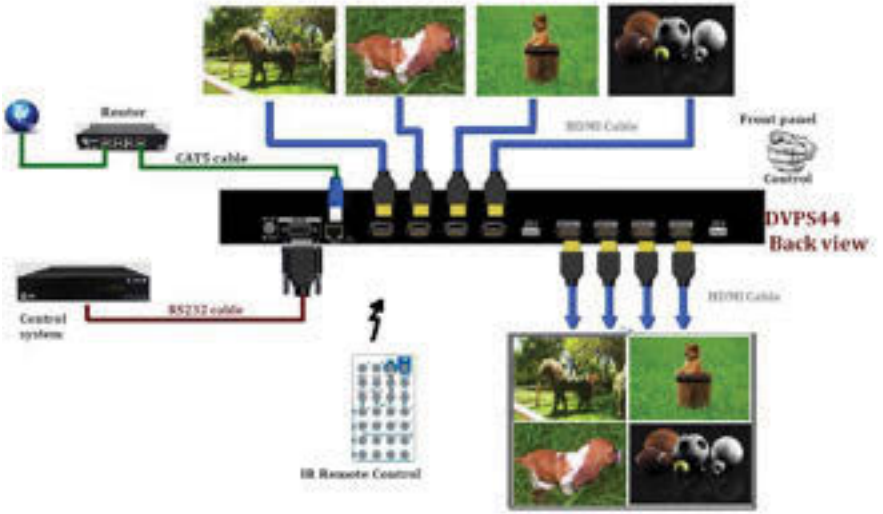
You can control the unit by Front panel ***or*** IR remote control ***or*** RS232. *Any of the 4 inputs may be selected to create a single image on all 4 monitors.*



Example Connection Diagram Cont.

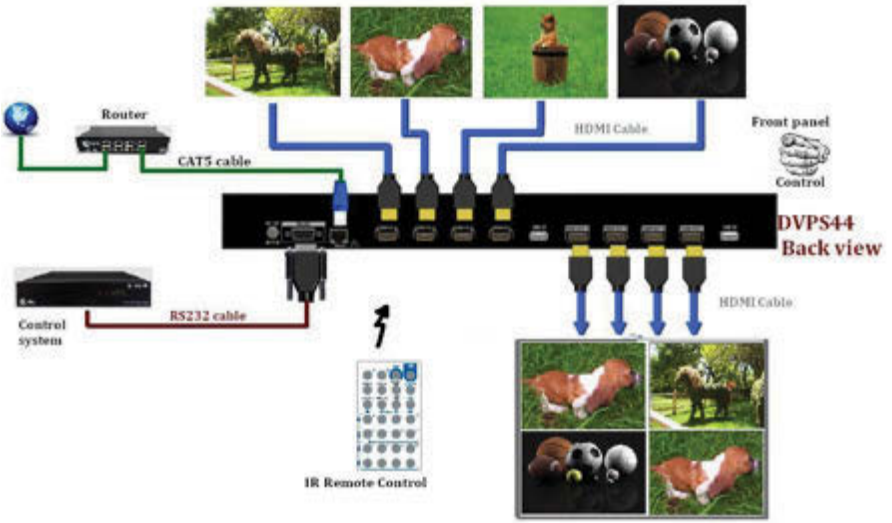
Used as Matrix Switch:

You can control the unit by Front panel ***or*** IR remote control ***or*** RS232.
Any of the 4 inputs may be routed to any output.



