Meicheng®

VW-1104 / VW-1109

9-Display Videowall Processor

User Manual

Made in Taiwan

www.meicheng.com.tw

Safety and Notice

The **VW-1109 9-Display Videowall Processor** has been tested for conformity to safety regulations and requirements, and has been certified for international use. However, like all electronic equipments, the VW-1109 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.

Table of Content

Introduction

General

The **VW-1109 9-Display Videowall Processor** is a powerful, most cost effective, and fully real time data/video processor for multiple flat panel displays or projectors. Thru DVI transmission, the quality of the outcome videos is guaranteed. The output display is grained up to 255 by 255 squares. Virtually any setups for the display layout can be possible by the provided software. The VW-1109 allows you to manipulate input videos, wherever position and whatever sizes you want for viewing. The embedded scaler converts signals from input sources to match the native resolution of monitors, flat panel displays, projectors as well as user-selectable output settings up to WUXGA (1920x1200). The VW-1109 sends the resulting mixed video thru DVI interface to the connected monitors/projectors based on the display layout. The layout can be readily modified to fit your applications and optimize visual effects. Typical applications include digital signage, and broadcasting/education/ surveillance systems etc.

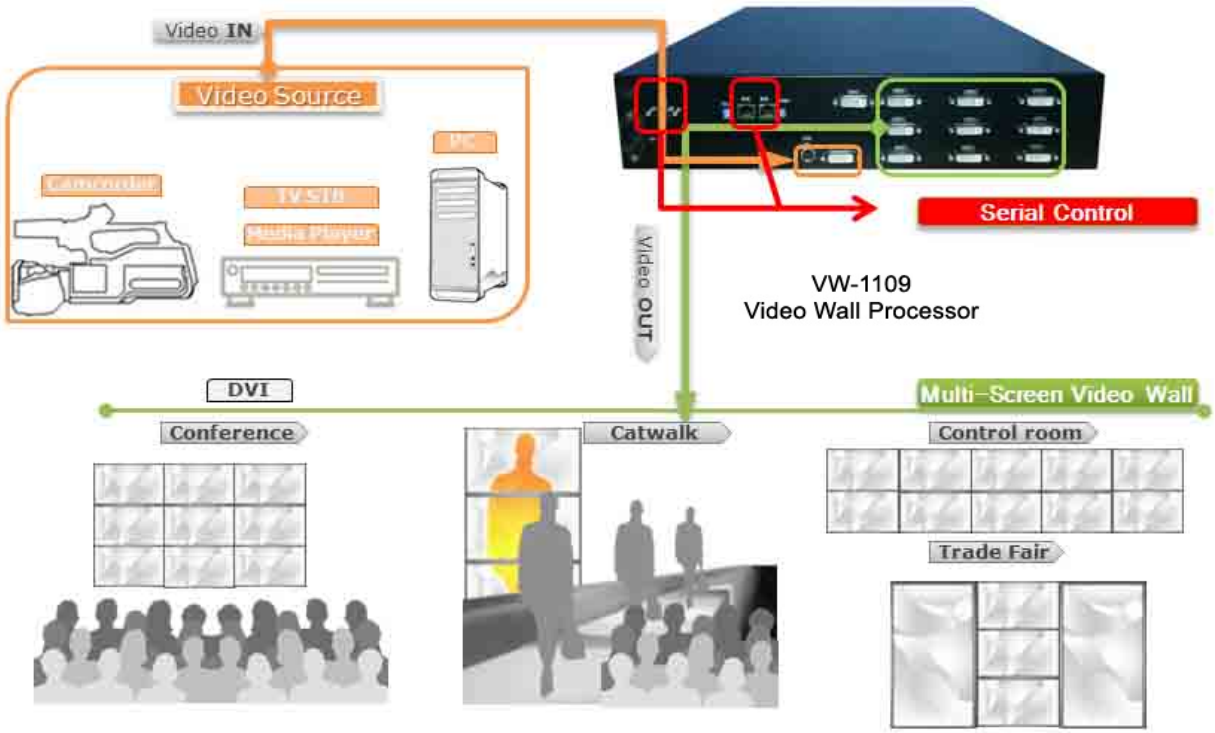


Figure 1: Configuration Diagram

Features

- Nine DVI outputs from 640x480 to 1920x1200 with a local loop out for monitoring
- Supports HDMI, DVI, VGA, Component, CVBS, and S-Video input
- Advanced video de-interlacer for improving 480i and 576i SD video input
- Each DVI output has an independent controllable display area
- Can be cascaded to obtain more displays
- Image parameters and layouts are automatically saved in flash memory and can be recalled for later use
- Several Image parameters and layouts can be saved in computers and can be loaded for later use
- User-selectable output settings, up to 1920x1200
- Built-in factory reset switch
- Firmware upgradable for support of new features and technology enhancements.
- Software control through RS-232/RS-485
- Built-in long distance RS-485 control port over Cat-5e
- 2U size

Specifications

Model Name		VW-1104	VW-1109
Role of usage		Video-wall processor	
Output displays		4	9
Video Format Support		HDMI/DVI/VGA/YPbPr/S-Video/CVBS	
Dual output support		Yes [DVI & VGA]	
Video loop-out		Yes [cascadable for larger displays] or [for monitor]	
HDCP compliance		No	
Video bandwidth		DVI [Single-link 4.95Gbps] VGA [165MHz]	