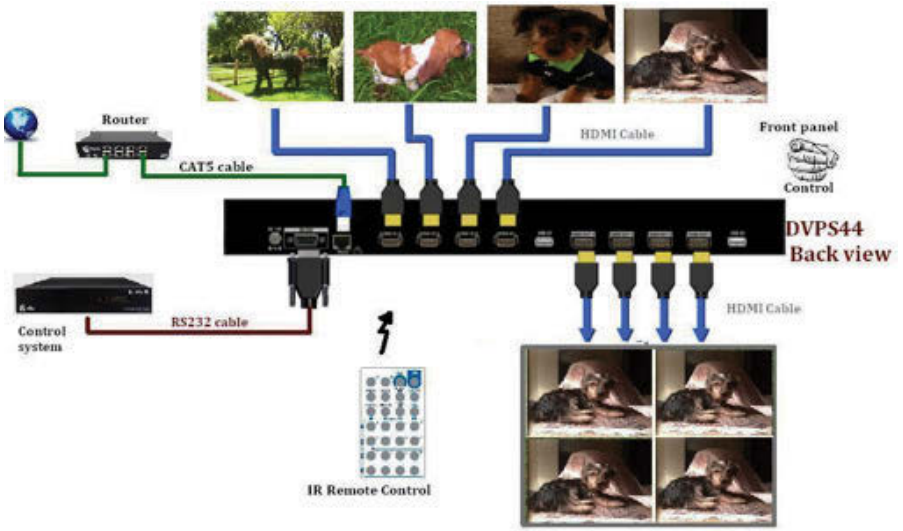
Used as Matrix Switch:

You can control the unit by Front panel ***or*** IR remote control ***or*** RS232.
Unit has 4 inputs, displays are showing 2 or 3 of the same input.



Example Connection Diagram Cont.

Unit has 4 inputs, all displays are showing same input.

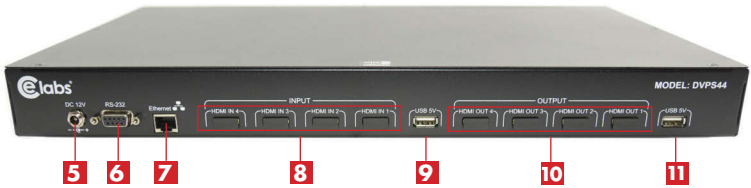


PANEL DESCRIPTION

Front Panel

1. **Input Status:** indicate which Input is connected or activated
2. **IR SENSOR:** IR receiver commands.
3. **Top 7-segment display:** show the output display selected to be setup.
   - **"– Output" push button:** to Select in descending order, the output Display that will be setup.
   - **"Output +" push button:** to Select in ascending order, the output Display that will be setup.
4. **Bottom 7-segment display:** show the input source that will be displayed.
   - **"– Input" push button:** to Select in descending order the input source that will be displayed.
   - **"Input +" push button:** to Select in ascending order the input source that will be displayed.

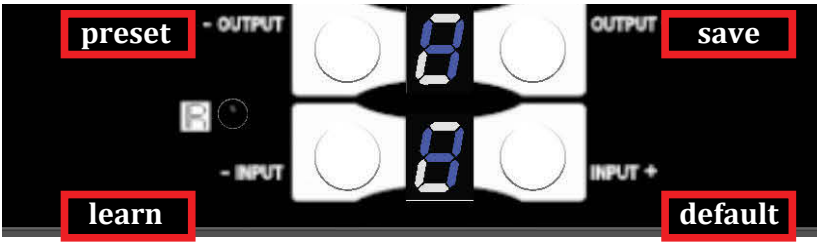
Rear Panel



5. **+12V DC:** Input power +12V DC 5 Amp. 2.1mm power jack
6. **RS-232:** RS-232 control port
7. **Ethernet:** Ethernet control port (Not available for control)
8. **INPUT 1–4:** HDMI input 1–4 sources
9. **USB 5V:** Use for power only + 5 Volts output, not control
10. **OUTPUT 1–4:** HDMI output displays
11. **USB 5V:** Use for power only + 5 Volts output, not control

OPERATION

Front Panel Push-Buttons



1. FRONT PANEL INPUT & OUTPUT SELECTION

1– Use the *"– OUTPUT"* push button: to Select in descending order the output Display that will be setup. You will be see the selection on the *top 7-segment display*.

2– Use the *"OUTPUT +"* push button: to Select in ascending order the output Display that will be setup. You will be see the selection on the *top 7-segment display*.

3– Use the *"– INPUT"* push button: to Select in descending order the Input source that will be Displayed. You will be see the selection on the *bottom 7-segment display*.

4– Use the *"INPUT +"* push button: to Select in ascending order the Input source that will be Displayed. You will be see the selection on the *bottom 7-segment display*.

Once you select the desired Output or Input port, the LED will be blinking twice and the setting will be effective

2. SAVING YOUR SETUP

1– Push *"OUTPUT+"* (save) button until the output LED shows *"d."* to enter the Save Mode.

2– Use the *"INPUT +" or "– INPUT"* push button to select the mapping configuration (from 0~7) to which you want to save current input/ output setup mapping.

3– After you select the desired mapping configuration number, the LED will blink twice and the mapping setting will be saved.

4– If you push the *"– OUTPUT"* (preset) button before the mapping setting is saved, the LED will show " - " " - " and Mapping will not be saved.

OPERATION CONT.

3. PRESET MAPPING MODE

1– Push *"– OUTPUT"* (preset) button until the output LED shows *"P."* to enter the Preset Mode.

2– Use the *"INPUT+" or "– INPUT"* push button to select the preview saved mapping configuration (from 0~7) to which you want to recall.

3– After you select the desired mapping configuration number, the LED will blink twice and the mapping setting will be in effect.

4– If you push the *"OUTPUT+"* (save) button before the mapping setting is in effect, the LED will show " - " " - " to quit the Preset Mapping Mode, the preset setting you select will not be in effect.

4. DEFAULT EDID MODE

1– Keep pushing the *"INPUT +"* (default) button all the process to select the input channel which you want to learn default EDID.

2– Push the *"OUTPUT +" or "– OUTPUT"* push button, the display will show *"E" "d"* one time to enter the Learning Default EDID Mode.

3– Use the *"OUTPUT +" or "– OUTPUT"* push button to select the default EDID mode (1~8)

4– Release the *"INPUT +"* (default) button after selecting the desired default EDID mode, and then the Display will blink twice and the setting will be in effect.

5– If you want to quit Learning Default EDID Mode, push the *"– INPUT"* (learn) push button before the setting is in effect.

6– The display will show *"0" "0"* if the setting is success.
The display will show *"F" "F"* if the setting fails.

5. EDID LEARNING MODE

1– Push *"– INPUT"* (learn) button to select the input channel to which you want to learn EDID from HDMI output. Then, keep pushing *"– INPUT"* (learn) button when you select your desired input channel.

2– Push the *"OUTPUT +" or "– OUTPUT"* button, and the display will show "E" "L" one time to enter Learning EDID Mode.

3– Use *"– OUTPUT"* push button to select the output port number.

4– Release the *"– INPUT"* (learn) button after selecting the desired output port number, and then the LED will blink twice and the setting will be in effect.

5– The unit will quit Learning Output EDID Mode, push the *"INPUT +"* (default) button before the setting is in effect.

6– The display will show *"0" "0"* if the setting is success.
The display will show *"F" "F"* if the setting fails.

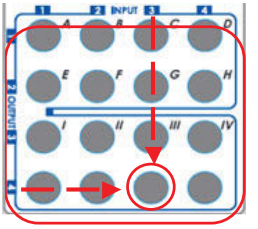
OPERATION CONT.

IR Remote Control

Input/Output Select

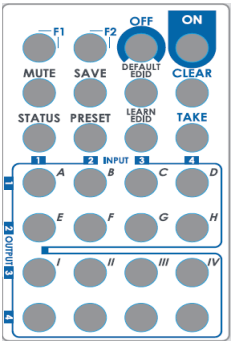
Push the button on the X (input) Y (output) keyboard to select Input & Output port.