Video support		Up to 1920x1200@60 / 1600x1200@60	
Control		RS-232 / RS-485	
Embedded video mixer		NO	
Cascadable		Yes	
Input TMDS signal		1.2 Volts [peak-to-peak]	
ESD protection		Human body model — ±15kV [air-gap discharge] & ±8kV[contact discharge]	
PCB stack-up		8-layer board [impedance control — differential 100 ; single 50]	
Input		1x S-Video + 1x DVI + 1x RS-232 + 1x RS-485	
Output		4x DVI + 4x VGA / 1x Monitor DVI	9x DVI + 9x VGA / 1x Monitor DVI
DVI connector		DVI-I [29-pin female, digital only]	
RS-232 connector		DE-9 [9-pin D-sub female]	
RJ-45 connector		WE/SS 8P8C with 2 LED indicators	
Mechanical			
Housing		Metal case	
Dimensions (L x W x H)	Model	550 x 440 x 88mm [22” x 17” x 3. 5”]	
	Package	590 x 580 x 250mm [23” x 23” x 9. 8”]	
	Carton	590 x 580 x 250mm [23” x 23” x 9. 8”]	
Weight		7.9kg [17.4 lbs]	8.1kg [17.8 lbs]
Fixedness		2U rack-mount with ears	
Power supply		AC Power 100-240V	
Power consumption		30 Watts [max]	60 Watts [max]
Operation temperature		0~40°C [32~104°F]	
Storage temperature		-20~60°C [-4~140°F]	
Relative humidity		20~90% RH [no condensation]	
Package Contents		1x VW-1109 or VW-1104 1x UL AC power cord 1x RS-232 to USB adapter 1x DVI to VGA adapter 1x DVI to DVI&VGA breakout cable	1x VGA to Component breakout cable 1x Composite & S-video breakout cable 1x User Manual 1x Installation software CD 2x 2U rack mounting-ears

Package Contents

1. VW-1109

2. UL AC power cord

3. RS-232 to USB cable

4. 2U rack mounting-ears

5. DVI to VGA adapter (DVA01)

6. DVI to DVI&VGA breakout cable

7. VGA to Component breakout cable

8. Composite & S-video breakout cable

9. User Manual

10. Installation software CD

Note: Instruction of Input Cable Connection

Sources	Adapter	Cable	Rear device
HDMI	HDMI to DVI	DVI port of DVI to DVI&VGA breakout cable	DVI input
DVI	–	DVI port of DVI to DVI&VGA breakout cable	DVI input
VGA	–	VGA port of DVI to DVI&VGA breakout cable	DVI input
YPbPr	–	VGA to component breakout cable ↓ VGA port of DVI to DVI&VGA breakout cable	DVI input
S-Video	–	Composite & S-video breakout cable	S-Video input
CVBS	–	Composite & S-video breakout cable	S-Video input

Inputs and Outputs

The VW-1109 has six inputs (HDMI, DVI, VGA, YPbPr, CVBS, S-Video) and accepts both graphics and video signals, which come from computers and NTSC/PAL video sources respectively. You can pick up any of the inputs and VW-1109 will display and zoom it on the connected 9 displays. With an advanced de-interlacer built in, low resolution but popular video formats such as NTSC/PAL will be improved. Figure 2 shows the rear panel connectors for the video inputs of a VW-1109 and Table 1 illustrates how you can connect video devices and display to VW-1109.