Example: Select Input 3 to Output 4.
Push the red button as shown to select Input 3 to Output 4.



Function Key Definition

BUTTON	FUNCTION
OFF	Standby mode
ON	Power on the matrix switcher
MUTE	Turn off output's video and audio
STATUS	Preset output status
SAVE	Save current mapping mode
PRESET	Preset mapping mode
DEFAULT EDID	Begin default EDID selection
LEARN EDID	Begin EDID learning from one output
CLEAR	Clear the previous IR operation procedure
TAKE	Trigger the previous setting
F1	All outputs select the same input
F2	Reserved



Examples of Operation

	PROCEDURE	7-SEGMENT DISPLAY
Mute Output:	Mute + A-D (Output 1-4) + Take	
Ex: Mute Output 2	1. Press "MUTE" button	– 0
	2. Press key "B" to select Output 2	2 0
	3. Press "TAKE" button	2 0

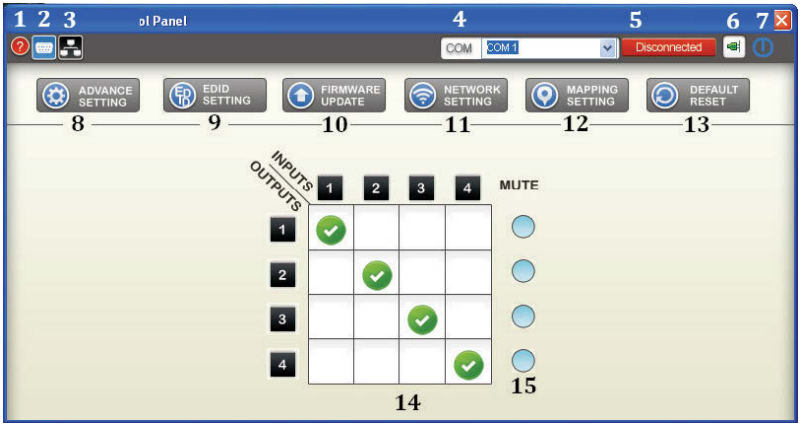
	PROCEDURE	7-SEGMENT DISPLAY
Output Status:	Status + A thru D (Output 1 thru 4) + Take	
Ex: What Selections are on Output 2 (If Input 3 is selected)	1. Press "STATUS" button	– –
	2. Press "B" to select Output 2	2 –
	3. Press "TAKE" button	2 3
Save Current Setup Mapping:	Save + A thru H (1 thru 8 storage site) + Take	
Ex: Save Current Mapping to 6	1. Press "SAVE" button	d –
	2. Press "F" to select the storage 6	d 6
	3. Press "TAKE" button	
Preset Mapping:	Preset + A thru H (1 thru 8 storage site) + Take	
Ex: Preset Saved Mapping from 3	1. Press "PRESET" button	P –
	2. Press "C" to select the storage 3	P 3
	3. Press "TAKE" button	
Learned default EDID:	Default EDID + A thru H (1 thru 8 default EDID) + I thru IV (input 1 thru 4) + Take	
Ex: Default EDID 6 Input 4	1. Press "DEFAULT EDID" button	E d
	2. Press "F" to select default EDID 6	6 d
	3. Press "IV" to select Input 4	6 4
	4. Press "TAKE" button	0 (success) F (fail) 0 (success) F (fail)
Learned Output EDID:	Learn + A thru D (Output 1-4) + I thru IV + Take	
Ex: Learned Output 1 Input 2	1. Press "LEARN" button	E L
	2. Press "A" to select Output 1	1 L
	3. Press "II" to select Input 2	1 2
	4. Press "TAKE" button	0 (success) F (fail) 0 (success) F (fail)
F1:	F1 + I thru IV (Input 1-4) + Take	
Ex: All Outputs Select Input 4	1. Press "F1" button	A –
	2. Press "IV" to select Input 4	A 4
	3. Press "TAKE" button	

Software Control through RS-232 port

System Requirement

1– OS Information: MS WinXP/7
2– Baud rates: 9600
3– Software size: 3 MB
4– Minimum RAM requirement: 256 MB

Software Bottom Description



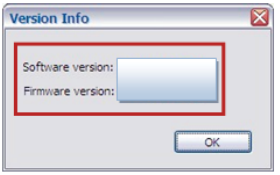
1 Display Firmware and software Version
2 Connect/Disconnect RS-232
3 Connect/Disconnect Ethernet
4 Select COM Port
5 Connect/Disconnect Status
6 Connect/Disconnect Button
7 Power On/Off Button
8 Advance Setting
9 EDID Setting
10 Firmware Update
11 Network Setting
12 Mapping Setting
13 Default Reset
14 In/Out Setting
15 Output Mute

Connecting Matrix & Controller (4, 5, 6)

- Use RS-232 cable to connect the RS-232 port on matrix to the PC
  – If your PC does not have a RS232 port install the software and hardware for the USB to RS232 adapter included on the unit.
- Open the CE labs software and Select the correct com port **(4)**
- Select the connection button **(6)**
- Verify that the status change from Disconnected to connected status Disconnected to Connecting to Connected **(5)**

1. Display Firmware and Software Version

- Click Display Firmware and Software Version button to show version information



2. Connect/Disconnect RS-232 Button

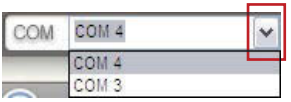
1– Click Connect/Disconnect RS-232 button to connect to the RS-232 control port.

2– If RS-232 is connected, the button will show the sign image.

3. Connect/Disconnect Ethernet Button (NOT AVAILABLE)

4. COM Port Selection

- Click button to select COM port



5. Connection Status

- Connected Status:
- Connecting Status:
- Disconnected Status:

6. Connect/Disconnect Button

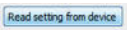
- Click button to change connection status

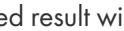
7. Power On/Off Button

- Click this button to power ON device
- Click this button to power OFF device (Standby Mode)