Figure 2: Rear Panel

***Default: Turn on the VW-1109 then switch both two DIP switchers simultaneously up and down to factory default mode.**

***These IO ports support various resolution from 640x480 up to 1920x1200, for more detail of the supported modes, please refer to the Appendix – Supported Resolution.**

Hardware Installation

Safety Precautions

I. To prevent fire or shock hazards, do not expose this device to rain or moisture.

II. When connecting other products such as DVD players, and personal computers, you should turn off the power of this product for protection against electric shocks.

III. The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat. In addition, do not cover any material or devices on the top of the device.

IV. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation,

V. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult and serious damage to the product.

VI. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

VII. Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected. The video image could be burned in to the display device.

Installation Procedures

Unpacking

Remove the VW-1109 from the shipping container and examine it for any signs of shipping damage or missing items (check with package contents above). All shipping items should be saved if the product is to be moved or returned for service. Shipping unit back to dealers for service not in the original box may result in voiding warranty or additional cost.

Placement

The unit uses convection to cool. A fan is not needed, so do not block the sides of this device or stack another device on the top or bottom of the VW-1109.

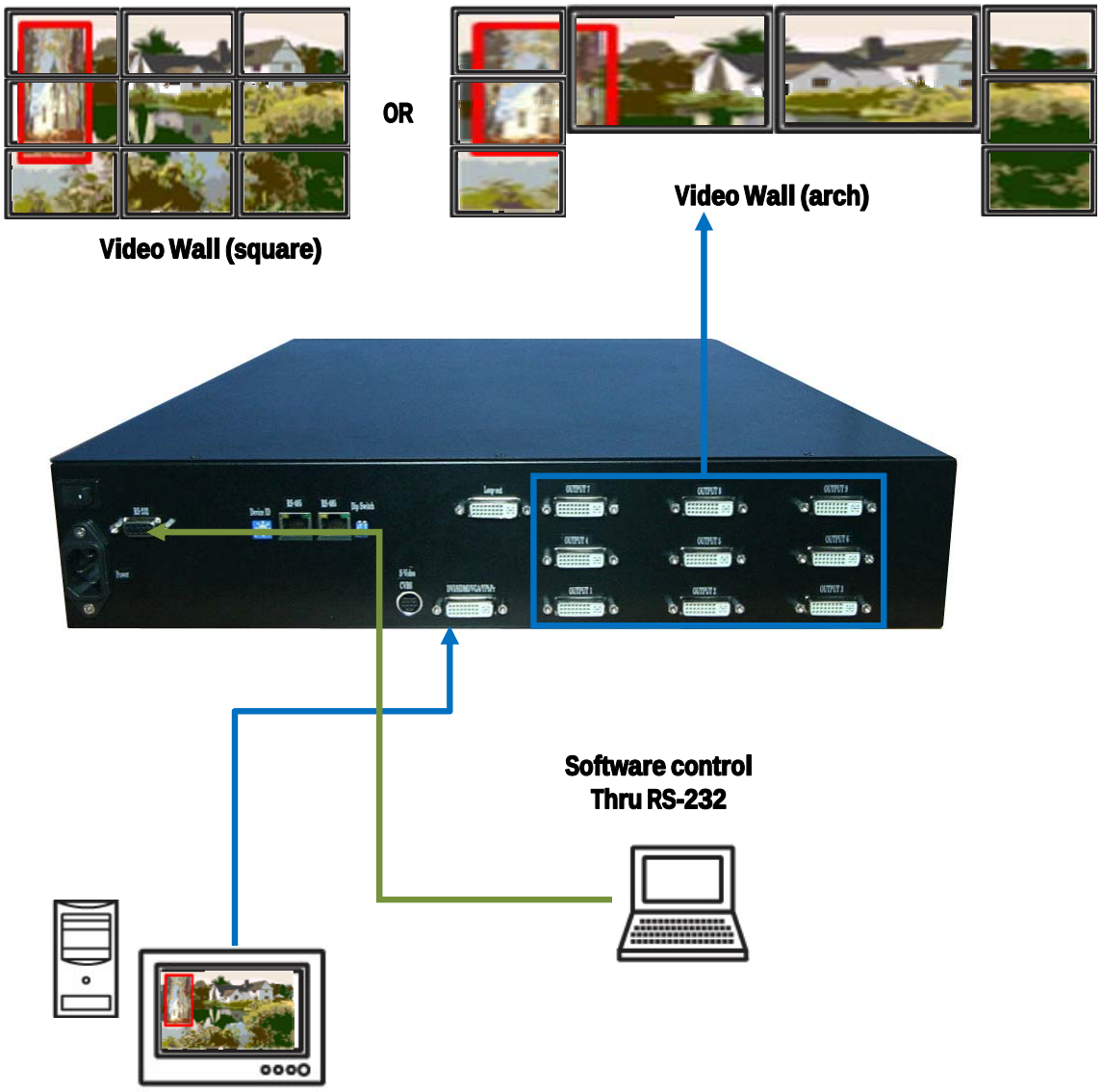
Connections

We recommend the highest quality cables for both input and output connections.

1. Switch off the VW-1109 and all devices that you want to connect.
2. Connect 9 monitors, projectors or other displays that comes with DVI inputs by using male-to-male DVI cables to VW-1109 DVI outputs.
3. Connect a device equipped with DVI output (such as PC) to the DVI input connector of VW-1109.
4. Connect your computer with the VW-1109 by a 9-pin RS-232 adapter and then install the software.

5. Power up the VW-1109.
6. Switch on all devices connected and then control the display output through RS-232 and software.

Figure 3: Connection Diagram



Operation Software

System Requirement and Precautions

1. Whenever power off VW-1109, please stay unpowered at least 5 to 10 seconds to allow power capacitors to discharge.
2. The VW-1109 provides a software control program which runs under Microsoft Windows 98, 2000, XP through the interface of RS-232 serial control.
3. Before you click on the icon of the software, make sure you have secured the connection between your computer COM port and the VW-1109.
4. The VW-1109 provides software control. To make sure all information shown in the software is synchronized with those in the device, please click “Connect” to acquire the latest data from the VW-1109 after you press any key on the remote control.