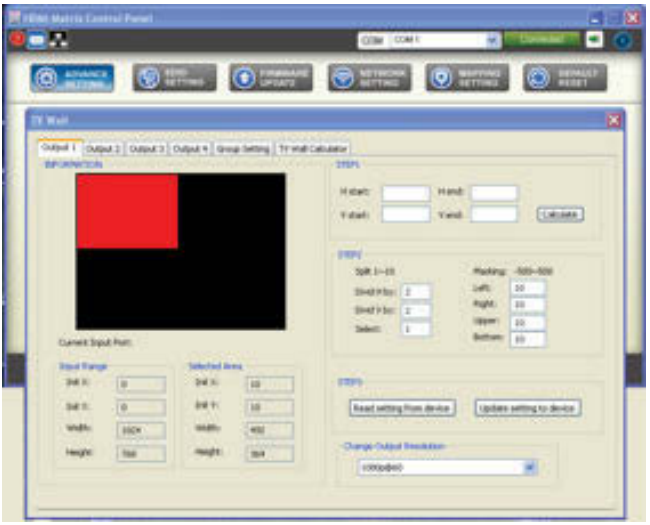
8. Advanced Setting

- Select the ***Advanced Setting*** button 

- Select ***Read Setting From Device*** 

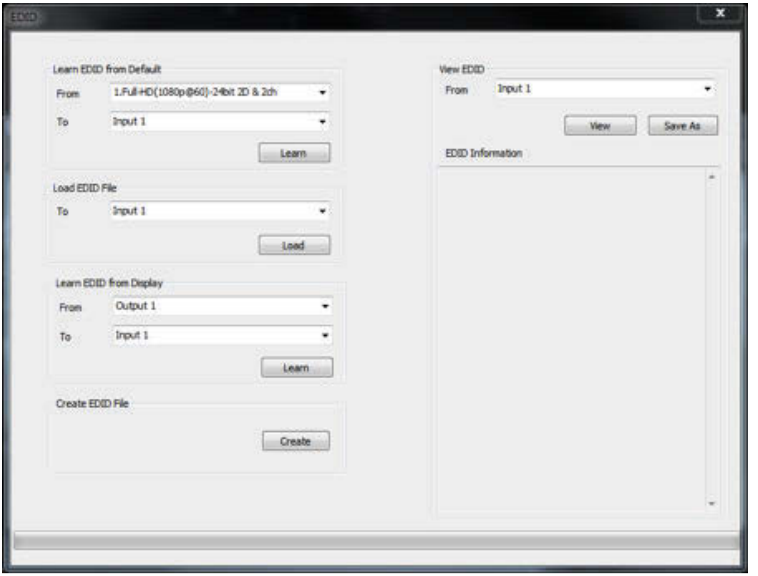
then data will show in left portion of each window output 1-4 (information)
- Go to STEP 1 portion and verify the values. If needed, enter new values on the ***Horizontal Start/End*** and ***Vertical Start/End*** then click ***Calculate***. 

The calculated result will be displayed in the *INFORMATION* portion.
- Go to STEP 2 to split or fine tuning the setup value.
- STEP 3, update the setting to device by selecting ***Update Setting to Device*** 



- **Output 1 true Output 4:** Setting image size for Display output 1 true 4
- **Grouping Setting:** Setting your TV Wall Display
- **TV Wall Calculator:** Calculate the display area for each display, you need to know the Outer and Inner screen size.
- **Input Range:** Input resolution displaying.
- **Selected Area:** Setting the output area for the specific output to be displayed.
- **Init X:** Start value at X axis for image to be displayed
- **Init Y:** Start value at Y axis for image to be displayed
- **H Start:** Adjust the image Higher or lower at Y axis (Horizontal) from the Start value
- **V Start:** Adjust the image wide or thin at X axis (Vertical) from the Start value
- **Split:** Divide Height value and Vertical value in values of 1 true 10
- **Masking:** Fine Tune
- **Change Output Resolution:** Select preset output resolution

9. EDID Button 



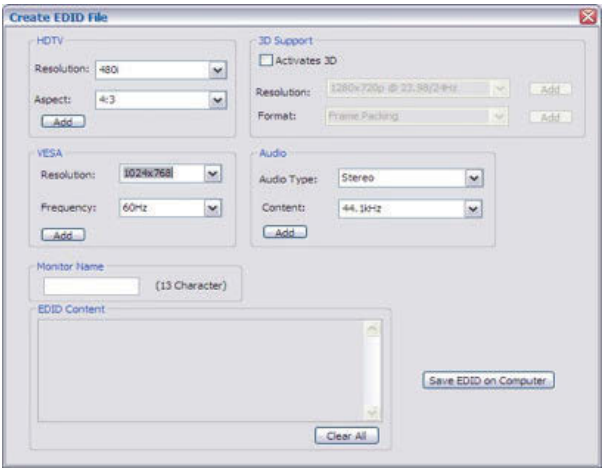
1. Learn EDID from Default
- Select one of the eight preset Default EDID at “From”
- Select the Input (1 thru 4) at “To”
- Select “Learn” button to learn default EDID for that specific input

2. Load EDID File to Input
- Select the Input that you want to load the EDID (1 thru 4) at “To”
- Select “Load” button to load the EDID file to the input

3. Learn EDID from Display
- Select the Output (1 thru 4) at “From”
- Select the Input (1 thru 4) at “To”
- Select “Learn” button to learn the display EDID to the source.

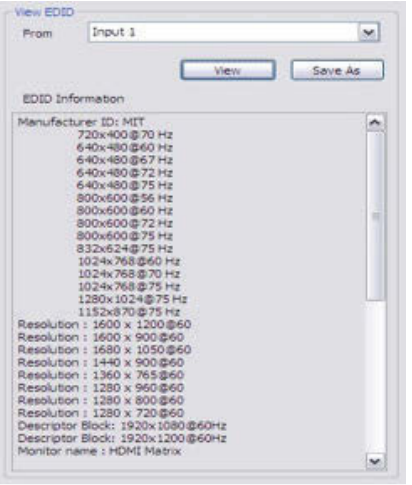
4. Create EDID File

- Select “Create” button to create EDID file
- Select the “EDID content”
- Select the “HDTV”, “VESA”, “Audio”, “3D support”, and add the “Monitor Name”
- Select “Save EDID on Computer” to save the generated EDID



5. View EDID Content

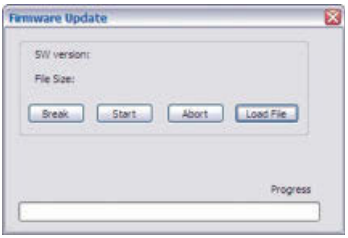
- Select Input (1 thru 4), HDMI output (1 thru 4), or From File
- Select “View” button to read the EDID and analysis
- Select “Save As” to save the read EDID as a file on the computer



10. Firmware Update Button 

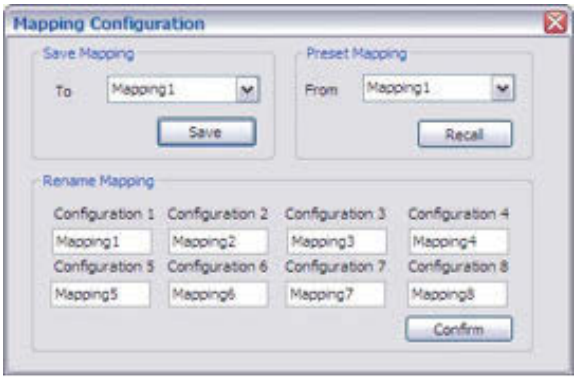
Make sure the RS-232 cable is connect to the computer and the **DVPS44** unit, the RS232 button is selected on the software and the connecting status is ***connected***

- Select *FIRMWARE UPDATE*
- Select ***Load File*** to select the firmware file which you want to update
- Select ***Break*** to disconnect and reconnect the power input connector
- Select ***Start*** and the new firmware will start loading



11. Network Setting Button (NOT AVAILABLE) 

12. Mapping Button 



Save Mapping:

- Select *Mapping* (1 thru 8)
- Select ***Save*** to save the select mapping

Preset Mapping:

- Select *Mapping* (1 thru 8)
- Select ***Recall*** to recall previously saved mapping

Rename Mapping:

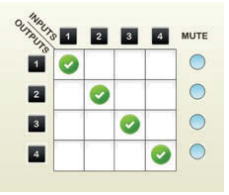
- Enter the new name for the Mapping you want to rename
  (Configuration 1 True Configuration 8)
- Select ***Confirm*** to save the new name of the selected configuration

13. Default Reset Button 

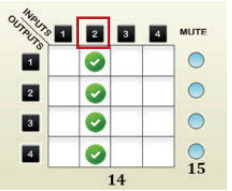
Select this button to do factory default reset. All settings previously made will be lost. The default reset process will take about 80~90 seconds.