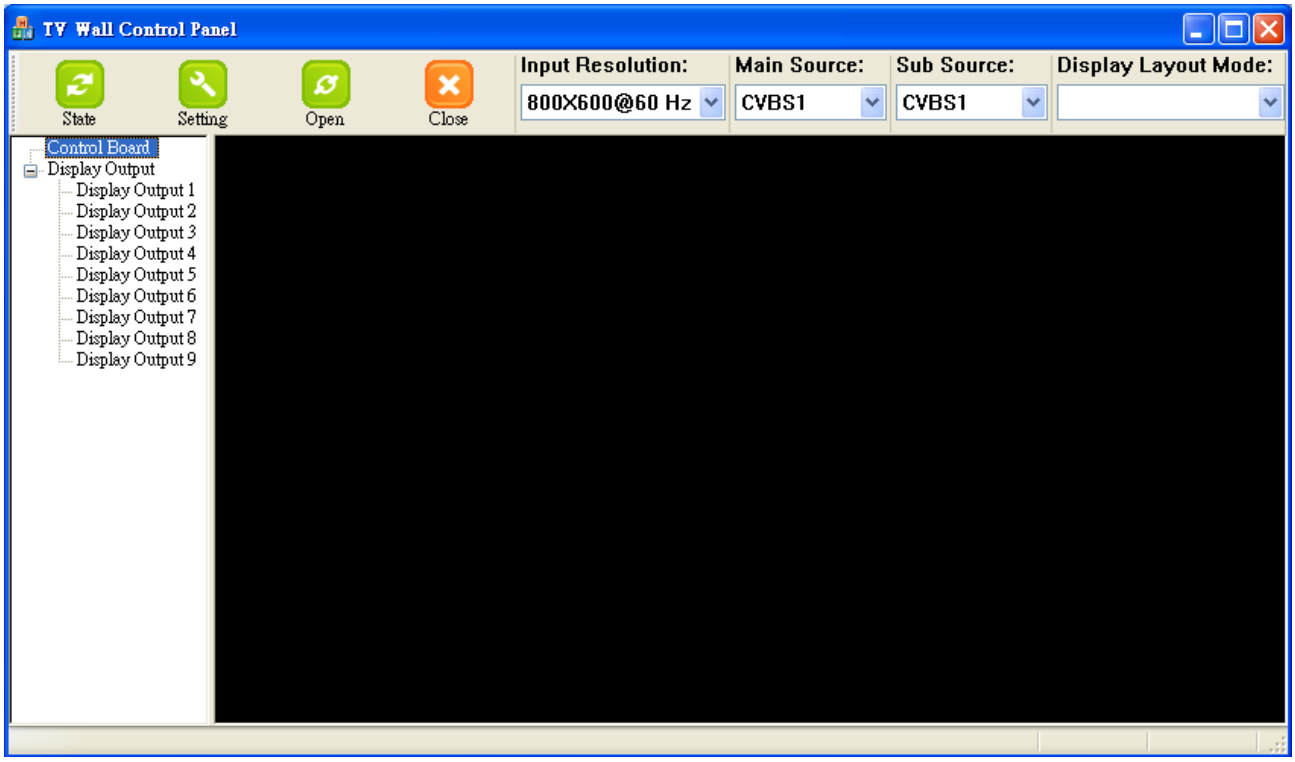
Instruction of Software Connection

1. Power up the VW-1109 and you can see Vacuum Fluorescent Display (VFD) on the front panel blinks. Make sure the serial port (RS-232 or RS-485) connection is secured.
2. The first step after running the software is to automatically detect if the device responses correctly through RS-232 port. The process takes 5-15 seconds. If the response is not accurate, a warning window will show up as the figure below.

The possible reasons causing this failure could be:

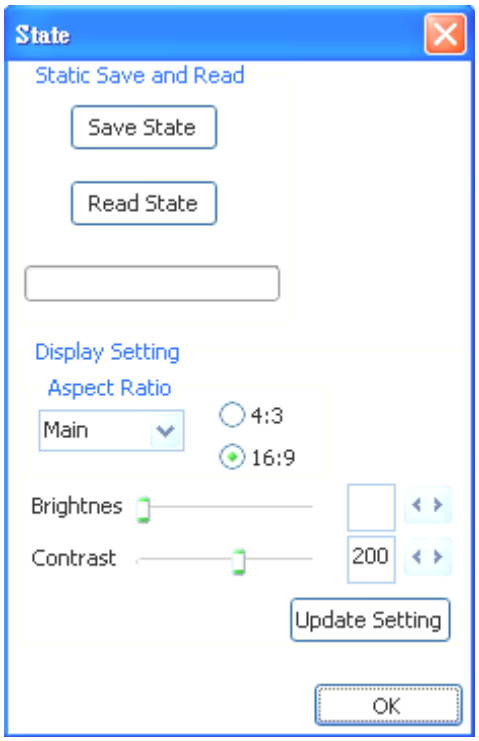
- ***The VW-1109 is not supplied with power or the VW-1109 enters deep sleep state. Please check the current status, and reboot the VW-1109.***