14. In/Out Switch Button

- Click the button on the checkerboard to select Input & Output port

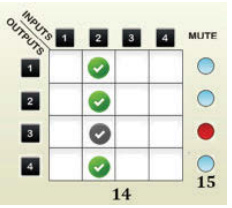


- If the input number button (1 thru 4) is selected, all outputs select that same input. *Ex: All outputs select input 2



15. Mute Output Button

- Click the mute button for the Output you want to mute (Turn OFF) video and audio. *Ex: Mute Output 3



EDID LEARNING FUNCTION

The EDID learning function is only necessary when encountering any display on the HDMI output port that cannot play audio and video properly. Because the HDMI source devices and displays may have various levels of capability in playing audio and video. The general principle is that the source device will output the lowest standards in audio format and video resolutions to be commonly acceptable among all HDMI displays. In this case, a 720p stereo HDMI signal output would most likely be the safest choice. The user can force the **DVPS44** to learn the EDID of the lowest capable HDMI display among the others to make sure all displays are capable to display the HDMI signals normally.

There are **THREE** methods to do EDID Learning:

– Please refer to the Operation Approach: **Software Control through RS-232 Port** (Pg:15~21)

1. Using the front panel:
   See referred section: By Front Panel Push-Buttons
   4– Default EDID Mode
   5– EDID Learning Mode

2. Using the IR Remote Control:
   See referred section: By IR Remote Control
   • Learn default EDID & Learn Output EDID

3. Software Control:
   See referred section: Software Control
   9– EDID Button

There are six embedded default EDID as show below:

1. Full-HD(1080p@60)-24bit 2D & 2ch
2. Full-HD(1080p@60)-24bit 2D & 7.1ch
3. HD(1080i@60) (720p@60)-24bit 2D & 2ch
4. HD(1080i@60) (720p@60)-24bit 2D & 7.1ch
5. Full-HD(1080p@60)-30bit 2D & 2ch
6. Full-HD(1080p@60)-30bit 2D & 7.1ch

WARRANTY

CE labs warrants the **DVPS44** Video Wall Processor and Matrix Switch 4x4 HDMI Scaler, free from defects in the material and workmanship for 1 year from the date of purchase from the CE labs or an authorized dealer. Should this product fail to be in good working order within "One" year warranty period, CE labs, at its option, repair or replace the unit, provided that the unit has not been subjected to accident, disaster, abuse or any unauthorized modifications, including **static discharge and power surge**. This warranty is offered by CE labs for its BUYER with direct transaction only. This warranty is void if the **warranty seal** on the metal housing **is broken**.

Unit that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for 90 days from the day of reshipment to the BUYER. If the unit is delivered by mail, customers agree to insure the unit or assume the risk of loss or damage in transit. Under no circumstances will a unit be accepted without a return authorization number (RMA#) to receive a RMA# call CE labs Technical support Department.

The warranty is in lieu of all other warranties expressed or implied, including without limitations, any other implied warranty or fitness or merchantability for any particular purpose, all of which are expressly disclaimed.

Proof of sale may be required in order to claim warranty. Customers outside The continental USA are responsible for shipping charges to and from CE labs. Cables and power adapters are limited to a 30 days warranty and must be free from any markings, scratches, and neatly coiled.

The content of this manual has been carefully checked and is believed to be accurate. However, CE labs assumes no responsibility for any inaccuracies that may be contained in this manual. CE labs will NOT be liable for direct, indirect, incidental, special, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. Also, the technical information contained herein regarding The **DVPS44** Video Wall Processor and Matrix Switch 4x4 HDMI Scaler features and specifications is subject to change without further notice.

INSTALLER NOTES

Purchasing Date: S/N:

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Purchasing Date: S/N:

CE labs can support many areas of your audio and video distribution needs.

We manufacture:

- Digital Signage software and Media Players
- HD Matrix Switchers
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- and cables of all types.

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WARRANTY

Cable Electronics, Inc. warrants this product to be free from defects in material and workmanship, under normal use and service, for a period of one year from the purchase by the original purchaser. If this product is defective or malfunctions, Cable Electronics will replace or repair this unit (at their option) within a reasonable time. No expressed or implied warranty is made for any defects caused by immersion or exposure to liquids, abuse, neglect, improper operation of unit, excess wear and tear and defects resulting from unauthorized disassembly and or modification.

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