- ***The serial connection through RS-232 is not well established or some other software has taken the available serial ports. Please make sure the RS-232 cable is well connected and the available serial port is free to be used by the VW-1109.***

Main Control Panel



State

Overall state and format setting



1. Save and Read： The Current layout of the nine outputs can be saved to a file. And the file can be uploaded in the future to resume the setting.

2. Display Setting: The main and sub sources both can be adjusted to 16:9 or 4:3. The brightness and contrast of the mixed video also can be adjusted for different requirement. After setting, please press Update Setting to save the change.

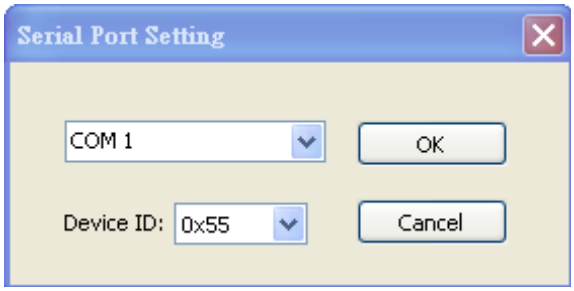
3. Firmware Ver.: To know the current firmware version of the device.

4. Color Balance: The color of the video can be automatically adjusted. But it works only when the source is analog and the mode is Full Screen.

Setting

Setting the correct COM port for serial control, and the device number for identification

Refer to rear of the device for device ID which can be manual adjusted. (Factory default: 0; software default: 0x55) Software default should be set the same as factory default value.



RS-232 Control

Baud Rate: 9600 [bps]
Data Length: 8 [bits]
Parity Bit: None
Stop Bit: 1 [bit]
Flow Control: None

Connect

Making control serial connected

Disconnect

Making control serial disconnected

Input Resolution

Setting the resolution of input

1. After 10 seconds, the new setting can be applied to VW-1109, but the input source and display layout mode will return to default.
2. Please reset input source and display layout mode

Main Source

Choosing one of the inputs as the main source

Sub Source

Choosing one of the inputs as the sub source

Display Layout Mode

Setting the layout of the main and sub sources in mixed video

3. Main Full Screen: Only main source is displayed in the mixed video
4. Sub Full Screen: Only sub source is displayed in the mixed video
5. PIP Mode: The main source is displayed as the background, and the sub source is downsized
6. Side by Side: The two inputs are displayed side by side
7. Custom Define PAP: User can adjust the layout of the two inputs source without any limitation

For each display, users can define which area of the input video is to be displayed. Fundamentally, setup the X Total and Y Total first, and then define the upper-left (X Start, Y Start) and bottom-right (X End, Y End) corners for each display channel. The control panel to achieve this goal is as shown.

1 This small area will demonstrate the resulting selection of the input video to be display for the selected output channel!

2 "**Original Input Video**" shows the resolution information of the input video to each output channel, and it will vary depending upon the input video.

"**Selected Area**" shows the information of the selected area to be displayed. The numbers will vary according to different settings.

3 "**Output Resolution**" Section

Setup the output resolution for individual output channel. Notice that each display can run at different resolutions to adapt more situations coming from different panels.

Check "**Capture Mode Enable**" will enable parameters effective. If users disable this selection, each output channel will display simply the full display of the input video.

Check "**Auto Apply Settings**" will automatically load the new settings into processor!

Clicking on "**Update Status**" will keep the information of the input video updated!

Clicking on "**Update Apply Settings**" will load the parameters into processor! While "**Auto Apply Settings**" is checked, users do not worry about settings changes.

4 Define XTotal, YTotal, Upper-left X, Y point coordinates using scroll bars or manually keying in this section accordingly! This section will roughly define these quantities which need for each individual channel. The resulting capture area corresponds to the input video will be illustrated in 1

5 "**Fine Tune by Percentage**" will provide the alternative to further adjust the position and area defined in 4 .

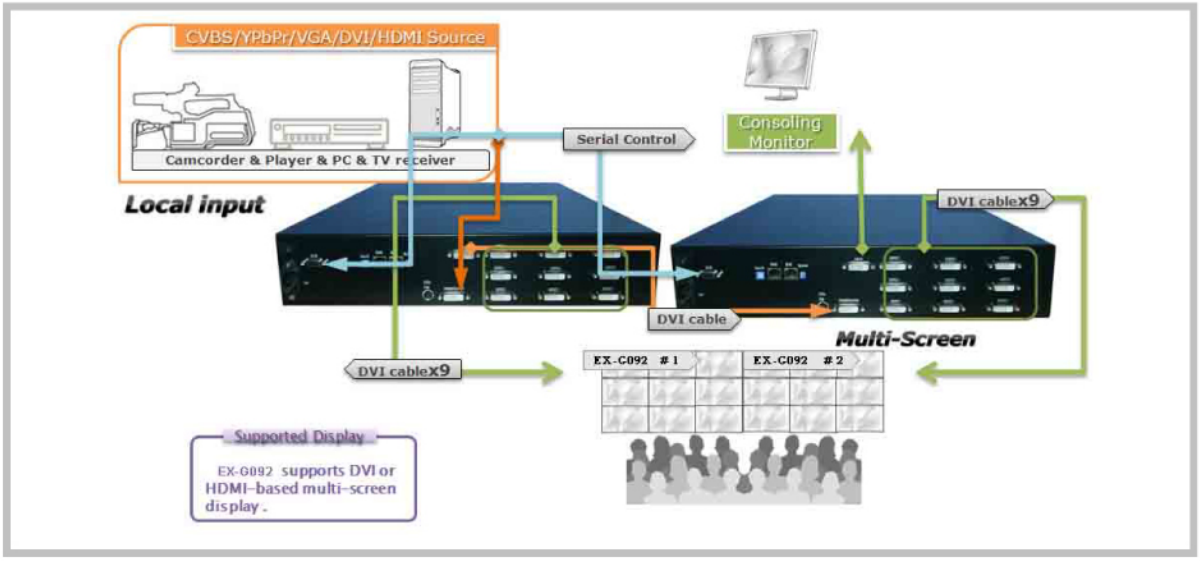
 For outward extension!

 For inward shrink.

By percentage, users need to determine what will be the reference. There are two choices for this part: "**Specified Area**" and "**Full Input**". Normally, "**Specified Area**" will work more appropriately while users are dealing with panel masking, because the overlapped masking area will be close the specified area instead of full input video!

6 "**Fine Tune by Pixel**" offers similar approach to adjust the position and area of the output channel! The idea behind this section is the same to "**Fine Tune by Percentage**". The difference is that the adjustment is based on pixel! Users can therefore adjust the output channel area pixel wise.

Cascading Devices



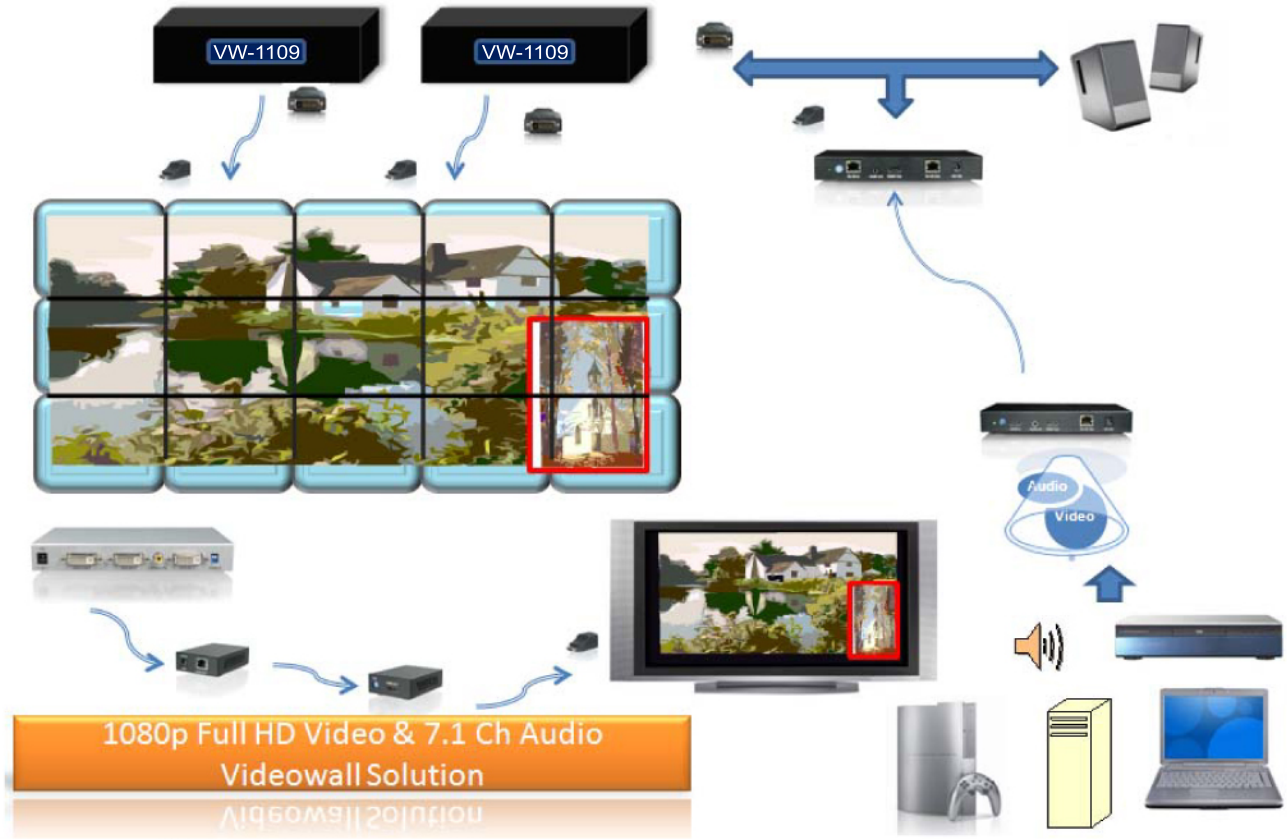


Diagram - Video Flow

Troubleshooting

Problem	Recommendations
No power	✓ Check if you firmly plug the AC power core into the VW-1109 ✓ If you are recovering from power outage, accidentally unplug the adapter or other power surge conditions, leave the device off for a while and then power it on again.
No/Erratic video	✓ Make sure all cables are in good working condition and properly connected to the VW-1109 and displays. ✓ Configure the output video resolution so that it doesn't excess the native resolution of the display. (in this case, the message of "out of range" is usually showed on your screen)
Poor quality	✓ We suggest that don't use T-connectors to split your video source into to images displayed on two different screens. That will lower output video quality. Use a distribution amplifier instead of T-connectors. ✓ Make sure the video source is not compressed and maintains the highest native resolution.
Wrong color	✓ Press "Color Balance" key for auto configuration. ***Auto color configuration only works at VGA and component inputs.***

Limited Warranty

The SELLER warrants the **VW-11099-Display Videowall Processor** to be free from defects in the material and workmanship for 1 year from the date of purchase from the SELLER or an authorized dealer. Should this product fail to be in good working order within 1 year warranty period, The SELLER, 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 surges.

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.

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 Taiwan are responsible for shipping charges to and from the SELLER. Cables are limited to a 30 day warranty and cable 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, The SELLER assumes no responsibility for any inaccuracies that may be contained in this manual. The SELLER 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 VW-1109 features and specifications is subject to change without further notice.

Appendix – Supported Resolution

[DVI-I IN] Socket

Supported Mode	Resolution
480P/525P	720x483 @60Hz
480P (16:9)	960x483 @60Hz
576P/625P	720x756 @50Hz
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080p	1920x1080 @30Hz
VESA	720x400 @85Hz
VESA	640x350 @85Hz
VESA	640x400 @85Hz
IBM	720x400 @70Hz
IBM	720x350 @70Hz
IBM	640x350 @70Hz
IBM	640x400 @70Hz
VESA	640x480 @60Hz
MAC	640x480 @67Hz
VESA	640x480 @72Hz
VESA	640x480 @75Hz
VESA	640x480 @85Hz
VESA	800x600 @56Hz
VESA	800x600 @60Hz
VESA	800x600 @72Hz
VESA	800x600 @75Hz
VESA	800x600 @85Hz

Supported Mode	Resolution
MAC	832x624 @75Hz
VESA	1024x768 @60Hz
MAC	1024x768 @60Hz
VESA	1024x768 @70Hz
IBM	1024x768 @72Hz
VESA	1024x768 @75Hz
MAC	1024x768 @75Hz
VESA	1024x768 @85Hz
VESA	1152x864 @75Hz
MAC	1152x870 @75Hz
SUN	1152x900 @66Hz
SUN	1152x900 @76Hz
VESA	1280x960 @60Hz
VESA	1280x960 @85Hz
VESA	1280x1024 @60Hz
HP	1280x1024 @60Hz
IBM	1280x1024 @67Hz
HP	1280x1024 @72Hz
VESA	1280x1024 @75Hz
SUN	1280x1024 @76Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @60Hz

[DVI-I Out] Socket

Supported Mode	Resolution
(HDTV) 720p	1280x720 @50Hz
(HDTV) 720p	1280x720 @60Hz
(HDTV) 1080p	1920x1080 @60Hz
VESA	640x480 @60Hz
VESA	800x600 @60Hz
VESA	1024x768 @60Hz
VESA	1152x864 @75Hz
VESA	1280x1024 @60Hz
VESA	1280x1024 @50Hz
VESA	1280x768 @60Hz
VESA	1366x768 @60Hz
VESA	1400x1050 @60Hz
VESA	1400x1050 @50Hz
VESA	1152x864 @75Hz
VESA	1600x1200 @60Hz
VESA	1920x1200 @50Hz
VESA	1920x1200 @60Hz

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